

Introduction and Methodology

Microchip Technology Incorporated's (Microchip) semiconductor devices are assembled at our assembly facility outside Bangkok, Thailand, and by subcontracted assembly sites throughout the world. Frequently, the qualified Bill of Materials (BOM) will vary among assembly sites for a given package configuration. The majority of variation lies in the mold compound and/or the internal die attach material used. The semiconductor device material data presented is calculated using a mass balance methodology for the primary qualified assembly site or the most commonly produced BOM.

RoHS Recast or "RoHS2:

The European Union published a revision ("recast") of the Restriction of Hazardous Substances (RoHS) in Electrical and Electronic Equipment Directive (Directive 2002/95/EC) on July 1, 2011. The original RoHS Directive was adopted on January 27, 2003. It was recast by the European Parliament and Council on June 8, 2011 and is often referred to as "RoHS II". There are no additions to or differences in the six restricted substances. Electronic piece parts; like IC/semiconductors, are not required to have or maintain "technical documentation" in line with Module A of Annex II to Decision No 768/2008/EC in accordance with article 7b of Directive 2011/65/EU. Microchip semiconductor products or devices still fall under the same conditions they were under the old RoHS declarations. Piece parts (IC) are still not classified as EEE.

- Microchip's plastic semiconductor products are still approved for RoHS required designs without exemption.
- All Ceramic packaged products still contain Pb (lead) and are not recommended for RoHS required applications.
- FET/PDFN packages utilize EU exemption 7(a) Pb (lead) in high melting temperature type solders (i.e. lead-based alloys containing 85% by weight or more lead).

Ozone Depleting Materials

Microchip Technology Incorporated's semiconductor devices neither contain nor are manufactured with Class I or Class II Ozone Depleting Chemicals ("ODCs"). For purposes of this document "ODCs" are those substances listed in 40CFR82A App A, and 40CFR82A App B, July 1, 2008.

Brominated Flame Retardant Polymers

Beginning 1 July 2009, Microchip production locations were qualified as Halogen-Free as defined per IEC 61249-2-21:2003: Bromine (Br) \leq 900 and Chlorine (CI) \leq 900 ppm by homogeneous material weight. With total Bromine (Br) plus Chlorine (CI) content \leq 1,500 ppm by homogeneous material weight. Additionally, Antimony Trioxide (Sb2O3) is less than 1,000 ppm.



Plastic resin materials used in Microchip product packages meet the requirements of UL94V-0 flame classification unless otherwise stated on the product datasheets.

Prior to July 2009, Microchip's semiconductor devices may have contained Antimony Trioxide, [Sb2O3] (CAS # 1309-64-4) and one of two brominated (Br/B08) phenolic/epoxy polymers: CAS # 68541-56-0 or CAS # 40039-93-8 used in the flame retardant system of the molding compounds. Neither of these brominated phenolic/epoxy polymers are regulated by European Union's REACH Directive. Microchip's semiconductor devices do not contain pentaBDE or octaBDE, two brominated flame retardants regulated by European Union Directive 2003/11/EC (6 February 2003).

Substances of Concern

Microchip's semiconductor products may contain Nickel (Ni) in one or more of three applications:

- Nickel is one of the three plating materials used on the pins of the semiconductor, hence, the term Nickel (Ni) / Palladium (Pd) / Gold (Au) pin finish. The plating order is determined by the physical properties (adhesiveness) between each substance; Copper to Nickel to Palladium to Gold. Gold is the outer most substance, forming a shield around the Nickel and protecting against skin contact;
- Nickel is an alloying element in three lead frame alloys used by Microchip C194, C7025, and A42; and
- Nickel may be impurity in the matte tin plating.

Each occurrence is compliant with EU Directive 94/27/EC. Please consult the specific Material Content Declaration (MCD) for the estimated material content value.

The mold compounds used by Microchip and its sub-contract assembly houses to assemble Microchip's semiconductor devices **do not** contain inorganic particulate red phosphorous. Rather, prior to July 2009, diantimony trioxide was the primary inorganic flame retardant material in most mold compounds; one unique mold compound used a trade secret "metal hydroxide" instead of diantimony trioxide. Certain mold compounds **do not** contain an inorganic flame retardant.

Absence of Chemical Substances

If a chemical substance is absent from the spreadsheet reflecting its Bill of Materials at specific assembly site, its absence from the chemical substance list(s) means:

- The chemical substance is **NOT** an intentional ingredient in the semiconductor device; and
- To the best of Microchip's knowledge and belief as of the date of this document, there is no credible reason to believe that the unavoidable impurity concentration of the chemical substance, <u>if any</u>, is not below the threshold of regulatory concern for any regulatory scheme world-wide.



Recyclate Information (IMDS Format)

Amount of contained recyclate – as released?	0%
Amount of contained recyclate – as measured?	0%
Amount of contained recyclate – post industrial recyclate?	0 g / 0%
Amount of contained recyclate - post consumer recyclate?	0 g / 0%

Joint Industry Guide No. JIG-101 Ed. 4.1

Microchip semiconductor products meet the requirements of the Consumer Electronics Association (CEA), DIGITALEUROPE, and Japanese Green Procurement Survey Standardization Initiative (JGPSSI) Joint Industry Guide - Material Composition Declaration for Electro technical Products - JIG-101 Ed. 4.0. This guide represents industry-wide consensus on the relevant materials and substances that shall be disclosed by suppliers when those materials and substances are present in products.

Implementation of copper wire bond

(PdCu) Palladium Copper Wire provides superior electrical performance over (Au) Gold Wire. Using PdCu wire provides a hedge on rising prices that can affect the supply of gold available for manufacturing. Therefore, PdCu wire helps ensure a steady supply of components that can support your ongoing business needs. It is Microchip's intent to convert all applicable products within the next 18 to 24 month. This switching of wire bond materials does not change the environmental compliance or reporting category of any product. To facilitate the ease of material content reporting to both our suppliers and customers during this transition, all transitioned Palladium Copper Wire packages the content is group together.

Rare Earth Metals

Microchip semiconductor products and modules do not contain or use any of the set of seventeen rare earth metals. However, Microchip does use cerium as cerium oxide during a manufacturing process of the integrated circuit. The supplier for this chemical has taken steps to mitigate the reduction of the availability of cerium oxide. There is no anticipation of a shortage of this substance.

Packing Materials

To the best of our current knowledge and belief all product(s) shipment material(s) are compliant with Directive 2013/2/EU (Amending to EU 94/62/EC).

The protective tubes, end plugs and trays, reels and window envelopes used to hold the packing slip on the outer box in which the specific product is shipped may contain polyvinyl chloride (PVC) plastic with a total chorine content of more than 1,000 ppm.



Microchip Technology Incorporated's General Statement of Warranty

Microchip accepts no duty to notify any user of updates or changes. Further, the exclusive, limited product warranties provided by Microchip Technology Inc. and its subsidiaries are contained in Microchip's standard terms and conditions of sale. These are provided in Microchip's quotations, sales order acknowledgements, and invoices. Microchip shall not be liable for any damages, direct or indirect, consequential or otherwise, suffered by users or third parties as a result of the users' reliance on this document. It is the user is responsible for determining that such data and specifications are suitable and sufficient for all applications and any reasonable or foreseeable uses of the components or systems used or purchased.

AICROCHIP Semiconductor Device Ty	/pe: EB 03 (Lead) DDP	АК (F4)		nation Base A pper Alloy (C				nogeneous Materials: e.g. pc boards, displa		JEDEC 97 Product Marking and/or Pkg. Labeling e3
Basic Substance	CAS Number	"Contained In" Sub-Component	% Total Weight	mg/part	ppm	544.12	(mg) Total	Mold Compound	% ot Total Weight	39.21
Eused Silica	60676-86-0	Mold Compound	34.505	478.823	345.048		Fused Silica	60676-86-0	88.00	
Epoxy Resin 1	Trade Secret	Mold Compound	1.274	17.684	12.743		Epoxy Resin 1	Trade Secret	3.25	
Epoxy Resin 2	Trade Secret	Mold Compound	1.176	16.324	11.763		Epoxy Resin 2	Trade Secret	3.00	
Phenol Resin	Trade Secret	Mold Compound	1.764	24.485	17,645		Phenol Resin	Trade Secret	4.50	
Carbon Black	1333-86-4	Mold Compound	0.098	1.360	980		Carbon Black	1333-86-4	0.25	
Undeclared	Trade Secret	Mold Compound	0.392	5,441	3,921		Undeclared	Trade Secret	1.00	
Copper	7440-50-8	Lead Frame	58,494	811.716	584,936			Total		
Tin	7440-31-5	Lead Frame	0.099	1.368	986	828.87	(mg) Total	Lead Frame	% of Total Weight	59.73
Silver	7440-22-4	Lead Frame	1.138	15,790	11.379	020.07	Copper	7440-50-8	97.93	55.15
Silver (Ag)	7440-22-4	Die Attach	0.086	1.198	864		Tin	7440-30-8	0.17	
Proprietary Resin	Trade Secret	Die Attach	0.020	0.282	204		Silver	7440-31-5	1.91	
Proprietary Curing agent & Hardener	Trade Secret	Die Attach	0.020	0.282	33		Silver	7440-22-4 Total		
Silicon	7440-21-3		0.270	3.747	2.700	4.50				
		Chip (Die)		-	1	1.53	(mg) Total	Die Attach	% of Total Weight	0.11
Gold	7440-57-5	Wire Bond	0.070	0.971	700		Silver (Ag)	7440-22-4	79	
Tin	7440-31-5 Plating	on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	0.610	8.465	6,100		Proprietary Resin	Trade Secret	19	
		TOTALS:	100.000	1,387.700	1,000,000	Prop	rietary Curing agent & Hard		3	
	1.3877 g To	otal Mass						Total	100.00	
	ply with EU Directive 2002/9	5/EC (RoHS Directive), EU Directive 2011/65/EU (RoH	IS Recast Direc	tive) and with	EU	3.75	Total (mg)	Chip (Die)	% of Total Weight	0.27
is semiconductor device and its homogenous materials com ective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). mpliance with the above EU Directives has been verified via	internal design controls, sup	plier declarations, and /or analytical test data.				3.75	Total (mg) Silicon	7440-21-3	100	0.27
ective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). mpliance with the above EU Directives has been verified via chemical substance is absent from the list above, the chem orporated's knowledge and belief as of the date of this docu r, is not below the threshold of regulatory concern for any re	internal design controls, sup ical substance is NOT an into ment, there is no credible rea gulatory scheme world-wide	pplier declarations, and /or analytical test data. entional ingredient in the semiconductor device and ason to believe that the unavoidable impurity conce	, to the best of ntration of the	Microchip Teo chemical subs	:hnology		Silicon	7440-21-3 Total	100	
ective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). mpliance with the above EU Directives has been verified via chemical substance is absent from the list above, the chem orporated's knowledge and belief as of the date of this docu /, is not below the threshold of regulatory concern for any re Iding compounds used by Microchip meet the UL94 V0 flam p://ul.com/global/eng/pages/offerings/industries/chemicals/p	internal design controls, sup ical substance is NOT an intr ment, there is no credible re gulatory scheme world-wide mability standard for plastics	pplier declarations, and /or analytical test data. entional ingredient in the semiconductor device and ason to believe that the unavoidable impurity conce s. You can access the UL iQTM family of databases t	, to the best of ntration of the o obtain a test	Microchip Tee chemical subs report at	chnology stance, if	3.75 0.97		7440-21-3	100	0.27
ective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). mpliance with the above EU Directives has been verified via chemical substance is absent from the list above, the chem orporated's knowledge and belief as of the date of this docu /, is not below the threshold of regulatory concern for any re Iding compounds used by Microchip meet the UL94 V0 flam	internal design controls, sup ical substance is NOT an intr ment, there is no credible re gulatory scheme world-wide mability standard for plastics	pplier declarations, and /or analytical test data. entional ingredient in the semiconductor device and ason to believe that the unavoidable impurity conce s. You can access the UL iQTM family of databases t	, to the best of ntration of the o obtain a test	Microchip Tee chemical subs report at	chnology stance, if		Silicon	7440-21-3 Total Wire Bond 7440-57-5	100 100.00 % of Total Weight 100	
ective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). mpliance with the above EU Directives has been verified via chemical substance is absent from the list above, the chem orporated's knowledge and belief as of the date of this docu /, is not below the threshold of regulatory concern for any re Iding compounds used by Microchip meet the UL94 V0 flam p//ul.com/global/eng/pages/offerings/industries/chemicals/p e protective "tubes" in which the specific product is shipped	internal design controls, sup ical substance is NOT an intr ment, there is no credible re- gulatory scheme world-wide mability standard for plastics lastics/ are made from polyvinyl ch this form concerning substa f its knowledge and belief, at been compiled based on the and some information may 1 and the average weight of a	opplier declarations, and /or analytical test data. entional ingredient in the semiconductor device and ason to believe that the unavoidable impurity concer- s. You can access the UL iQTM family of databases t loride (PVC) plastic. "Window envelopes" used to he ances restricted by RoHS in Microchip Technology In s of the date listed in this form. Microchip Technology ranges provided in Material Safety Data Sheets pro- tot have been provided by subcontract assemblers a nicicipated significant toxic metals components. The	, to the best of ntration of the o obtain a test old the packing ncorporated's s yy Incorporate vided by raw m	Microchip Tec chemical subs report at selip on the ou semiconducto d cannot guara aterial supplie	chnology stance, if iter box and r devices in intee the ers. Supplier formation is		Silicon (mg) Total	7440-21-3 Total Wire Bond	100 100.00 % of Total Weight	
ective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). mpliance with the above EU Directives has been verified via chemical substance is absent from the list above, the chem orporated's knowledge and belief as of the date of this docu /, is not below the threshold of regulatory concern for any re lding compounds used by Microchip meet the UL94 V0 flam p://ul.com/global/eng/pages/offerings/industries/chemicals/p e protective "tubes" in which the specific product is shipped tain "reels" may be made from PVC plastic. crochip Technology Incorporated believes the information in ir original packing materials is true and correct to the best o mpleteness and accuracy of data in this form because it has ormation is often protected from disclosure as trade secrets vvided only as estimates of the average weight of these parts	internal design controls, sup ical substance is NOT an inter ment, there is no credible re- gulatory scheme world-wide mability standard for plastics lastics/ are made from polyvinyl ch this form concerning substa f its knowledge and belief, at been compiled based on the and some information may a and the average weight of a lilcon devices (sillcon IC) in i anty, express or implied, with	pplier declarations, and /or analytical test data. entional ingredient in the semiconductor device and ason to believe that the unavoidable impurity concer- s. You can access the UL iQTM family of databases t loride (PVC) plastic. "Window envelopes" used to he ances restricted by RoHS in Microchip Technology in a of the date listed in this form. Microchip Technology ranges provided in Material Safety Data Sheets pro- ot have been provided by subcontract assemblers inticipated significant toxic metals components. The the finished parts.	, to the best of ntration of the o obtain a test old the packing ncorporated's i gy Incorporated vided by raw m and raw maters d use estimates d	Microchip Tec chemical subs report at semiconducto d cannot guara aterial supplie al supplieral sup	chnology stance, if iter box and r devices in untee the irs. Supplier formation is trace levels roduct		Silicon (mg) Total	7440-21-3 Total Wire Bond 7440-57-5	100 100.00 % of Total Weight 100	
ective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). mpliance with the above EU Directives has been verified via chemical substance is absent from the list above, the chem orporated's knowledge and belief as of the date of this docu r, is not below the threshold of regulatory concern for any re lding compounds used by Microchip meet the UL94 V0 flam p://ul.com/global/eng/pages/offerings/industries/chemicals/p e protective "tubes" in which the specific product is shipped tain "reels" may be made from PVC plastic. crochip Technology Incorporated believes the information in ir original packing materials is true and correct to the best o mpleteness and accuracy of data in this form because it has sormation is often protected from disclosure as trade secrets vided only as estimates of the average weight of these parts dopants, metals, and non-metal materials contained within s crochip Technology Incorporated does not provide any warra- ranties provided by Microchip Technology Incorporated and	internal design controls, sup ical substance is NOT an inter ment, there is no credible re- gulatory scheme world-wide mability standard for plastics lastics/ are made from polyvinyl ch this form concerning substa f its knowledge and belief, at been compiled based on the and some information may i and the average weight of a lilicon devices (silicon IC) in i anty, express or implied, with i tis subsidiaries are contain these to Material Content Dec	pplier declarations, and /or analytical test data. entional ingredient in the semiconductor device and ason to believe that the unavoidable impurity concer- s. You can access the UL iQTM family of databases t loride (PVC) plastic. "Window envelopes" used to he ances restricted by RoHS in Microchip Technology In s of the date listed in this form. Microchip Technology ranges provided in Material Safety Data Sheets pro- to have been provided by subcontract assemblers in inticipated significant toxic metals components. The the finished parts. In respect to the information provided in this declarat ed in Microchip's standard terms and conditions of larations and shall not be liable for any damages, di	, to the best of ntration of the o obtain a test old the packing ncorporated's s gy Incorporated vided by raw m and raw materi se estimates d tion. The exclus sale. These are rect or indirect	Microchip Tec chemical subs report at semiconducto d cannot guara taterial supplies. In lo not include sive, limited p provided in N , consequentia	chnology tance, if iter box and r devices in intee the ers. Supplier formation is trace levels roduct licrochip's al or	0.97	(mg) Total Gold	7440-21-3 Total Wire Bond 7440-57-5 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1	100 100.00 % of Total Weight 100 100.00	0.07

AICROCHIP Semiconductor Device		nation Base A pper Alloy (C		Package Homogeneous Materials: 8.1 Electronics (e.g. pc boards, displays)				JEDEC 97 Product Marking and/or Pkg. Labeling e3		
	· ,	"Contained In"	% I otal			526.92	()= ()			26.56
Basic Substance	CAS Number	Sub-Component	Weight	mg/part	ppm	526.92	(mg) Total	Mold Compound	% ot Total Weight	20.00
Fused Silica	60676-86-0	Mold Compound	23.373	463.693	233,728		Fused Silica	60676-86-0	88.00	
Epoxy Resin 1	Trade Secret	Mold Compound	0.863	17.125	8,632		Epoxy Resin 1	Trade Secret	3.25	
Epoxy Resin 2	Trade Secret	Mold Compound	0.797	15.808	7,968		Epoxy Resin 2	Trade Secret	3.00	
Phenol Resin	Trade Secret	Mold Compound	1.195	23.712	11,952		Phenol Resin	Trade Secret	4.50	
Carbon Black	1333-86-4	Mold Compound	0.066	1.317	664		Carbon Black	1333-86-4	0.25	
Undeclared	Trade Secret	Mold Compound	0.266	5.269	2,656		Undeclared	Trade Secret	1.00	
Copper	7440-50-8	Lead Frame	70.627	1401.171	706,271	-		Total	100.00	-
Tin	7440-31-5	Lead Frame	0.119	2.361	1,190	1430.79	(mg) Total	Lead Frame	% of Total Weight	72.12
Silver	7440-22-4	Lead Frame	1.374	27.257	13,739		Copper	7440-50-8	97.93	
Silver (Ag)	7440-22-4	Die Attach	0.071	1.402	707		Tin	7440-31-5	0.17	
Proprietary Resin	Trade Secret	Die Attach	0.017	0.330	167		Silver	7440-22-4	1.91	
Proprietary Curing agent & Hardener	Trade Secret	Die Attach	0.003	0.054	27	L L L L L L L L L L L L L L L L L L L		Total	100.00	•
Silicon	7440-21-3	Chip (Die)	0.620	12.300	6,200	1.79	(mg) Total	Die Attach	% of Total Weight	0.09
Gold	7440-57-5	Wire Bond	0.040	0.794	400		Silver (Ag)	7440-22-4	79	
Tin	7440-31-5	Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	0.570	11.308	5,700		Proprietary Resin	Trade Secret	19	
		TOTALS:	100.000	1.983.900	1.000.000	Proprietary	Curing agent & Hardener	Trade Secret	3	
	1 0920	g Total Mass		.,	.,,	riophotal	ouning agoint a maraonor	Total	100.00	1
semiconductor device and its homogenous materials of			IS Recast Direr	tive) and with	FU		I			
ective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). mpliance with the above EU Directives has been verified v	omply with EU Directive 2	002/95/EC (RoHS Directive), EU Directive 2011/65/EU (RoH s, supplier declarations, and /or analytical test data.		·		12.30	Total (mg) Doped Silicon	Chip (Die) 7440-21-3	% of Total Weight	0.62
ective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). npliance with the above EU Directives has been verified v chemical substance is absent from the list above, the ch orporated's knowledge and belief as of the date of this do , is not below the threshold of regulatory concern for any ding compounds used by Microchip meet the UL94 V0 fla	omply with EU Directive 2 via internal design control emical substance is NOT a ocument, there is no credil r regulatory scheme world ammability standard for pl	002/95/EC (RoHS Directive), EU Directive 2011/65/EU (RoH s, supplier declarations, and /or analytical test data. In intentional ingredient in the semiconductor device and ple reason to believe that the unavoidable impurity conce	, to the best of ntration of the	Microchip Teo	hnology	0.79	Doped Silicon	Chip (Die)	100	0.62
ective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). mpliance with the above EU Directives has been verified w chemical substance is absent from the list above, the ch orporated's knowledge and belief as of the date of this do , is not below the threshold of regulatory concern for any ding compounds used by Microchip meet the UL94 V0 fla ://ul.com/global/eng/pages/offerings/industries/chemical	omply with EU Directive 2 via internal design control emical substance is NOT a cument, there is no credit regulatory scheme world ammability standard for pl s/plastics/	002/95/EC (RoHS Directive), EU Directive 2011/65/EU (RoH s, supplier declarations, and /or analytical test data. In intentional ingredient in the semiconductor device and ple reason to believe that the unavoidable impurity conce wide.	, to the best of ntration of the co obtain a test	Microchip Teo chemical subs report at	chnology stance, if		,	Chip (Die) 7440-21-3 Total	100	
ective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). mpliance with the above EU Directives has been verified of chemical substance is absent from the list above, the che proprated's knowledge and belief as of the date of this dd is not below the threshold of regulatory concern for any ding compounds used by Microchip meet the UL94 V0 fla s/ul.com/global/eng/pages/offerings/industries/chemical protective "tubes" in which the specific product is shipp ain "reels" may be made from PVC plastic. rochip Technology Incorporated believes the information r original packing materials is true and correct to the bes upleteness and accuracy of data in this form because it h rmation is often protected from disclosure as trade secret	with EU Directive 2 via internal design control emical substance is NOT a coument, there is no credit regulatory scheme world ammability standard for pl s/plastics/ ped are made from polyvir n in this form concerning s it of its knowledge and bel as been compiled based o ets and some information arts and the average weigl	002/95/EC (RoHS Directive), EU Directive 2011/65/EU (RoH s, supplier declarations, and /or analytical test data. In intentional ingredient in the semiconductor device and ble reason to believe that the unavoidable impurity concer- wide. astics. You can access the UL iQTM family of databases t yl chloride (PVC) plastic. "Window envelopes" used to he substances restricted by RoHS in Microchip Technology II ief, as of the date listed in this form. Microchip Technology I n the ranges provided in Material Safety Data Sheets prov may not have been provided by subcontract assemblers i t of anticipated significant toxic metals components. The	, to the best of ntration of the o obtain a test old the packing ncorporated's : gy Incorporate vided by raw m and raw materi	Microchip Tec chemical subs report at slip on the ou semiconducto d cannot guara aterial suppliers. In al suppliers. In	chnology stance, if iter box and r devices in intee the res. Supplier information is		Doped Silicon (mg) Total	Chip (Die) 7440-21-3 Total Wire Bond	100 100.00 % of Total Weight	
Active 2002/53/EC (End-of-Life Vehicles (ELV) Directive). mpliance with the above EU Directives has been verified to chemical substance is absent from the list above, the che proprated's knowledge and belief as of the date of this do is not below the threshold of regulatory concern for any ding compounds used by Microchip meet the UL94 V0 fit protective "tubes" in which the specific product is shipp cain "reels" may be made from PVC plastic. rochip Technology Incorporated believes the information roriginal packing materials is true and correct to the bes spleteness and accuracy of data in this form because it h rmation is often protected from disclosure as trade secre- vided only as estimates of the average weight of these pa- lopants, metals, and non-metal materials contained withir rochip Technology Incorporated does not provide any we	omply with EU Directive 2 via internal design control emical substance is NOT a coument, there is no credit regulatory scheme world ammability standard for pl s/plastics/ bed are made from polyvir h in this form concerning s at of its knowledge and bel as been compiled based of ets and some information arts and the average weign n silicon devices (silicon arranty, express or implied	002/95/EC (RoHS Directive), EU Directive 2011/65/EU (RoH s, supplier declarations, and /or analytical test data. In intentional ingredient in the semiconductor device and ble reason to believe that the unavoidable impurity concer- wide. astics. You can access the UL iQTM family of databases t yl chloride (PVC) plastic. "Window envelopes" used to he substances restricted by RoHS in Microchip Technology II ief, as of the date listed in this form. Microchip Technology I n the ranges provided in Material Safety Data Sheets prov may not have been provided by subcontract assemblers i t of anticipated significant toxic metals components. The	, to the best of ntration of the o obtain a test old the packing ncorporated's i gy Incorporated gy Incorporated wided by raw m and raw materi ese estimates d tion. The exclu	Microchip Teo chemical subs report at slip on the ou semiconducto i cannot guara aterial supplie al suppliers. In o not include sive, limited p	chnology stance, if iter box and r devices in intee the irs. Supplier iformation is trace levels roduct		(mg) Total	Chip (Die) 7440-21-3 Total Wire Bond 7440-57-5	100 100.00 % of Total Weight 100	
ective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). mpliance with the above EU Directives has been verified to chemical substance is absent from the list above, the che orporated's knowledge and belief as of the date of this dd is not below the threshold of regulatory concern for any ding compounds used by Microchip meet the UL94 V0 fla ://ul.com/global/eng/pages/offerings/industries/chemical protective "tubes" in which the specific product is shipp iain "reels" may be made from PVC plastic. rochip Technology Incorporated believes the information r original packing materials is true and correct to the bes pleteness and accuracy of data in this form because it h inmation is often protected from disclosure as trade secre vided only as estimates of the average weight of these pa lopants, metals, and non-metal materials contained withir rochip Technology Incorporated does not provide any aver rations, sales order acknowledgement, and invoices. rochip disclaims any duty to notify users of updates or c	with EU Directive 2 via internal design control emical substance is NOT a coument, there is no credit regulatory scheme world ammability standard for pl s/plastics/ bed are made from polyvir h in this form concerning s at of its knowledge and bel as been compiled based of ets and some information arts and the average weigt a rat, express or implied and its subsidiaries are con hanges to Material Conter e users' reliance on the in	002/95/EC (RoHS Directive), EU Directive 2011/65/EU (RoH s, supplier declarations, and /or analytical test data. In intentional ingredient in the semiconductor device and be reason to believe that the unavoidable impurity concer- wide. astics. You can access the UL iQTM family of databases t yl chloride (PVC) plastic. "Window envelopes" used to ho substances restricted by RoHS in Microchip Technology In ief, as of the date listed in this form. Microchip Technology in the ranges provided in Material Safety Data Sheets pro may not have been provided by subcontract assemblers in t of anticipated significant toxic metals components. The C) in the finished parts.	, to the best of ntration of the co obtain a test old the packing ncorporated's : gy Incorporated vided by raw m and raw materi ese estimates d tion. The exclu sale. These are rect or indirect	Microchip Tec chemical subs report at slip on the ou semiconducto d cannot guara aterial suppliers. In o not include sive, limited p provided in N , consequentia	chnology stance, if iter box and r devices in untee the rs. Supplier iformation is trace levels roduct licrochip's al or	0.79	(mg) Total	Chip (Die) 7440-21-3 Total Wire Bond 7440-57-5 Total Plating on external leads (pins) - Matte Tin /	100 100.00 % of Total Weight 100 100.00	0.04

) DEN 2x2 mm (82 / 83)		nation Base A pper Alloy (C			JEDEC 97 Product Marking and/or Pkg. Labeling e3				
Semiconductor Device	Fighe. NC 00 (Lead	"Contained In"	% I otal	1						63
Basic Substance	CAS Number	Sub-Component	Weight	mg/part	ppm	7.49	(mg) Total	Mold Compound	% ot Total Weight	48
Silica, fused	60676-86-0	Mold Compound	43,200	6,739	432.000		Silica, fused	60676-86-0	90.00	
Epoxy Resin (NLP # 500-033-5)	Trade Secret	Mold Compound	2.328	0.363	23,280	Epox	y Resin (NLP # 500-033-5)	Trade Secret	4.85	
Phenolic Resin	Trade Secret	Mold Compound	2.328	0.363	23,280		Phenolic Resin	Trade Secret	4.85	
Carbon Black	1333-86-4	Mold Compound	0.144	0.022	1,440		Carbon Black	1333-86-4	0.30	
Copper	7440-50-8	Lead Frame	44.421	6.930	444,212			Total	100.00	
Tin	7440-31-5	Lead Frame	0.114	0.018	1,140	7.11	(mg) Total	Lead Frame	% of Total Weight	45.6
Silver	7440-22-4	Lead Frame	0.869	0.136	8,687		Copper	7440-50-8	97.42	
Zinc	7440-66-6	Lead Frame	0.082	0.013	821		Tin	7440-31-5	0.25	
Chromium	7440-47-3	Lead Frame	0.114	0.018	1,140		Silver	7440-22-4	1.91	
Silver	7440-22-4	Die Attach	0.187	0.029	1,872		Zinc	7440-66-6	0.18	
Acrylate resins Proprietary	Trade Secret	Die Attach	0.043	0.007	432		Chromium	7440-47-3	0.25	
Treated silica	Trade Secret	Die Attach	0.005	0.001	48			Total	100.00	-
Heterocyclic organic compound	Trade Secret	Die Attach	0.005	0.001	48	0.04	(mg) Total	Die Attach	% of Total Weight	0.24
Silicon	7440-21-3	Chip (Die)	1.640	0.256	16,400		Silver	7440-22-4	78	
Gold	7440-57-5	Wire Bond	0.400	0.062	4,000		Acrylate resins Proprietary	Trade Secret	18	
Tin	7440-31-5	Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	4.120	0.643	41,200		Treated silica	Trade Secret	2	
		TOTALS	100.000	15.600	1,000,000	Hete	rocyclic organic compound	Trade Secret	2	
	0.0156	g Total Mass						Total	100.00	-
semiconductor device and its homogenous materials of ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive).		002/95/EC (RoHS Directive), EU Directive 2011/65/EU (RoH	IS Recast Direc	tive) and with	EU	0.26	Total (mg)	Chip (Die)	% of Total Weight	1.64
pliance with the above EU Directives has been verified		s sumplier declarations and /or analytical test data					Doped Silicon	7440-21-3	100	1
	-						Bopod Omoon	Total	100.00	
prporated's knowledge and belief as of the date of this de is not below the threshold of regulatory concern for an	locument, there is no creding regulatory scheme world									
ding compounds used by Microchip meet the UL94 V0 f'										
	als/plastics/	lastics. You can access the UL iQTM family of databases to	o obtain a test	report at		0.06	(mg) Total	Wire Bond	% of Total Weight	0.4
://ul.com/global/eng/pages/offerings/industries/chemica protective "tubes" in which the specific product is ship	•	lastics. You can access the UL IQTM family of databases to nyl chloride (PVC) plastic. "Window envelopes" used to ho			iter box and	0.06	(mg) Total Gold	Wire Bond 7440-57-5	% of Total Weight	0.4
://ul.com/global/eng/pages/offerings/industries/chemica protective "tubes" in which the specific product is ship tain "reels" may be made from PVC plastic.	pped are made from polyvi		old the packing	slip on the ou		0.06			-	0.4
p://ul.com/global/eng/pages/offerings/industries/chemica e protective "tubes" in which the specific product is ship tain "reels" may be made from PVC plastic. crochip Technology Incorporated believes the informatio ir original packing materials is true and correct to the be mpleteness and accuracy of data in this form because it i prmation is often protected from disclosure as trade secr	oped are made from polyvi on in this form concerning est of its knowledge and be has been compiled based rets and some information parts and the average weig	hyl chloride (PVC) plastic. "Window envelopes" used to ho substances restricted by RoHS in Microchip Technology In lief, as of the date listed in this form. Microchip Technolog on the ranges provided in Material Safety Data Sheets prov may not have been provided by subcontract assemblers a ht of anticipated significant toxic metals components. The	old the packing ncorporated's s gy Incorporated vided by raw m and raw materi	semiconducto cannot guara aterial supplie al suppliers. Ir	r devices in antee the ers. Supplier aformation is	0.06		7440-57-5	100	0.4
b://ul.com/global/eng/pages/offerings/industries/chemica protective "tubes" in which the specific product is ship tain "reels" may be made from PVC plastic. rochip Technology Incorporated believes the information ir original packing materials is true and correct to the be npleteness and accuracy of data in this form because it I rrmation is often protected from disclosure as trade secr vided only as estimates of the average weight of these p lopants, metals, and non-metal materials contained with rochip Technology Incorporated does not provide any w	opped are made from polyvi on in this form concerning ust of its knowledge and be has been compiled based rets and some information parts and the average weig in silicon devices (silicon varranty, express or implie	hyl chloride (PVC) plastic. "Window envelopes" used to ho substances restricted by RoHS in Microchip Technology In lief, as of the date listed in this form. Microchip Technolog on the ranges provided in Material Safety Data Sheets prov may not have been provided by subcontract assemblers a ht of anticipated significant toxic metals components. The	old the packing ncorporated's : yy Incorporated vided by raw m and raw materi se estimates d tion. The exclu	slip on the ou semiconducto d cannot guara aterial supplie al suppliers. In o not include sive, limited p	r devices in antee the ers. Supplier nformation is trace levels roduct	0.06	Gold	7440-57-5	100	4.12
c://ul.com/global/eng/pages/offerings/industries/chemica protective "tubes" in which the specific product is ship ain "reels" may be made from PVC plastic. rochip Technology Incorporated believes the informatio r original packing materials is true and correct to the be pleteness and accuracy of data in this form because it I rmation is often protected from disclosure as trade secr vided only as estimates of the average weight of these p lopants, metals, and non-metal materials contained with rochip Technology Incorporated does not provide any w ranties provided by Microchip Technology Incorporated tations, sales order acknowledgement, and invoices.	opped are made from polyvi on in this form concerning est of its knowledge and be has been compiled based rets and some information parts and the average weig in silicon devices (silicon varranty, express or implie I and its subsidiaries are co- changes to Material Conte he users' reliance on the ir	hyl chloride (PVC) plastic. "Window envelopes" used to ho substances restricted by RoHS in Microchip Technology In lief, as of the date listed in this form. Microchip Technolog on the ranges provided in Material Safety Data Sheets prov may not have been provided by subcontract assemblers a ht of anticipated significant toxic metals components. The IC) in the finished parts.	old the packing ncorporated's i gy Incorporated yided by raw m and raw materi and raw materi se estimates d tion. The exclu sale. These are rect or indirect	semiconducto d cannot guara aterial supplie al suppliers. Ir o not include sive, limited p provided in N , consequentia	r devices in antee the ers. Supplier nformation is trace levels roduct licrochip's al or		Gold	7440-57-5 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1	100 100.00	
/uL.com/global/eng/pages/offerings/industries/chemica protective "tubes" in which the specific product is ship in "reels" may be made from PVC plastic. bochip Technology Incorporated believes the informatio original packing materials is true and correct to the be- bleteness and accuracy of data in this form because it I mation is often protected from disclosure as trade secr ded only as estimates of the average weight of these p pants, metals, and non-metal materials contained with bochip Technology Incorporated does not provide any w anties provided by Microchip Technology Incorporated ations, sales order acknowledgement, and invoices. bochip disclaims any duty to notify users of updates or o	opped are made from polyvi on in this form concerning est of its knowledge and be has been compiled based rets and some information parts and the average weig in silicon devices (silicon varranty, express or implie I and its subsidiaries are co- changes to Material Conte he users' reliance on the ir	hyl chloride (PVC) plastic. "Window envelopes" used to ho substances restricted by RoHS in Microchip Technology In lief, as of the date listed in this form. Microchip Technolog on the ranges provided in Material Safety Data Sheets prov may not have been provided by subcontract assemblers a ht of anticipated significant toxic metals components. The IC) in the finished parts. d, with respect to the information provided in this declarati ontained in Microchip's standard terms and conditions of s ht Declarations and shall not be liable for any damages, dir	old the packing ncorporated's i gy Incorporated yided by raw m and raw materi and raw materi se estimates d tion. The exclu sale. These are rect or indirect	semiconducto d cannot guara aterial supplie al suppliers. Ir o not include sive, limited p provided in N , consequentia	r devices in antee the ers. Supplier nformation is trace levels roduct licrochip's al or		Gold (mg) Total	7440-57-5 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	100 100.00 % of Total Weight	

Semiconductor Device Type: MF 08 (Lead) DFN 3x3 mm (A7 / AJ)							JEDEC 97 Product Markin and/or Pkg. Labeling e3			
Basic Substance	CAS Number	"Contained In" Sub-Component	% I otal Weight	mg/part	ppm	12.20	(mg) Total	Mold Compound	% ot Total Weight	51.24
Silica, fused	60676-86-0	Mold Compound	46.116	10.976	461,160		Silica, fused	60676-86-0	90.00	r
Epoxy Resin (NLP # 500-033-5)	Trade Secret	Mold Compound	2.485	0.591	24.851	Enox	(Resin (NLP # 500-033-5)	Trade Secret	4.85	
Phenolic Resin	Trade Secret	Mold Compound	2.485	0.591	24,851	Epon	Phenolic Resin	Trade Secret	4.85	
Carbon Black	1333-86-4	Mold Compound	0.154	0.037	1,537		Carbon Black		0.30	
Copper	7440-50-8	Lead Frame	38.576	9.181	385,763			Total	100.00	2
Tin	7440-31-5	Lead Frame	0.099	0.024	990	9.42	(mg) Total	Lead Frame	% of Total Weight	39.6
Silver	7440-22-4	Lead Frame	0.754	0.180	7,544		Copper	7440-50-8	97.42	
Zinc	7440-66-6	Lead Frame	0.071	0.017	713		Tin	7440-31-5	0.25	
Chromium	7440-47-3	Lead Frame	0.099	0.024	990		Silver	7440-22-4	1.91	
Silver	7440-22-4	Die Attach	0.733	0.175	7,332		Zinc	7440-66-6	0.18	
Acrylate resins Proprietary	Trade Secret	Die Attach	0.169	0.040	1,692		Chromium	7440-47-3	0.25	
Treated silica	Trade Secret	Die Attach	0.019	0.004	188			Total		
Heterocyclic organic compound	Trade Secret	Die Attach	0.019	0.004	188	0.22	(mg) Total	Die Attach	% of Total Weight	0.94
Silicon	7440-21-3	Chip (Die)	3.610	0.859	36,100		Silver		78	
Gold	7440-57-5	Wire Bond	1.470	0.350	14,700		Acrylate resins Proprietary	Trade Secret	18	
Tin	7440-31-5 Plati	ng on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	3.140	0.747	31,400		Treated silica	Trade Secret	2	
		TOTALS:	100.000	23.800	1,000,000	Hete	rocyclic organic compound	Trade Secret	2	
	0.0238 a 1	otal Mass						Total	100.00	
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). apliance with the above EU Directives has been verified	via internal design controls, su					0.86	Total (mg) Doped Silicon	Chip (Die) 7440-21-3 Total	% of Total Weight 100 100.00	
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). apliance with the above EU Directives has been verified chemical substance is absent from the list above, the c rporated's knowledge and belief as of the date of this of	via internal design controls, su hemical substance is NOT an in locument, there is no credible r	upplier declarations, and /or analytical test data. tentional ingredient in the semiconductor device and eason to believe that the unavoidable impurity concer	, to the best of	Microchip Tec	hnology	0.86			100	
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). opliance with the above EU Directives has been verified chemical substance is absent from the list above, the c	via internal design controls, su hemical substance is NOT an in locument, there is no credible r ny regulatory scheme world-wic lammability standard for plasti	upplier declarations, and /or analytical test data. tentional ingredient in the semiconductor device and eason to believe that the unavoidable impurity concer le.	, to the best of ntration of the	Microchip Tec chemical subs	hnology	0.86		7440-21-3	100	
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). pliance with the above EU Directives has been verified chemical substance is absent from the list above, the c rporated's knowledge and belief as of the date of this c is not below the threshold of regulatory concern for an ding compounds used by Microchip meet the UL94 V0 f	via internal design controls, su hemical substance is NOT an in locument, there is no credible r ny regulatory scheme world-wic lammability standard for plastic als/plastics/	upplier declarations, and /or analytical test data. tentional ingredient in the semiconductor device and eason to believe that the unavoidable impurity concer le. cs. You can access the UL iQTM family of databases t	, to the best of ntration of the co obtain a test	Microchip Tec chemical subs report at	hnology tance, if		Doped Silicon	7440-21-3 Total	100 100.00	
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). apliance with the above EU Directives has been verified chemical substance is absent from the list above, the c rporated's knowledge and belief as of the date of this c is not below the threshold of regulatory concern for an ding compounds used by Microchip meet the UL94 V0 if //ul.com/global/eng/pages/offerings/industries/chemic: protective "tubes" in which the specific product is ship ain "reels" may be made from PVC plastic.	via internal design controls, su hemical substance is NOT an in locument, there is no credible r ny regulatory scheme world-wic lammability standard for plasti als/plastics/ oped are made from polyvinyl c	upplier declarations, and /or analytical test data. tentional ingredient in the semiconductor device and eason to believe that the unavoidable impurity concer le. cs. You can access the UL iQTM family of databases t hloride (PVC) plastic. "Window envelopes" used to ho	, to the best of ntration of the co obtain a test old the packing	Microchip Teo chemical subs report at g slip on the ou	tance, if tarce, if		Doped Silicon (mg) Total	7440-21-3 Total Wire Bond	100 100.00 % of Total Weight 100	1.47
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). apliance with the above EU Directives has been verified chemical substance is absent from the list above, the c rporated's knowledge and belief as of the date of this c is not below the threshold of regulatory concern for at ding compounds used by Microchip meet the UL94 V0 if //ul.com/global/eng/pages/offerings/industries/chemical protective "tubes" in which the specific product is ship ain "reels" may be made from PVC plastic. cochip Technology Incorporated believes the informatic r original packing materials is true and correct to the be pleteness and accuracy of data in this form because it rmation is often protected from disclosure as trade sec rided only as estimates of the average weight of these opants, metals, and non-metal materials contained with	via internal design controls, su hemical substance is NOT an in locument, there is no credible r ny regulatory scheme world-wic lammability standard for plasti- als/plastics/ oped are made from polyvinyl c on in this form concerning subs sto of its knowledge and belief, has been compiled based on th rets and some information may parts and the average weight of in silicon devices (silicon IC) ir	upplier declarations, and /or analytical test data. tentional ingredient in the semiconductor device and eason to believe that the unavoidable impurity concer- le. cs. You can access the UL iQTM family of databases t hloride (PVC) plastic. "Window envelopes" used to he tances restricted by RoHS in Microchip Technology In as of the date listed in this form. Microchip Technology In as of the date listed in this form. Microchip Technology In a sof the date listed in this form. Microchip Technology In a sof the date listed in this form. Microchip Technology In a sof the date listed in this form. Microchip Technology In the tances provided in Material Safety Data Sheets pro- not have been provided by subcontract assemblers a anticipated significant toxic metals components. The the finished parts.	, to the best of ntration of the o obtain a test old the packing ncorporated's gy Incorporated yided by raw m and raw materi ese estimates c	Microchip Tec chemical subs report at g slip on the ou semiconducto d cannot guara naterial supplie al suppliers. Ir lo not include f	chnology tance, if iter box and r devices in intee the rs. Supplier formation is trace levels		Doped Silicon (mg) Total	7440-21-3 Total Wire Bond 7440-57-5	100 100.00 % of Total Weight 100	1.47
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). upliance with the above EU Directives has been verified chemical substance is absent from the list above, the c rporated's knowledge and belief as of the date of this c is not below the threshold of regulatory concern for an ding compounds used by Microchip meet the UL94 V01 ://ul.com/global/eng/pages/offerings/industries/chemic: protective "tubes" in which the specific product is ship ain "reels" may be made from PVC plastic. ochip Technology Incorporated believes the informatic or original packing materials is true and correct to the be pleteness and accuracy of data in this form because it rmation is often protected from disclosure as trade sec	via internal design controls, su hemical substance is NOT an in locument, there is no credible r yr regulatory scheme world-wic lammability standard for plasti- als/plastics/ oped are made from polyvinyl c en in this form concerning subs sto of its knowledge and belief, has been compiled based on th rets and some information may arts and the average weight of in silicon devices (silicon IC) ir varranty, express or implied, wi I and its subsidiaries are contai changes to Material Content De	upplier declarations, and /or analytical test data. tentional ingredient in the semiconductor device and eason to believe that the unavoidable impurity concer- le. 25. You can access the UL iQTM family of databases t hloride (PVC) plastic. "Window envelopes" used to he tances restricted by RoHS in Microchip Technology II as of the date listed in this form. Microchip Technology e ranges provided in Material Safety Data Sheets prov not have been provided by subcontract assemblers a anticipated significant toxic metals components. The the finished parts.	, to the best of ntration of the co obtain a test old the packing ncorporated's y Incorporate vided by raw m and raw materi see estimates o tion. The exclu sale. These are rect or indirect	Microchip Tec chemical subs report at g slip on the ou semiconductor d cannot guara haterial suppliers. Ir lo not include to sive, limited pri sive, limited pri provided in M	chnology tance, if nter box and r devices in intee the rs. Supplier formation is trace levels roduct licrochip's al or		Cold Gold (mg) Total (mg) Total	7440-21-3 Total Wire Bond 7440-57-5 Total	100 100.00 % of Total Weight 100	1.47
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). upliance with the above EU Directives has been verified chemical substance is absent from the list above, the c rporated's knowledge and belief as of the date of this of is not below the threshold of regulatory concern for an ling compounds used by Microchip meet the UL94 V0 i ://ul.com/global/eng/pages/offerings/industries/chemical protective "tubes" in which the specific product is ship ain "reels" may be made from PVC plastic. ochip Technology Incorporated believes the information or original packing materials is true and correct to the be pleteness and accuracy of data in this form because it rmation is often protected from disclosure as trade seed opants, metals, and non-metal materials contained witt ochip Technology Incorporated does not provide any vi- ranties provided by Microchip Technology Incorporated tations, sales order acknowledgement, and invoices. ochip disclaims any duty to notify users of updates or	via internal design controls, su hemical substance is NOT an in locument, there is no credible r y regulatory scheme world-wic lammability standard for plasti- als/plastics/ oped are made from polyvinyl c on in this form concerning subs sto of its knowledge and belief, , has been compiled based on th rets and some information may parts and the average weight of in silicon devices (silicon IC) ir varranty, express or implied, wi I and its subsidiaries are contai changes to Material Content De he users' reliance on the inform	upplier declarations, and /or analytical test data. tentional ingredient in the semiconductor device and eason to believe that the unavoidable impurity concer- le. 25. You can access the UL iQTM family of databases t hloride (PVC) plastic. "Window envelopes" used to he tances restricted by RoHS in Microchip Technology II as of the date listed in this form. Microchip Technology e ranges provided in Material Safety Data Sheets prov not have been provided by subcontract assemblers a anticipated significant toxic metals components. The the finished parts.	, to the best of ntration of the co obtain a test old the packing ncorporated's y Incorporate vided by raw m and raw materi see estimates o tion. The exclu sale. These are rect or indirect	Microchip Tec chemical subs report at g slip on the ou semiconductor d cannot guara haterial suppliers. Ir lo not include to sive, limited pri sive, limited pri provided in M	chnology tance, if nter box and r devices in intee the rs. Supplier formation is trace levels roduct licrochip's al or	0.35	Cold (mg) Total (mg) Total	7440-21-3 Total Wire Bond 7440-57-5 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	100 100.00 % of Total Weight 100 100.00	1.47

AICROCHIP Semiconductor Device Type: MD 08 (Lead) DFN 4x4 (M8) Contained In" %TC					Alloy: Cu)		s)	JEDEC 97 Product Markin and/or Pkg. Labeling e3		
	, i jpo:		% Total							
Basic Substance	CAS Number	Sub-Component	Weight	mg/part	ppm	19.20	(mg) Total	Mold Compound	% ot Total Weight	42.76
Silica, fused	60676-86-0	Mold Compound	38.484	17.279	384,840		Silica, fused	60676-86-0	90.00	
Epoxy Resin (NLP # 500-033-5)	Trade Secret	Mold Compound	2.074	0.931	20,739	Epox	xy Resin (NLP # 500-033-5)	Trade Secret	4.85	
Phenolic Resin	Trade Secret	Mold Compound	2.074	0.931	20,739		Phenolic Resin	Trade Secret	4.85	
Carbon Black	1333-86-4	Mold Compound	0.128	0.058	1,283		Carbon Black	1333-86-4	0.30	
Copper	7440-50-8	Lead Frame	44.970	20.191	449,695			Total	100.00	
Iron	7439-89-6	Lead Frame	1.106	0.497	11,061	21.13	(mg) Total	Lead Frame	% of Total Weight	47.07
Silver	7440-22-4	Lead Frame	0.897	0.403	8,967		Copper	7440-50-8	95.54	
Zinc	7440-66-6	Lead Frame	0.059	0.026	588		Iron	7439-89-6	2.35	
Phosphorous	7723-14-0	Lead Frame	0.039	0.017	388		Silver	7440-22-4	1.91	
Silver	7440-22-4	Die Attach	0.913	0.410	9,126		Zinc	7440-66-6	0.13	
Acrylate resins Proprietary	Trade Secret	Die Attach	0.211	0.095	2,106		Phosphorous	7723-14-0	0.08	l
Treated silica	Trade Secret	Die Attach	0.023	0.011	234 234		/	Total	100.00	
Heterocyclic organic compound	Trade Secret	Die Attach	0.023	0.011		0.53	(mg) Total	Die Attach	% of Total Weight	1.17
Silicon	7440-21-3	Chip (Die)	5.470 0.320	2.456	54,700		Silver	7440-22-4	78	
Doped Gold Tin	7440-57-5 7440-31-5 Plati	Wire Bond ing on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	3.210	0.144	3,200 32,100		Acrylate resins Proprietary Treated silica	Trade Secret Trade Secret	18	
1111	7440-31-5 Plat	ing on external leads (pins) - Matte 1 in / annealed at 150°C for 1 hour TOTALS:	100.000	44.900	1.000.000	Linte	erocyclic organic compound	Trade Secret	2	
			100.000	44.900	1,000,000	пеце	erocyclic organic compound	Tade Secret	2 100.00	l
	0.0449 g 1									
semiconductor device and its homogenous materials cative 2002/53/EC (End-of-Life Vehicles (ELV) Directive).	Smply with EO Directive 2002/9	S/EC (ROHS Directive), EU Directive 2011/65/EC	I (KOHS Keca	ist Directive) a	and with EU	2.46	(mg) Total	Chip (Die)	% of Total Weight	5.47
pliance with the above EU Directives has been verified	via internal design controls, su	pplier declarations, and /or analytical test data.					Doped Silicon			
the sector of a sub-state sector and fractions that the sub-sub-state set		••••		h	- h in		Doped Silicon	7440-21-3 Total	100 100.00	
nnology Incorporated's knowledge and belief as of the d nical substance, if any, is not below the threshold of reg	late of this document, there is r gulatory concern for any regula	no credible reason to believe that the unavoidal tory scheme world-wide.	ble impurity o	oncentration	of the			Total	100.00	
nnology Incorporated's knowledge and belief as of the d nical substance, if any, is not below the threshold of reg ting compounds used by Microchip meet the UL94 V0 fla	ate of this document, there is r gulatory concern for any regula ammability standard for plastic	no credible reason to believe that the unavoidal tory scheme world-wide.	ble impurity o	oncentration	of the	0.14	(mg) Total			
chemical substance is absent from the list above, the ch hnology Incorporated's knowledge and belief as of the d mical substance, if any, is not below the threshold of reg ding compounds used by Microchip meet the UL94 V0 fit ://ul.com/global/eng/pages/offerings/industries/chemical protective "tubes" in which the specific product is shipp and certain "reels" may be made from PVC plastic.	late of this document, there is r gulatory concern for any regula ammability standard for plastic Is/plastics/	no credible reason to believe that the unavoidal tory scheme world-wide. s. You can access the UL iQTM family of databa	ble impurity c	oncentration	of the	0.14		Total Wire Bond 7440-57-5	100.00 % of Total Weight 100	
hnology Incorporated's knowledge and belief as of the d mical substance, if any, is not below the threshold of reg ding compounds used by Microchip meet the UL94 V0 fla ://ul.com/global/eng/pages/offerings/industries/chemical protective "tubes" in which the specific product is shipp	late of this document, there is r gulatory concern for any regula ammability standard for plastic (s/plastics/ ped are made from polyvinyl ch n in this form concerning subst t to the best of its knowledge a rm because it has been compile nom disclosure as trade secrets nates of the average weight of t	no credible reason to believe that the unavoidal tory scheme world-wide. s. You can access the UL iQTM family of databa- nloride (PVC) plastic. "Window envelopes" used ances restricted by RoHS in Microchip Techno und belief, as of the date listed in this form. Micr ed based on the ranges provided in Material Sa and some information may not have been prov hese parts and the average weight of anticipate	ble impurity of ases to obtain I to hold the logy Incorpor rochip Techn fety Data She rided by sub-	oncentration n a test report packing slip o rated's semico ology Incorpo eets provided contract assec t toxic metals	of the at In the outer onductor orated cannot by raw mblers and	0.14	(mg) Total	Total Wire Bond	100.00 % of Total Weight	
hnology Incorporated's knowledge and belief as of the d mical substance, if any, is not below the threshold of reg ding compounds used by Microchip meet the UL94 V0 fla ://ul.com/global/eng/pages/offerings/industries/chemical protective "tubes" in which the specific product is ship and certain "reels" may be made from PVC plastic. Tochip Technology Incorporated believes the information ces in their original packing materials is true and correc rantee the completeness and accuracy of data in this for reial suppliers. Supplier information is often protected fr material suppliers. Information is provided only as estim	late of this document, there is r julatory concern for any regula ammability standard for plastic ls/plastics/ ped are made from polyvinyl ch n in this form concerning subst it to the best of its knowledge a rm because it has been compile om disclosure as trade secrets tates of the average weight of t als, and non-metal materials cc arranty, express or implied, wit porated and its subsidiaries ar	no credible reason to believe that the unavoidal tory scheme world-wide. s. You can access the UL iQTM family of databa- nloride (PVC) plastic. "Window envelopes" used ances restricted by RoHS in Microchip Techno ind belief, as of the date listed in this form. Micr ed based on the ranges provided in Material Sa and some information may not have been pro- hese parts and the average weight of anticipate initianed within silicon devices (silicon IC) in the th respect to the information provided in this det	ble impurity c ases to obtain I to hold the logy Incorpor ochip Techn fety Data She vided by sub- ad significant finished par aclaration. Th	encentration n a test report packing slip o rated's semice ology Incorpo gets provided toxic metals ts. e exclusive, li	of the at n the outer onductor rated cannot by raw mblers and components. mited	0.14	(mg) Total Doped Gold	Total Wire Bond 7440-57-5	100.00 % of Total Weight 100	0.32
nology Incorporated's knowledge and belief as of the d mical substance, if any, is not below the threshold of reg ling compounds used by Microchip meet the UL94 V0 fit //ul.com/global/eng/pages/offerings/industries/chemical protective "tubes" in which the specific product is shipp and certain "reels" may be made from PVC plastic. ochip Technology Incorporated believes the information ces in their original packing materials is true and correc rantee the completeness and accuracy of data in this for riral suppliers. Information is often protected fr material suppliers. Information is provided only as estim se estimates do not include trace levels of dopants, met ochip Technology Incorporated does not provide any w fuct warranties provided by Microchip Technology Incor	late of this document, there is r julatory concern for any regula ammability standard for plastic ls/plastics/ ped are made from polyvinyl ch in this form concerning subst it to the best of its knowledge a rom because it has been compilie om disclosure as trade secrets nates of the average weight of t als, and non-metal materials co arranty, express or implied, wit "porated and its subsidiaries ar id invoices. hanges to Material Content Dere e users' reliance on the inform	no credible reason to believe that the unavoidal tory scheme world-wide. s. You can access the UL iQTM family of databa- nloride (PVC) plastic. "Window envelopes" used ances restricted by RoHS in Microchip Techno ind belief, as of the date listed in this form. Micro ed based on the ranges provided in Material Sa and some information may not have been pro- hese parts and the average weight of anticipate intained within silicon devices (silicon IC) in the th respect to the information provided in this de e contained in Microchip's standard terms and clarations and shall not be liable for any damage	ble impurity c ases to obtain I to hold the logy Incorpor ochip Techn fety Data She vided by sub- ad significant e finished par aclaration. Th conditions o	encentration n a test report packing slip o rated's semicc ology Incorpo ests provided contract asses toxic metals ts. e exclusive, li f sale. These indirect, cons	of the at n the outer orated cannot by raw mblers and components. mited are provided equential or		(mg) Total Doped Gold	Total Wire Bond 7440-57-5 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for	100.00 % of Total Weight 100 100.00	0.32
nology Incorporated's knowledge and belief as of the d ical substance, if any, is not below the threshold of reg ng compounds used by Microchip meet the UL94 V0 fit /ul.com/global/eng/pages/offerings/industries/chemical rotective "tubes" in which the specific product is ship nd certain "reels" may be made from PVC plastic. chip Technology Incorporated believes the information es in their original packing materials is true and correc intee the completeness and accuracy of data in this for ial suppliers. Information is often protected fr iaterial suppliers. Information is provided only as estim a estimates do not include trace levels of dopants, met wict warranties provided by Microchip Technology Incor rochip's quotations, sales order acknowledgement, an chip disclaims any duty to notify users of updates or c wise, suffered by users or third parties as a result of th	late of this document, there is r julatory concern for any regula ammability standard for plastic ls/plastics/ ped are made from polyvinyl ch in this form concerning subst it to the best of its knowledge a rom because it has been compilie om disclosure as trade secrets nates of the average weight of t als, and non-metal materials co arranty, express or implied, wit "porated and its subsidiaries ar id invoices. hanges to Material Content Dere e users' reliance on the inform	no credible reason to believe that the unavoidal tory scheme world-wide. s. You can access the UL iQTM family of databa- nloride (PVC) plastic. "Window envelopes" used ances restricted by RoHS in Microchip Techno ind belief, as of the date listed in this form. Micro ed based on the ranges provided in Material Sa and some information may not have been pro- hese parts and the average weight of anticipate intained within silicon devices (silicon IC) in the th respect to the information provided in this de e contained in Microchip's standard terms and clarations and shall not be liable for any damage	ble impurity c ases to obtain I to hold the logy Incorpor ochip Techn fety Data She vided by sub- ad significant e finished par aclaration. Th conditions o	encentration n a test report packing slip o rated's semicc ology Incorpo ests provided contract asses toxic metals ts. e exclusive, li f sale. These indirect, cons	of the at n the outer orated cannot by raw mblers and components. mited are provided equential or		(mg) Total Doped Gold (mg) Total	Total Wire Bond 7440-57-5 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	100.00 % of Total Weight 100 100.00 % of Total Weight	0.32

Semicolitolicito de projeto y pje: m² n²	Semiconductor Device Type: MF 8 (Lead) DFN-S 6x5 mm (A6 / AW)							JEDEC 97 Product Marking and/or Pkg. Labeling e3			
Basic Substance CAS Number Sub-Component Weight mgggan pmg 37.7 (mg) Tail Mode Compound 44.12 Epory Feasi (Full P # 500-03.5) Trads Secret Mode Compound 2.322 1.332 2.422 1.332 2.422 1.332 2.422 1.332 2.422 1.332 2.422 1.332 2.422 1.332 2.422 1.332 2.422 1.332 2.422 1.332 2.422 1.332 <	Semiconductor Device	Type: IVIF O (Lead) L	. ,	W Tetal							es
Sites, function 0007-06-0 Mode Compound 4.4.200 33.956 44.200 Sites, function 00.00 Eproy Ren (RL # 5 00035.) Trade Secret Mode Compound 2.892 1.802 2.282 Period L Kain 4.85 Period L Kain	Pasia Substance	CAS Number			marks and		37.77	(mg) Total	Mold Compound	% ot Total Weight	49.12
$ \frac{1}{1000} \frac{1}{100$								0.1	00070 00 0	-	
Image: Description Task Stoce Mod Compound 2.32 1.83 2.823 1.83 2.823 Cathon Block 133.564 Mod Compound 0.174 0.016 0.117 Cathon Block 135.564 Mod Compound 0.174 Cathon Block 135.564 Mod Compound 0.174 Cathon Block 135.564 Mod Compound 0.174 Cathon Block 135.564 Mod Compound 10.747 Cathon Block 135.564 Mod Compound 145.774 Cathon Block 135.564 Mod Compound 146.85668 2 Total 135.5668 Mod Compound 146.85668 2 Total 135.5668 Mod Compound 146.85668 2 Total 135.5668 146.56688 2 166.366 127.777 146.36668 <t< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td>L Construction</td><td></td><td></td><td></td><td></td></t<>							L Construction				
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$ \frac{\ln n}{2} + \frac{1}{2} + \frac$				-		,	L L	Calbon Diack			
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Zoc 7440-66-6 Lead Frame 0.076 0.794 0.061 794 Chronium 7440-743 Lead Frame 0.010 0.061 794 Acynes 7440-2743 Lead Frame 0.010 0.061 794 Acynes Trade State De Attach 0.006 62 0.22 7440-224 0.01 Trade State De Attach 0.008 0.006 62 0.22 7440-224 0.01 State De Attach 0.008 0.006 62 0.22 7440-24 744 State The Attach 0.008 0.006 82 0.22 7440-24 78 State The Attach 0.008 0.006 82 0.22 7440-24 74 State The Attach D.007 740-27.5 Total Total 740-27.5 Total <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>00.01</td> <td></td> <td></td> <td></td> <td></td>							00.01				
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Heterocyclic organic compound Tride Secret Die Attach V. of Teall Weight 0.41 Silicon 7440-213 Chip (Dia) 2.870 2.207 2.8700 Silicon 7440-224 78 Gld 7440-57.5 Wire Bord 0.170 0.131 1.700 Experiment Trade Secret 18 In 7440-57.5 Wire Bord 3.300 Trade Secret 18 Experiment 78.300 Trade Secret 18 Semiconductor device and its homogenous materials compute 0.0769 g Total Mass Trade Secret 2.21 Total Total field 100.00 semiconductor device and its homogenous materials compute 0.0776 g Total Mass Total 100.00 76.300 1000.00 semiconductor device and its homogenous is absent from the list abore, the chemical substance is Not an internotical ingredient method is regulator scheme world-wide. 100.00 Total 100.00 100.00 view 2002/SEC (End-Lic Vehices (LV) Directive). Silver 7440.21.3 100 100 100.00 100.00 100.00 100.00 100.00 100.00 100.00	Treated silica	Trade Secret	Die Attach	0.008	0.006	82			Total	100.00	1
Silton 7440/21/3 Chip (Dip) 2.870 2.870 2.870 2.870 2.870 7840/22-2 78 Gold 7440/57.5 Tim up on estendability : Mark Thr Arandability : Mark Thr	Heterocyclic organic compound		Die Attach	0.008	0.006	82	0.32	(mg) Total	Die Attach	% of Total Weight	0.41
Tin 7440-315 Team or anomaliants (prog) - Mates Tri damaged at 102°C for tool 3.330 2.561 33.300 Trade Secret 2 0.0769 g Total Mass TOTALS: 100.00 1.000,000 Total Secret 2 is semiconductor device and its homogenous materials comply with EU Directive 2007/36/EC (RoHS Directive), EU Directive) and with EU 2.21 Total (mg) Chip (Die) % of Total Weight 2.87 is semiconductor device and its homogenous materials comply with EU Directives 2007/36/EC (RoHS Directive), EU Directive 2007/36/EC (RoHS Directive), and with EU 2.21 Total (mg) Chip (Die) % of Total Weight 2.87 is benic an usbance is absent freehold of regulatory corrent for an intentional ingredient in the semiconductor device and, to the best of Microchip compounds used by Microchip meet the U.94 V0 flammability standard for plastics. You can access the UL QTM family of databases to obtain a test report at provide bill must bill be approved in Microchip Technology Incorporated is knowledge and belief as of the date of this document, there is no credible reason to belief, as of the date and belief, as of the date belief, as of the date and the arrages provided in Microchip Technology Incorporated is semiconductor device and the arrage provided in Microchip Technology Incorporated is material planters. Microchip Technology Incorporated is annotating influstrated billy semicarity of astin must on a internal materials on the information may not have and belief, as of the date belief		7440-21-3	Chip (Die)	2.870	2.207	28,700					
TOTALS: 100.000 76.90 1,000,000 Heterogycet organic compound: Trade Second: 2 Intercent colspan="2">Heterogycet organic compound: Trade Second: 2 List colspan="2">TOTALS: 100.000 76.900 1,000,000 Heterogycet organic compound: Trade Second: 2 List colspan="2">Total Mass List colspan="2">Colspan="2">List colspan="2">List colspan="2">List colspan="2">List colspan="2">List colspan="2">List colspan="2">List colspan="2">List colspan="2" Total Mass List colspan="2">List colspan="2" List colspan="2" List colspan="2" List colspan="2" Colspan="2" Total Mass List colspan="2" List colspan= 2					0.131		A	crylate resins Proprietary	Trade Secret		
Outpose Total Total Total Total 100.00 is semiconductor device and its hongenous materials comply with EU Directive 2002/5%EC (End-of-Life Vehicles (EUV) Directive), EU Directive 2002/5%EC (End-of-Life Vehicles (EUV) Directive), EU Directives and a with EU 2.21 Total (mg) Chip (Die) % of Total Weight 2.87 a chemical substance is absent from the list above, the chemical substance is NOT an intentional lingredient in the semiconductor device and, to the best of Microchip Concentration of the chemical Doped Silicon 7/44-21-3 100 Oliging compounds used by Microchip meet the UAV OI fammability standard for pasitiss. You can access the UL IQTM family of databases to obtain a test report at 0.13 (mg) Total Wire Bond % of Total Weight 0.17 Up/ULCom/global/eng/pages/dferings/industries/chemical/splastics/ endetals in this form concerning substances restricted by RoHS in Microchip Technology Incorporated's semiconductor vices in which the specific product is shipped are made from polyvinyl choride (PVC) plastic. "Window envelopes" used to hold the packing silp on the outer box Doped Goid 7/40-57.5 100 Total Total % of Total Weight 0.17 Wire Bond % of Total Weight 0.17 Up/ULCom/global/eng/pages/dferings/industries/chemical/splastics/ is of the absel of his knowledge and belief, as of the date listed in this form. Incorechip Technology Incorporated is semiconductor				3.330	2.561		l II				
is semiconductor device and its homogenous materials comply with EU Directive 2002/3/EC (End-G Directive). Interview 2002/3/EC (End-G-Life Vehicles (EUV) Directive). Interview 2002/3/EC (End-Gold Zife) Directive). Interview 2002/3/EC (End-		· · · ·		100.000	76.900	1,000,000	Hetero		Trade Secret	2	
is semiconductor device and its homogenous materials comply with EU Directive 2002/95/EC (RoHS Directive). EU Directive 2011/65/EU (RoHS Recast Directive) and with EU receive 2002/95/EC (End-of-Life Vehicles (ELV) Directive). mpliance with the above EU Directives has been verified via internal design controls, supplier declarations, and /or analytical test data. a chemical substance is absent from the list above, the chemical substance is NOT an intentional ingredient in the semiconductor device and, to the best of Microchip choology Incorporated's knowledge and belief as of the date of this document, there is no credible reason to believe that the unavoidable impurity concentration of the chemical biding compounds used by Microchip meet the UL94 V0 Iammability standard for plastics. You can access the UL iQTM family of databases to obtain a test report at a protective "tubes" in which the specific product is shipped are made from polyvinyl chloride (PVC) plastic. "Window envelopes" used to hold the packing slip on the outer box d certain "reels" may be made from PVC plastic. Total 100.00 Total 00.00 Total		0.0769	n Total Mass				-	<i>.</i>	Total	100.00	
chology incorporated's knowledge and belief as of the date of this document, there is non-regligation to believe that the unavoidable impurity concentration of the chemical batance, if any, is not below the threshold of regulatory concern for any regulatory scheme work-wide. Jiding compounds used by Mircrochip meet the UL94 V0 finamability standard for plastics. You can access the UL iQTM family of databases to obtain a test report at p://uLconvglobal/eng/pages/offerings/industries/chemicals/plastics/ e protective "tubes" in which the specific product is shipped are made from polyvinyl chloride (PVC) plastic. "Window envelopes" used to hold the packing slip on the outer box corchip Technology Incorporated believes the information in this form concerning substances restricted by RoHS in Microchip Technology Incorporated data in this form because it has been complete based on the tranges provided in Material Safety Data Sheets provided by warmatrial ppliers. Information is protocted from disclosure as trade secrets and some information may not have been provided by subcontract assemblers and raw material ppliers. Information is protocted from disclosure as trade secrets and some information may not have been provided by subcontract assemblers and raw material pipiers. Information is protoid only as estimates of the average weight of anticipated significant toxic metals components. These timates do not include trace levels of dopants, metals, and non-metal materials contained within silicon devices (silicon IC) in the finished parts. crochip Technology Incorporated does not provide any warranty, express or implied, with respect to the information provided in this form and its subsidiaries are contained in MicroChip's standard terms and conditions of sale. These are provided in crochip's quotations, sales order acknowledgement, and invoices. Store of this decrifticate of Compliance for semiconductor products.		via internal design control	s, supplier declarations, and /or analytical test data.				2.21		,		2.87
p://li.com/global/eng/gages/onerings/industries/chemicals/plastics/ e protective "titubes" in which the specific product is shipped are made from polyvinyl chloride (PVC) plastic. "Window envelopes" used to hold the packing slip on the outer box d certain "reels" may be made from PVC plastic. crochip Technology Incorporated believes the information in this form concerning substances restricted by RoHS in Microchip Technology Incorporated's semiconductor vices in their original packing materials is true and correct to the best of its knowledge and belief, as of the date listed in this form. Microchip Technology Incorporated cannot arantee the completeness and accuracy of data in this form boxenes it has been compiled based on the ranges provided in Material Safety Data Sheets provided by raw material ppliers. Supplier information is provided only as estimates of the average weight of these parts and the average weight of anticipated significant toxic metals components. These crochip Technology Incorporated does not provide any warranty, express or implied, with respect to the information provided in this declaration. The exclusive, limited product rranties provided by Microchip Technology Incorporated and its subsidiaries are contained in Microchip's standard terms and conditions of sale. These are provided in transtes provided by Microchip Technology Incorporated and its subsidiaries are contained in Microchip's standard terms and conditions of sale. These are provided in transtes provided by Microchip Technology Incorporated and its subsidiaries are contained in Microchip's standard terms and conditions of sale. These are provided in transtes provided by Microchip Technology Incorporated and its subsidiaries are contained in Microchip's standard terms and conditions of sale. These are provided in transtes provided by Microchip Technology Incorporated and its subsidiaries are contained in Microchip's standard terms and conditions of sale. These are provided in transtes or third parties as a result of the users'	chnology Incorporated's knowledge and belief as of the d bstance, if any, is not below the threshold of regulatory co Iding compounds used by Microchip meet the UL94 V0 fla	date of this document, ther oncern for any regulatory ammability standard for pl	e is no credible reason to believe that the unavoidab scheme world-wide.	le impurity cor	ncentration of	the chemical	0.13	(mg) Total			0.17
Tochip Technology Incorporated believes the information in this form concerning substances restricted by RoHS in Microchip Technology Incorporated's semiconductor ices in their original packing materials is true and correct to the best of its knowledge and belief, as of the date listed in this form. Microchip Technology Incorporated cannot irrantee the completeness and accuracy of data in this form because it has been compiled based on the ranges provided in Material Safety Data Sheets provided by raw material pilers. Information is often protected from disclosure as trade secrets and some information may not have been provided by subcontract assemblers and raw material pilers. Information is provided only as estimates of the average weight of these parts and the average weight of anticipated significant toxic metals components. These mates do not include trace levels of dopants, metals, and non-metal materials contained within silicon devices (silicon IC) in the finished parts. Tochip Technology Incorporated does not provide and its subsidiaries are contained in Microchip's standard terms and conditions of sale. These are provided in ranies provided by Microchip Technology Incorporated and its subsidiaries are contained in Microchip's standard terms and conditions of sale. These are provided in orochip 'annealed at 150°C for ' nanealed at 150°C for '	protective "tubes" in which the specific product is ship	•	nyl chloride (PVC) plastic. "Window envelopes" used	to hold the pa	cking slip on t	the outer box			7440-57-5	100	
Crochip fectimized uses not provide any warranty, express of implied, warrantexprest, express of implied, warranty, express o	vices in their original packing materials is true and correc arantee the completeness and accuracy of data in this for ppliers. Supplier information is often protected from discl ppliers. Information is provided only as estimates of the a	ct to the best of its knowled rm because it has been co losure as trade secrets and average weight of these pa	dge and belief, as of the date listed in this form. Micro mpiled based on the ranges provided in Material Saf d some information may not have been provided by s rts and the average weight of anticipated significant	ochip Technolo ety Data Sheet subcontract as toxic metals co	ogy Incorpora s provided by semblers and	ted cannot raw material raw material			Total	100.00	1
herwise, suffered by users or third parties as a result of the users' reliance on the information in Material Content Declarations (MCD) or independent third party test reports Tin 7440-31-5 100.00 CS) or of this Certificate of Compliance for semiconductor products.							2.56		leads (pins) - Matte Tin / annealed at 150°C for	% of Total Weight	3.33
	arranties provided by Microchip Technology Incorporated		·						1 hour		
	rranties provided by Microchip Technology Incorporated crochip's quotations, sales order acknowledgement, and crochip disclaims any duty to notify users of updates or c nerwise, suffered by users or third parties as a result of th	invoices. changes to Material Conten ne users' reliance on the in						Tin		100.00	

Semiconductor Device) DFN 3x3 mm (E2 / EJ)		nation Base A pper Alloy (C			ys)	JEDEC 97 Product Markir and/or Pkg. Labeling e3			
Basic Substance	CAS Number	"Contained In" Sub-Component	% Total Weight	mg/part	ppm	19.35	(mg) Total	Mold Compound	% ot Total Weight	80.96
Silica, fused	60676-86-0	Mold Compound	72.864	17.414	728.640		Silica, fused	60676-86-0	90.00	
Epoxy Resin (NLP # 500-033-5)	Trade Secret	Mold Compound	3.927	0.938	39,266	Epoy	(Resin (NLP # 500-033-5)	Trade Secret	4.85	
Phenolic Resin	Trade Secret	Mold Compound	3.927	0.938	39,266	Epox	Phenolic Resin	Trade Secret	4.85	
Carbon Black	1333-86-4	Mold Compound	0.243	0.058	2,429		Carbon Black	1333-86-4	0.30	
Copper	7440-50-8	Lead Frame	3.544	0.847	35,444			Total		1
Iron	7439-89-6	Lead Frame	0.087	0.021	872	0.89	(mg) Total	Lead Frame	% of Total Weight	3.71
Silver	7440-22-4	Lead Frame	0.071	0.017	707	0.00	Copper	7440-50-8	95.54	0.71
Zinc	7440-66-6	Lead Frame	0.005	0.001	46		Iron	7439-89-6	2.35	
Phosphorous	7723-14-0	Lead Frame	0.003	0.001	31		Silver	7440-22-4	1.91	
Silver	7440-22-4	Die Attach	0.491	0.117	4,914		Zinc	7440-66-6	0.13	
Acrylate resins Proprietary	Trade Secret	Die Attach	0.113	0.027	1,134		Phosphorous	7723-14-0	0.08	
Treated silica	Trade Secret	Die Attach	0.013	0.003	126			Total		l
Heterocyclic organic compound	Trade Secret	Die Attach	0.013	0.003	126	0.15	(mg) Total	Die Attach	% of Total Weight	0.63
Silicon	7440-21-3	Chip (Die)	9.260	2.213	92.600	0.15	(ing) rotai Silver	7440-22-4	78	0.03
Gold	7440-21-3	Wire Bond	0.820	0.196	8.200		Acrvlate resins Proprietary	Trade Secret	18	
Tin	7440-37-5	Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	4.620	1.104	46,200		Treated silica	Trade Secret	2	
101	7440-51-5	Placing on external leads (pins) - watter nin/ annealed at 150 C for 1 hour TOTALS:	100.000	23.900	1.000.000	Liste	ocyclic organic compound	Trade Secret	2	
			100.000	23.900	1,000,000	Heler	ocyclic organic compound		_	ļ
	0.0239	g Total Mass						Total	100.00	
ective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). npliance with the above EU Directives has been verified	via internal design contro	ls, supplier declarations, and /or analytical test da	ta.			2.21	Total (mg) Silicon	Chip (Die) 7440-21-3	% of Total Weight	9.26
chemical substance is absent from the list above, the ch choology Incorporated's knowledge and belief as of the c emical substance, if any, is not below the threshold of rer	late of this document, the			best of Micro	chip			Total	100.00	
				concentration						
ding compounds used by Microchip meet the UL94 V0 fl b://ul.com/global/eng/pages/offerings/industries/chemica	ammability standard for p Is/plastics/	lastics. You can access the UL iQTM family of data	abases to obtai	concentration n a test report	tat	0.20	(mg) Total	Wire Bond	% of Total Weight	0.82
ding compounds used by Microchip meet the UL94 V0 fl	ammability standard for p Is/plastics/	lastics. You can access the UL iQTM family of data	abases to obtai	concentration n a test report	tat	0.20	(mg) Total Gold	7440-57-5	100	0.82
ding compounds used by Microchip meet the UL94 V0 f b://ul.com/global/eng/pages/offerings/industries/chemica p protective "tubes" in which the specific product is ship	ammability standard for p Is/plastics/ ped are made from polyvi n in this form concerning t to the best of its knowle t this form because it has ed from disclosure as trac estimates of the average v	lastics. You can access the UL iQTM family of data nyl chloride (PVC) plastic. "Window envelopes" us substances restricted by RoHS in Microchip Techn dge and belief, as of the date listed in this form. M been compiled based on the ranges provided in M le secrets and some information may not have be veight of these parts and the average weight of an	abases to obtain the to hold the nology Incorpo icrochip Techr laterial Safety I en provided by ticipated signif	concentration n a test report packing slip o rated's semic ology Incorpo Data Sheets p subcontract icant toxic me	t at on the outer onductor orated rovided by assemblers otals	0.20			100	0.82
ding compounds used by Microchip meet the UL94 V0 fl s://ul.com/global/eng/pages/offerings/industries/chemica e protective "tubes" in which the specific product is ship and certain "reels" may be made from PVC plastic. rochip Technology Incorporated believes the information ices in their original packing materials is true and correct and guarantee the completeness and accuracy of data it material suppliers. Supplier information is often protect I raw material suppliers. Information is provided only as a	ammability standard for p Is/plastics/ ped are made from polyvi n in this form concerning to to the best of its knowle this form because it has ed from disclosure as trac estimates of the average v dopants, metals, and nor arranty, express or implie porated and its subsidiar	lastics. You can access the UL iQTM family of data nyl chloride (PVC) plastic. "Window envelopes" us substances restricted by RoHS in Microchip Techn dge and belief, as of the date listed in this form. M been compiled based on the ranges provided in M se screts and some information may not have be veight of these parts and the average weight of an i-metal materials contained within silicon devices d, with respect to the information provided in this	abases to obtain ed to hold the icrochip Techr laterial Safety I en provided by icripated signif (silicon IC) in the declaration. Th	concentration n a test report packing slip c rated's semic cology Incorpo Jata Sheets p subcontract a icant toxic me he finished part ne exclusive, I	t at on the outer onductor orated rovided by ussemblers otals ttals inited		Gold	7440-57-5	100	0.82
ding compounds used by Microchip meet the UL94 V0 fl o://ul.com/global/eng/pages/offerings/industries/chemica o protective "tubes" in which the specific product is ship and certain "reels" may be made from PVC plastic. rochip Technology Incorporated believes the information rices in their original packing materials is true and correc not guarantee the completeness and accuracy of data in material suppliers. Supplier information is often protect I raw material suppliers. Information is provided only as nonchip Technology Incorporated does not provide any w duct warranties provided by Microchip Technology Incor	ammability standard for p Is/plastics/ ped are made from polyvi n in this form concerning t to the best of its knowle this form because it has ed from disclosure as trac estimates of the average v dopants, metals, and nor rarranty, express or implie rporated and its subsidiar ad invoices.	lastics. You can access the UL iQTM family of data nyl chloride (PVC) plastic. "Window envelopes" us substances restricted by RoHS in Microchip Techh dge and belief, as of the date listed in this form. M been compiled based on the ranges provided in M le secrets and some information may not have be veight of these parts and the average weight of an i-metal materials contained within silicon devices in d, with respect to the information provided in this ies are contained in Microchip's standard terms an th Declarations and shall not be liable for any dam	abases to obtain ed to hold the nology Incorpo icrochip Techr laterial Safety I en provided by ticipated signif (silicon IC) in the declaration. The declaration conditions cond	concentration n a test report packing slip c rated's semice ology incorpo Data Sheets pi subcontract a icant toxic me e finished par he exclusive, i of sale. These indirect, cons	t at on the outer orated rovided by assemblers etals imited are provided eequential or		Gold	7440-57-5 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour 7440-31-5	100 100.00 % of Total Weight 100.00	
ting compounds used by Microchip meet the UL94 V0 fl ///ul.com/global/eng/pages/offerings/industries/chemica protective "tubes" in which the specific product is ship and certain "reels" may be made from PVC plastic. ochip Technology Incorporated believes the information ces in their original packing materials is true and correc to guarantee the completeness and accuracy of data in material suppliers. Supplier information is often protect raw material suppliers. Information is provided only as ponents. These estimates do not include trace levels of ochip Technology Incorporated does not provide any w luct warranties provided by Microchip Technology Inco icrochip's quotations, sales order acknowledgement, an ochip disclaims any duty to notify users of updates or or rwise, suffered by users or third parties as a result of th	ammability standard for p Is/plastics/ ped are made from polyvi n in this form concerning t to the best of its knowle this form because it has ed from disclosure as trac estimates of the average v dopants, metals, and nor rarranty, express or implie rporated and its subsidiar ad invoices.	lastics. You can access the UL iQTM family of data nyl chloride (PVC) plastic. "Window envelopes" us substances restricted by RoHS in Microchip Techh dge and belief, as of the date listed in this form. M been compiled based on the ranges provided in M le secrets and some information may not have be veight of these parts and the average weight of an i-metal materials contained within silicon devices in d, with respect to the information provided in this ies are contained in Microchip's standard terms an th Declarations and shall not be liable for any dam	abases to obtain ed to hold the nology Incorpo icrochip Techr laterial Safety I en provided by ticipated signif (silicon IC) in the declaration. The declaration conditions cond	concentration n a test report packing slip c rated's semice ology incorpo Data Sheets pi subcontract a icant toxic me e finished par he exclusive, i of sale. These indirect, cons	t at on the outer orated rovided by assemblers etals imited are provided eequential or		Gold (mg) Total	7440-57-5 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	100 100.00 % of Total Weight 100.00	

				ination Base opper Alloy			•	ogeneous Materials: ə.g. pc boards, display	s)	JEDEC 97 Prod Marking and/c Pkg. Labeling e3
Semiconductor Devi	ice Type: MF 08 (pin) PD									
		"Contained In"	% I otal			56.97	(mg) Total	Mold Compound	% ot Total Weight	54.4
Basic Substance	CAS Number	Sub-Component	Weight	mg/part	ppm	50.51				
Silica, fused	60676-86-0	Mold Compound	48.960	51.271	489,600		Silica, fused	60676-86-0	90.00	
Epoxy Resin Phenolic Resin	500-033-5	Mold Compound	2.638	2.763	26,384 26,384	-	Epoxy Resin	500-033-5	4.85	
Carbon Black	Trade Secret 1333-86-4	Mold Compound Mold Compound	2.638	2.763 0.171	26,384	-	Phenolic Resin Carbon Black	Trade Secret 1333-86-4	4.85	
Copper	7440-50-8	Lead Frame	16.394	17.168	163,942	-	Carbon Black	Total	0.30]
Iron	7439-89-6	Lead Frame	0.403	0.422	4.033	17.97	(mg) Total	Lead Frame	% of Total Weight	17.16
Silver	7440-22-4	Lead Frame	0.327	0.342	3,269	17.97	Copper	7440-50-8	95.54	17.16
Zinc	7440-62-4	Lead Frame	0.021	0.022	215	-	Iron	7439-89-6	2.35	
Phosphorous	7723-14-0	Lead Frame	0.014	0.015	142	-	Silver	7440-22-4	1.91	
Copper	7440-50-8	Clip Attachment (92.5/5/2.5 PbSnAg)	14.697	15.391	146,970		Zinc	7440-66-6	0.13	
Iron	7439-89-6	Clip Attachment (92.5/5/2.5 PbSnAg)	0.354	0.371	3,544		Phosphorous	7723-14-0	0.08	
Zinc	7440-66-6	Clip Attachment (92.5/5/2.5 PbSnAg)	0.018	0.019	181		Baaran I.	Total	100.00	1
Phosphorous	7723-14-0	Clip Attachment (92.5/5/2.5 PbSnAg)	0.011	0.011	106	15.79	(mg) Total	Clip	% of Total Weight	15.08
Lead	7439-92-1	Clip Attachment (92.5/5/2.5 PbSnAg)	6.346	6.645	63,455		Copper	7440-50-8	97.46	
Silver	7440-22-4	Clip Attachment (92.5/5/2.5 PbSnAg)	0.343	0.359	3,430	1	Iron	7439-89-6	2.35	
Tin	7440-31-5	Clip Attachment (92.5/5/2.5 PbSnAg)	0.172	0.180	1,715	1	Zinc	7440-66-6	0.12	
Silicon	7440-21-3	Chip (Die)	3.290	3.445	32,900		Phosphorous	7723-14-0	0.07	
Doped Gold	7440-57-5	Wire Bond	0.830	0.869	8,300			Total	100.00	1
l l							() - ()	Clip Attachment		
Tin	7440-31-5 Pla	ting on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	2.380	2.492	23,800	7.18	(mg) Total	(92.5/5/2.5 PbSnAg)	% of Total Weight	6.86
		TOTALS:				High temp				
		TOTAES.	100.000	104.720	1,000,000	solder	Lead	7439-92-1	92.50	
	0.1047 g	Total Mass					Silver	7440-22-4	5.00	
miconductor device and its homogenous materials	comply with EU Directive 2002/									
		95/EC (RoHS Directive) uses EU-RoHS application	exemption 7	(a): Lead in hi	ah meltina					
rature type solders (i.e. lead-based alloys containing	g 85% by weight or more lead.	. ,	exemption 7	(a): Lead in hi	gh melting		Tin	7440-31-5 Total	2.50 100.00	
erature type solders (i.e. lead-based alloys containing blance with the above EU Directives has been verifie memical substance is absent from the list above, the porated's knowledge and belief as of the date of this	g 85% by weight or more lead. d via internal design controls, su chemical substance is NOT an in document, there is no credible ro	pplier declarations, and /or analytical test data. tentional ingredient in the semiconductor device a pason to believe that the unavoidable impurity cor	and, to the be	st of Microch	ip Technology	3.45	Tin (mg) Total			3.29
rature type solders (i.e. lead-based alloys containing liance with the above EU Directives has been verifie emical substance is absent from the list above, the orated's knowledge and belief as of the date of this not below the threshold of regulatory concern for ang compounds used by Microchip meet the UL94 V0	g 85% by weight or more lead. d via internal design controls, su chemical substance is NOT an in document, there is no credible r any regulatory scheme world-wid flammability standard for plastic	pplier declarations, and /or analytical test data. tentional ingredient in the semiconductor device a asson to believe that the unavoidable impurity con e.	and, to the be	st of Microch f the chemical	ip Technology I substance, if	3.45 Doped Silicon		Total	100.00	
rature type solders (i.e. lead-based alloys containing liance with the above EU Directives has been verifie emical substance is absent from the list above, the o orated's knowledge and belief as of the date of this s not below the threshold of regulatory concern for a ng compounds used by Microchip meet the UL94 V0 ul.com/global/eng/pages/offerings/industries/chemie rotective "tubes" in which the specific product is sh	g 85% by weight or more lead. d via internal design controls, su chemical substance is NOT an in document, there is no credible r any regulatory scheme world-wid flammability standard for plastic cals/plastics/	pplier declarations, and /or analytical test data. tentional ingredient in the semiconductor device a pason to believe that the unavoidable impurity con e. cs. You can access the UL iQTM family of databas	and, to the be ncentration of es to obtain a	st of Microch f the chemical test report at	ip Technology I substance, if		(mg) Total	Total Chip (Die)	100.00 % of Total Weight	3.29
erature type solders (i.e. lead-based alloys containing pliance with the above EU Directives has been verifie emical substance is absent from the list above, the porated's knowledge and belief as of the date of this is not below the threshold of regulatory concern for a ng compounds used by Microchip meet the UL94 V0 (ul.com/global/eng/pages/offerings/industries/chemic rotective "tubes" in which the specific product is sh eratin "reels" may be made from PVC plastic.	g 85% by weight or more lead. d via internal design controls, su chemical substance is NOT an in document, there is no credible r any regulatory scheme world-wid flammability standard for plastic cals/plastics/ ipped are made from polyvinyl cl	pplier declarations, and /or analytical test data. tentional ingredient in the semiconductor device a bason to believe that the unavoidable impurity cor e. cs. You can access the UL iQTM family of databas nloride (PVC) plastic. "Window envelopes" used t	and, to the be ncentration of es to obtain a o hold the par	st of Microch f the chemical test report at cking slip on t	ip Technology I substance, if : the outer box	Doped Silicon	(mg) Total	Total Chip (Die) 7440-21-3	100.00 % of Total Weight 100	3.29
rature type solders (i.e. lead-based alloys containing liance with the above EU Directives has been verifie emical substance is absent from the list above, the borated's knowledge and belief as of the date of this is not below the threshold of regulatory concern for a ng compounds used by Microchip meet the UL94 V0 ul.com/global/eng/pages/offerings/industries/chemie rotective "tubes" in which the specific product is sh ertain "reels" may be made from PVC plastic. chip Technology Incorporated believes the informati i original packing materials is true and correct to th mpleteness and accuracy of data in this form becau ler information is often protected from disclosure as aution is provided only as estimates of the average v	g 85% by weight or more lead. d via internal design controls, su chemical substance is NOT an in document, there is no credible rr any regulatory scheme world-wid flammability standard for plastic cals/plastics/ ipped are made from polyvinyl cl ion in this form concerning subs e best of its knowledge and belie use it has been compiled based o s trade secrets and some informa weight of these parts and the ave	pplier declarations, and /or analytical test data. tentional ingredient in the semiconductor device a eason to believe that the unavoidable impurity core. e. ss. You can access the UL iQTM family of databas nloride (PVC) plastic. "Window envelopes" used t tances restricted by RoHS in Microchip Technolog f, as of the date listed in this form. Microchip Tec in the ranges provided in Material Safety Data She tion may not have been provided by subcontract rage weight of anticipated significant toxic metals	and, to the be ncentration of es to obtain a o hold the par o hold the par gy Incorporate nnology Incor ets provided i assemblers a	st of Microch f the chemical test report at cking slip on f cking slip on f cking semicono porated cann by raw mater nd raw mater	ip Technology substance, if the outer box ductor devices of guarantee al suppliers.	Doped Silicon	(mg) Total	Total Chip (Die) 7440-21-3	100.00 % of Total Weight 100	3.29
rature type solders (i.e. lead-based alloys containing liance with the above EU Directives has been verifie emical substance is absent from the list above, the orated's knowledge and belief as of the date of this not below the threshold of regulatory concern for a ag compounds used by Microchip meet the UL94 V0 JLcom/global/eng/pages/offerings/industries/chemie otective "tubes" in which the specific product is sh rtain "reels" may be made from PVC plastic. ship Technology Incorporated believes the informati r original packing materials is true and correct to th mpleteness and accuracy of data in this form becau er information is often protected from disclosure as ation is provided only as estimates of the average v e trace levels of dopants, metals, and non-metal ma chip Technology Incorporated does not provide any tites provided by Microchip Technology Incorporate	g 85% by weight or more lead. d via internal design controls, su chemical substance is NOT an in document, there is no credible r any regulatory scheme world-wid iflammability standard for plastic cals/plastics/ ipped are made from polyvinyl cl ion in this form concerning subs e best of its knowledge and belie use it has been compiled based o s trade secrets and some informa terials contained within silicon d warranty, express or implied, wi d and its subsidiaries are contai	pplier declarations, and /or analytical test data. tentional ingredient in the semiconductor device a pason to believe that the unavoidable impurity cor- e. cs. You can access the UL iQTM family of databas nloride (PVC) plastic. "Window envelopes" used t tances restricted by RoHS in Microchip Technolog f, as of the date listed in this form. Microchip Tech n the ranges provided in Material Safety Data She tion may not have been provided by subcontract rage weight of anticipated significant toxic metals evices (silicon IC) in the finished parts.	and, to the be ncentration of es to obtain a o hold the par gy Incorporate nnology Incor ets provided 1 assemblers a components aration. The e	st of Microch f the chemical test report at cking slip on f ed's semicon porated cann by raw mater a These estim exclusive, limi	ip Technology substance, if the outer box ductor devices of guarantee al suppliers. ates do not ted product	Doped Silicon	(mg) Total	Total Chip (Die) 7440-21-3 Total	100.00 % of Total Weight 100 100.00	3.29
erature type solders (i.e. lead-based alloys containing blance with the above EU Directives has been verifie operated's knowledge and belief as of the date of this s not below the threshold of regulatory concern for a ng compounds used by Microchip meet the UL94 V0 ul.com/global/eng/pages/offerings/industries/chemie rotective "tubes" in which the specific product is sh	g 85% by weight or more lead. d via internal design controls, su chemical substance is NOT an in document, there is no credible ri any regulatory scheme world-wid flammability standard for plastic cals/plastics/ ipped are made from polyvinyl cl ion in this form concerning subs e best of its knowledge and belie se it has been compiled based o strade secrets and some informa weight of these parts and the ave terials contained within silicon d warranty, express or implied, wi ed and its subsidiaries are contai d invoices. r changes to Material Content De the users' reliance on the inform	pplier declarations, and /or analytical test data. tentional ingredient in the semiconductor device a pason to believe that the unavoidable impurity cor- e. cs. You can access the UL iQTM family of databas noride (PVC) plastic. "Window envelopes" used t tances restricted by RoHS in Microchip Technolog f, as of the date listed in this form. Microchip Tech n the ranges provided in Material Safety Data She tion may not have been provided by subcontract rage weight of anticipated significant toxic metals evices (silicon IC) in the finished parts. th respect to the information provided in this decl need in Microchip's standard terms and conditions clarations and shall not be liable for any damages	and, to the be ncentration of es to obtain a o hold the par gy Incorporati nology Incor ets provided I assemblers a a components aration. The e of sale. Thes	st of Microch the chemical test report at cking slip on t ed's semicon porated cann by raw mater nd raw mater nd raw mater . These estim exclusive, limi e are provide lirect, conseq	ip Technology substance, if the outer box ductor devices al suppliers. ial suppliers. iates do not ted product d in uential or	Doped Silicon	(mg) Total Doped Silicon (mg) Total	Total Chip (Die) 7440-21-3 Total Wire Bond 7440-57-5 Total	100.00 % of Total Weight 100 100.00 % of Total Weight	0.83
rature type solders (i.e. lead-based alloys containing liance with the above EU Directives has been verifie emical substance is absent from the list above, the orated's knowledge and belief as of the date of this is not below the threshold of regulatory concern for a ng compounds used by Microchip meet the UL94 V0 ul.com/global/eng/pages/offerings/industries/chemic otective "tubes" in which the specific product is sh ertain "reels" may be made from PVC plastic. The packing materials is true and correct to the mpleteness and accuracy of data in this form beau information is often protected from disclosure as tation is provided only as estimates of the average v e trace levels of dopants, metals, and non-metal ma chip Technology Incorporated does not provide any tites provided by Microchip Technology Incorporate chip's quotations, sales order acknowledgement, an chip disclaims any duty to notify users of updates on vise, suffered by users or third parties as a result of	g 85% by weight or more lead. d via internal design controls, su chemical substance is NOT an in document, there is no credible ri any regulatory scheme world-wid flammability standard for plastic cals/plastics/ ipped are made from polyvinyl cl ion in this form concerning subs e best of its knowledge and belie se it has been compiled based o strade secrets and some informa weight of these parts and the ave terials contained within silicon d warranty, express or implied, wi ed and its subsidiaries are contai d invoices. r changes to Material Content De the users' reliance on the inform	pplier declarations, and /or analytical test data. tentional ingredient in the semiconductor device a pason to believe that the unavoidable impurity cor- e. cs. You can access the UL iQTM family of databas noride (PVC) plastic. "Window envelopes" used t tances restricted by RoHS in Microchip Technolog f, as of the date listed in this form. Microchip Tech n the ranges provided in Material Safety Data She tion may not have been provided by subcontract rage weight of anticipated significant toxic metals evices (silicon IC) in the finished parts. th respect to the information provided in this decl need in Microchip's standard terms and conditions clarations and shall not be liable for any damages	and, to the be ncentration of es to obtain a o hold the par gy Incorporati nology Incor ets provided I assemblers a a components aration. The e of sale. Thes	st of Microch the chemical test report at cking slip on t ed's semicon porated cann by raw mater nd raw mater nd raw mater . These estim exclusive, limi e are provide lirect, conseq	ip Technology substance, if the outer box ductor devices al suppliers. ial suppliers. iates do not ted product d in uential or	Doped Silicon	(mg) Total Doped Silicon (mg) Total Doped Gold (mg) Total	Total Chip (Die) 7440-21-3 Total Wire Bond 7440-57-5 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	100.00 % of Total Weight 100 100.00 % of Total Weight 100.00	0.83
ature type solders (i.e. lead-based alloys containing ance with the above EU Directives has been verifie mical substance is absent from the list above, the orated's knowledge and belief as of the date of this not below the threshold of regulatory concern for a g compounds used by Microchip meet the UL94 V0 Lcom/global/eng/pages/offerings/industries/chemio tective "tubes" in which the specific product is sh tain "reels" may be made from PVC plastic. hip Technology Incorporated believes the informati original packing materials is true and correct to th hopleteness and accuracy of data in this form becau er information is often protected from disclosure as tion is provided only as estimates of the average v trace levels of dopants, metals, and non-metal ma hip Technology Incorporated does not provide any ties provided by Microchip Technology Incorporate inp's quotations, sales order acknowledgement, an hip disclaims any duty to notify users of updates on ise, suffered by users or third parties as a result of	g 85% by weight or more lead. d via internal design controls, su chemical substance is NOT an in document, there is no credible ri any regulatory scheme world-wid flammability standard for plastic cals/plastics/ ipped are made from polyvinyl cl ion in this form concerning subs e best of its knowledge and belie se it has been compiled based o strade secrets and some informa weight of these parts and the ave terials contained within silicon d warranty, express or implied, wi ed and its subsidiaries are contai d invoices. r changes to Material Content De the users' reliance on the inform	pplier declarations, and /or analytical test data. tentional ingredient in the semiconductor device a pason to believe that the unavoidable impurity cor- e. cs. You can access the UL iQTM family of databas noride (PVC) plastic. "Window envelopes" used t tances restricted by RoHS in Microchip Technolog f, as of the date listed in this form. Microchip Tech n the ranges provided in Material Safety Data She tion may not have been provided by subcontract rage weight of anticipated significant toxic metals evices (silicon IC) in the finished parts. th respect to the information provided in this decl need in Microchip's standard terms and conditions clarations and shall not be liable for any damages	and, to the be ncentration of es to obtain a o hold the par gy Incorporati nology Incor ets provided I assemblers a a components aration. The e of sale. Thes	st of Microch the chemical test report at cking slip on t ed's semicon porated cann by raw mater nd raw mater nd raw mater . These estim exclusive, limi e are provide lirect, conseq	ip Technology substance, if the outer box ductor devices al suppliers. ial suppliers. iates do not ted product d in uential or	Doped Silicon	(mg) Total Doped Silicon (mg) Total Doped Gold	Total Chip (Die) 7440-21-3 Total Wire Bond 7440-57-5 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1	100.00 % of Total Weight 100 100.00 % of Total Weight 100.00 % of Total Weight 100.00	3.29 0.83 2.38

Semiconductor Device	e Type: MYY 06 (Lead)	DFN 2x2x0.8mm (4Q)		nation Base pper Alloy ((•	ogeneous Materials: a.g. pc boards, displa	ys)	JEDEC 97 Product Marking and/or Pkg. Labeling e4
		"Contained In"	% I otal			7.20	(mg) Total	Mold Compound	% ot Total Weight	59.97
Basic Substance	CAS Number	Sub-Component	Weight	mg/part	ppm					
Silica, vitreous (or fused)	60676-86-0	Mold Compound	50.975	6.117	509,745		Silica, vitreous (or fused)	60676-86-0	85.00	
Epoxy Resin Phenolic Resin	Trade Secret Trade Secret	Mold Compound Mold Compound	5.217 3.598	0.626	52,174 35.982		Epoxy Resin Phenolic Resin	Trade Secret Trade Secret	8.70 6.00	
Carbon Black	1333-86-4	Mold Compound	0.180	0.022	1,799		Carbon Black	1333-86-4	0.30	
Copper	7440-50-8	Lead Frame	32.712	3.925	327,123		Garbon Black	Total	100.00	
Iron	7439-89-6	Lead Frame	0.773	0.093	7,733	4.03	(mg) Total	Lead Frame	% of Total Weight	33.62
Phosphorous	7723-14-0	Lead Frame	0.084	0.010	841		Copper	7440-50-8	97.30	
Zinc (Metal)	7440-66-0	Lead Frame	0.050	0.006	504		Iron	7439-89-6	2.30	
Silver	7440-22-4	Die Attach	0.886	0.106	8,856		Phosphorous	7723-14-0	0.25	
Epoxy Resin	9003-36-5	Die Attach	0.226	0.027	2,256		Zinc (Metal)	7440-66-0	0.15	
t-Butyl phenyl glycidyl ether	3101-60-8	Die Attach	0.076	0.009	756			Total	100.00	
Phenolic hardener	92-88-6	Die Attach	0.004	0.000	36	0.14	(mg) Total	Die Attach	% of Total Weight	1.2
Butyl cellosolve acetate	112-07-2	Die Attach	0.010	0.001	96		Silver	7440-22-4	74	
Silicon	7440-21-3	Chip (Die)	4.010	0.481	40,100		Epoxy Resin	9003-36-5	19	
Gold	7440-57-5	Wire Bond	0.770	0.092	7,700		t-Butyl phenyl glycidyl ether	3101-60-8	6	
Nickel	7440-02-0	Plating on external leads (pins)	0.406	0.049	4,064		Phenolic hardener	92-88-6	0	
Palladium	7440-05-03	Plating on external leads (pins)	0.022	0.003	215		Butyl cellosolve acetate	112-07-2	1	
Gold	7440-57-5	Plating on external leads (pins)	0.002	0.000	22 1.000.000			Total	100.00	
		TOTALS	100.000	12.000	1,000,000	0.48	Total (mg)	Chip (Die)	% of Total Weight	4.01
	0.0120 g To comply with EU Directive 2002/95	tal Mass			,,.	0.48	Total (mg) Doped Silicon	Chip (Die) 7440-21-3 Total	% of Total Weight 100 100.00	4.01
ective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). Impliance with the above EU Directives has been verified In chemical substance is absent from the list above, the cl porporated's knowledge and belief as of the date of this d	comply with EU Directive 2002/95 via internal design controls, sup nemical substance is NOT an inte ocument, there is no credible rea	tal Mass /EC (RoHS Directive), EU Directive 2011/65/EU (Ro plier declarations, and /or analytical test data. ntional ingredient in the semiconductor device an son to believe that the unavoidable impurity conc	HS Recast Dire	ective) and w of Microchip 1	ith EU Fechnology	0.48		7440-21-3	100	0.77
is semiconductor device and its homogenous materials rective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). ompliance with the above EU Directives has been verified a chemical substance is absent from the list above, the cl corporated's knowledge and belief as of the date of this d y, is not below the threshold of regulatory concern for ar olding compounds used by Microchip meet the UL94 V0 f ty/lul.com/global/eng/pages/offerings/industries/chemicz	via internal design controls, sup emical substance is NOT an inte ocument, there is no credible rea y regulatory scheme world-wide lammability standard for plastics	tal Mass /EC (RoHS Directive), EU Directive 2011/65/EU (Ro plier declarations, and /or analytical test data. ntional ingredient in the semiconductor device an son to believe that the unavoidable impurity conce	HS Recast Dire d, to the best c entration of the	ective) and w of Microchip 1 e chemical su	ith EU Fechnology		Doped Silicon (mg) Total	7440-21-3 Total Wire Bond	100 100.00 % of Total Weight	
rective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). ompliance with the above EU Directives has been verified a chemical substance is absent from the list above, the cl corporated's knowledge and belief as of the date of this d y, is not below the threshold of regulatory concern for ar olding compounds used by Microchip meet the UL94 V0 f	via internal design controls, sup nemical substance is NOT an inte ocument, there is no credible rea y regulatory scheme world-wide lammability standard for plastics ls/plastics/	tal Mass /EC (RoHS Directive), EU Directive 2011/65/EU (Ro plier declarations, and /or analytical test data. ntional ingredient in the semiconductor device an son to believe that the unavoidable impurity conc . You can access the UL iQTM family of databases	HS Recast Dire d, to the best o entration of the to obtain a tes	ective) and w of Microchip T e chemical su st report at	ith EU Fechnology Ibstance, if		Doped Silicon (mg) Total	7440-21-3 Total Wire Bond 7440-57-5	100 100.00 % of Total Weight 100	
rective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). compliance with the above EU Directives has been verified a chemical substance is absent from the list above, the cl corporated's knowledge and belief as of the date of this d y, is not below the threshold of regulatory concern for an olding compounds used by Microchip meet the UL94 V0 f tp://ul.com/global/eng/pages/offerings/industries/chemicz are protective "tubes" in which the specific product is ship	via internal design controls, sup emical substance is NOT an inte ocument, there is no credible rea y regulatory scheme world-wide lammability standard for plastics ils/plastics/ pped are made from polyvinyl chl n in this form concerning substa best of its knowledge and belief, e it has been compiled based on irrade secrets and some informatt ight of these parts and the avera	tal Mass /EC (RoHS Directive), EU Directive 2011/65/EU (Ro plier declarations, and /or analytical test data. ntional ingredient in the semiconductor device an son to believe that the unavoidable impurity conce . You can access the UL iQTM family of databases pride (PVC) plastic. "Window envelopes" used to f nces restricted by RoHS in Microchip Technology as of the date listed in this form. Microchip Technology as of the date listed in Material Safety Data Sheets on may not have been provided by subcontract as ge weight of anticipated significant toxic metals c	HS Recast Dire d, to the best of entration of the to obtain a tes hold the packin Incorporated's ology Incorpor ; provided by r semblers and i	ective) and w of Microchip 1 e chemical su at report at ng slip on the a semiconduc ated cannot a aw material 3	ith EU Fechnology ibstance, if outer box ctor devices guarantee suppliers. suppliers.	0.09	Doped Silicon (mg) Total Doped Gold	7440-21-3 Total Wire Bond 7440-57-5 Total Plating on external	100 100.00 % of Total Weight 100 100.00	0.77
rective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). pompliance with the above EU Directives has been verified a chemical substance is absent from the list above, the cl corporated's knowledge and belief as of the date of this d y, is not below the threshold of regulatory concern for ar olding compounds used by Microchip meet the UL94 V0 f tp://ul.com/global/eng/pages/offerings/industries/chemica are protective "tubes" in which the specific product is ship d certain "reels" may be made from PVC plastic. crochip Technology Incorporated believes the information their original packing materials is true and correct to the e completeness and accuracy of data in this form becaus upplier information is often protected from disclosure as to formation is provided only as estimates of the average we	via internal design controls, sup nemical substance is NOT an inte ocument, there is no credible ree ny regulatory scheme world-wide lammability standard for plastics lis/plastics/ oped are made from polyvinyl chl n in this form concerning substa best of its knowledge and belief, e it has been compiled based on trade secrets and some informati sight of these parts and the averer rials contained within silicon der varranty, express or implied, with and its subsidiaries are contain	tal Mass /EC (RoHS Directive), EU Directive 2011/65/EU (Ro plier declarations, and /or analytical test data. ntional ingredient in the semiconductor device an son to believe that the unavoidable impurity conce . You can access the UL iQTM family of databases oride (PVC) plastic. "Window envelopes" used to the nees restricted by RoHS in Microchip Technology as of the date listed in this form. Microchip Technology as of the date listed in Material Safety Data Sheets on may not have been provided by subcontract as ge weight of anticipated significant toxic metals c rices (silicon IC) in the finished parts.	HS Recast Dire d, to the best c entration of the to obtain a tes nold the packin lncorporated's ology Incorpor provided by r semblers and i pomponents. Th ation. The excl	ective) and w of Microchip T e chemical su st report at ng slip on the s semiconduc aw material araw material nese estimate usive, limited	ith EU Fechnology ibstance, if outer box ctor devices guarantee suppliers. suppliers. is do not	0.09	(mg) Total Doped Gold (mg) Total	7440-21-3 Total Wire Bond 7440-57-5 Total Plating on external leads (pins)	100 100.00 % of Total Weight 100 100.00 % of Total Weight	0.77
ective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). mpliance with the above EU Directives has been verified a chemical substance is absent from the list above, the cl corporated's knowledge and belief as of the date of this d y, is not below the threshold of regulatory concern for ar olding compounds used by Microchip meet the UL94 V0 f p/ul.com/global/eng/pages/offerings/industries/chemicz e protective "tubes" in which the specific product is ship d certain "reels" may be made from PVC plastic. crochip Technology Incorporated believes the informatio their original packing materials is true and correct to the e completeness and accuracy of data in this form becaus pplier information is often protected from disclosure as i ormation is provided only as estimates of the average w clude trace levels of dopants, metals, and non-metal mate crochip Technology Incorporated does not provide any w rranties provided by Microchip Technology Incorporated	via internal design controls, sup nemical substance is NOT an inte ocument, there is no credible ree y regulatory scheme world-wide lammability standard for plastics us/plastics/ uped are made from polyvinyl chl n in this form concerning substat best of its knowledge and belief, e it has been compiled based on irade secrets and some informati eight of these parts and the averar rials contained within silicon de varranty, express or implied, with a nd its subsidiaries are containe invoices. changes to Material Content Decci	tal Mass /EC (RoHS Directive), EU Directive 2011/65/EU (Ro plier declarations, and /or analytical test data. ntional ingredient in the semiconductor device an son to believe that the unavoidable impurity conce . You can access the UL iQTM family of databases oride (PVC) plastic. "Window envelopes" used to f nces restricted by RoHS in Microchip Technology as of the date listed in this form. Microchip Technology as of the date listed in this form. Microchip Technology as of the date listed in Microchip Technology (and the date listed in this form. Microchip Technology (and the date listed in this form. Microchip Technology (as of the date listed in this form. Microchip Technology (as of the date listed in this form. Microchip Technology (as of the date listed in this form. Microchip Technology (as of the date listed in this form. Microchip Technology (and the date listed in this form. Microchip Technology (as of the date listed in this form. Microchip Technology (as of the date listed in this form. Microchip Technology (as of the date listed in this form. Microchip Technology (as of the date listed in this form. Microchip Technology (as of the date listed in this form. Microchip Technology (as of the date listed in this form. Microchip Technology (as of the date listed in this form. Microchip Technology (as of the date listed in the finished parts. (a) (as of the date listed in the finished parts.) (b) (b) (b) (b) (b) (b) (b) (b) (b) (b)	HS Recast Dire d, to the best o entration of the to obtain a tes hold the packin incorporated's ology Incorpor provided by r semblers and omponents. Th ation. The excl i sale. These al lirect or indirect	ective) and w of Microchip 1 e chemical su at report at ag slip on the assemiconduc ated cannot i aw material i aw material i nese estimate usive, limited re provided in ct, consequei	ith EU Fechnology ubstance, if outer box ctor devices guarantee suppliers. suppliers. suppliers. s do not I product	0.09	(mg) Total Doped Gold (mg) Total Nickel	7440-21-3 Total Wire Bond 7440-57-5 Total Plating on external leads (pins) 7440-02-0	100 100.00 % of Total Weight 100 100.00 % of Total Weight 94.50	0.77

	Type: MNY 08 TDF	N 22220 8mm (5Q)		ation Base A per Alloy (C				nogeneous Materials: e.g. pc boards, display	/s)	JEDEC 97 Produ Marking and/or Pkg. Labeling e4
Basic Substance		"Contained In" Sub-Component	% Total Weight			8.40	(mg) Total	Mold Compound	% ot Total Weight	59.97
	CAS Number			mg/part	ppm				-	
Silica, vitreous (or fused)	60676-86-0	Mold Compound	50.975	7.136	509,745		Silica, vitreous (or fused)	60676-86-0	85.00	
Epoxy Resin Phenolic Resin	Trade Secret Trade Secret	Mold Compound Mold Compound	5.217 3.598	0.730	52,174 35.982		Epoxy Resin Phenolic Resin	Trade Secret Trade Secret	8.70 6.00	
Carbon Black	1333-86-4	Mold Compound	0.180	0.504	1,799		Carbon Black	1333-86-4	0.30	
Copper	7440-50-8	Lead Frame	32.712	4.580	327.123		Calboli Black	Total	100.00	
Iron	7439-89-6	Lead Frame	0.773	0.108	7,733	4.71	(mg) Total	Lead Frame	% of Total Weight	33.62
						4.71				33.02
Phosphorous Zinc (Metal)	7723-14-0 7440-66-0	Lead Frame Lead Frame	0.084	0.012	841 504		Copper	7440-50-8 7439-89-6	97.30 2.30	
Silver	7440-66-0	Die Attach	0.050	0.007	504 9.360		Iron Phosphorous	7439-89-6 7723-14-0	2.30	
	Trade Secret	Die Attach	0.936	0.131	9,360			7723-14-0 7440-66-0	0.25	
Acrylate resins Proprietary					_,		Zinc (Metal)	7440-06-0 Total	0.15	
Treated silica	Trade Secret	Die Attach	0.024	0.003	240					
Heterocyclic organic compound	Trade Secret	Die Attach	0.024	0.003	240	0.17	(mg) Total	Die Attach	% of Total Weight	1.2
Silicon	7440-21-3	Chip (Die)	4.010	0.561	40,100		Silver	7440-22-4	78	
Gold	7440-57-5	Wire Bond	0.770	0.108	7,700		Acrylate resins Proprietary	Trade Secret	18	
Nickel	7440-02-0	Plating on external leads (pins)	0.412	0.058	4,116		Treated silica	Trade Secret	2	
Palladium	5/3/7440	Plating on external leads (pins)	0.014	0.002	139	Hete	erocyclic organic compound	Trade Secret	2	
Gold	7440-57-5	Plating on external leads (pins)	0.004	0.001	45			Total	100.00	
		TOTALS	: 100.000	14.000	1,000,000	0.56	Total (mg)	Chip (Die)	% of Total Weight	4.01
tive 2002/53/EC (End-of-Life Vehicles (ELV) Directive).	.,	Total Mass /EC (RoHS Directive), EU Directive 2011/65/EI	J (RoHS Recast Dir				Total (mg) Doped Silicon	7440-21-3 Total	100 100.00	
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). Ipliance with the above EU Directives has been verified vi	mply with EU Directive 2002/95	Total Mass /EC (RoHS Directive), EU Directive 2011/65/EI plier declarations, and /or analytical test data	J (RoHS Recast Dir	rective) and v	vith EU	0.56		7440-21-3	100	4.01 0.77
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). apliance with the above EU Directives has been verified vi chemical substance is absent from the list above, the che rporated's knowledge and belief as of the date of this door	mply with EU Directive 2002/95 ia internal design controls, sup emical substance is NOT an intr cument, there is no credible rea	Total Mass /EC (RoHS Directive), EU Directive 2011/65/EI plier declarations, and /or analytical test data entional ingredient in the semiconductor devia soon to believe that the unavoidable impurity	U (RoHS Recast Dir ce and, to the best	rective) and v of Microchip	vith EU Technology		Doped Silicon	7440-21-3 Total	100 100.00	
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). npliance with the above EU Directives has been verified vi chemical substance is absent from the list above, the che prporated's knowledge and belief as of the date of this dor , is not below the threshold of regulatory concern for any ding compounds used by Microchip meet the UL94 V0 fla	mply with EU Directive 2002/95 ia internal design controls, sup emical substance is NOT an intr cument, there is no credible rei regulatory scheme world-wide mmability standard for plastics	Total Mass /EC (RoHS Directive), EU Directive 2011/65/EU plier declarations, and /or analytical test data entional ingredient in the semiconductor devia son to believe that the unavoidable impurity o	U (RoHS Recast Dir ce and, to the best concentration of th	rective) and v of Microchip se chemical se	vith EU Technology		Doped Silicon (mg) Total	7440-21-3 Total Wire Bond	100 100.00 % of Total Weight	
ective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). mpliance with the above EU Directives has been verified vi chemical substance is absent from the list above, the che orporated's knowledge and belief as of the date of this dod , is not below the threshold of regulatory concern for any ding compounds used by Microchip meet the UL94 V0 flar ://ul.com/global/eng/pages/offerings/industries/chemicals protective "tubes" in which the specific product is shipp	mply with EU Directive 2002/95 ia internal design controls, sup emical substance is NOT an int cument, there is no credible rea regulatory scheme world-wide mmability standard for plastics /plastics/	Total Mass //EC (RoHS Directive), EU Directive 2011/65/EU plier declarations, and /or analytical test data entional ingredient in the semiconductor devic ason to believe that the unavoidable impurity of You can access the UL iQTM family of datab	J (RoHS Recast Di ce and, to the best concentration of th ases to obtain a te	rective) and v of Microchip le chemical su est report at	vith EU Technology ubstance, if		(mg) Total	7440-21-3 Total Wire Bond 7440-57-5	100 100.00 % of Total Weight 100	
s semiconductor device and its homogenous materials co active 2002/53/EC (End-of-Life Vehicles (ELV) Directive). npliance with the above EU Directives has been verified vi chemical substance is absent from the list above, the che proprated's knowledge and belief as of the date of this door, is not below the threshold of regulatory concern for any ding compounds used by Microchip meet the UL94 V0 flat ://ul.com/global/eng/pages/offerings/industries/chemicals or protective "tubes" in which the specific product is shipp certain "reels" may be made from PVC plastic. rochip Technology Incorporated believes the information heir original packing materials is true and correct to the bi completeness and accuracy of data in this form because oplier information is often protected from disclosure as tra rmation is provided only as estimates of the average weig ude trace levels of dopants, metals, and non-metal materi	mply with EU Directive 2002/95 ia internal design controls, sup emical substance is NOT an inte cument, there is no credible re- regulatory scheme world-wide mmability standard for plastics /plastics/ ed are made from polyvinyl chl in this form concerning substa est of its knowledge and belief, it has been compiled based on ade secrets and some informati jht of these parts and the avera	otal Mass /EC (RoHS Directive), EU Directive 2011/65/EI plier declarations, and /or analytical test data antional ingredient in the semiconductor devic son to believe that the unavoidable impurity of . You can access the UL iQTM family of datab oride (PVC) plastic. "Window envelopes" use nees restricted by RoHS in Microchip Techno as of the date listed in this form. Microchip Techno as of the date listed in Material Safety Data S on may not have been provided by subcontra ige weight of anticipated significant toxic met	J (RoHS Recast Di ce and, to the best concentration of th ases to obtain a te d to hold the packi logy Incorporated's echnology Incorpo iheets provided by ct assemblers and	rective) and v of Microchip le chemical su st report at ng Slip on the s semiconduc rated cannot raw material raw material	vith EU Technology ubstance, if outer box ctor devices guarantee suppliers. suppliers.	0.11	(mg) Total	7440-21-3 Total Wire Bond 7440-57-5 Total Plating on external leads	100 100.00 % of Total Weight 100 100.00	0.77
ective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). mpliance with the above EU Directives has been verified vi chemical substance is absent from the list above, the che orporated's knowledge and belief as of the date of this dod , is not below the threshold of regulatory concern for any ding compounds used by Microchip meet the UL94 V0 flat ://ul.com/global/eng/pages/offerings/industries/chemicals protective "tubes" in which the specific product is shipped certain "reels" may be made from PVC plastic. rochip Technology Incorporated believes the information heir original packing materials is true and correct to the bu completeness and accuracy of data in this form because oplier information is often protected from disclosure as tra rmation is provided only as estimates of the average weig	mply with EU Directive 2002/95 ia internal design controls, sup emical substance is NOT an intr cument, there is no credible rea regulatory scheme world-wide mmability standard for plastics /plastics/ ed are made from polyvinyl chl in this form concerning substa est of its knowledge and belief, it has been compiled based on ide secrets and some informati ght of these parts and the avera als contained within silicon der rranty, express or implied, with nd its subsidiaries are contain	Total Mass /EC (RoHS Directive), EU Directive 2011/65/EU plier declarations, and /or analytical test data antional ingredient in the semiconductor devices ason to believe that the unavoidable impurity of . You can access the UL iQTM family of datab oride (PVC) plastic. "Window envelopes" use nees restricted by RoHS in Microchip Techno as of the date listed in this form. Microchip Techno as of the date listed in Material Safety Data S on may not have been provided by subcontra uge weight of anticipated significant toxic met vices (silicon IC) in the finished parts.	J (RoHS Recast Di ce and, to the best concentration of th ases to obtain a te d to hold the packi logy Incorporated's echnology Incorpo iheets provided by ct assemblers and als components. T	rective) and v of Microchip le chemical su ist report at ng slip on the s semiconduc rated cannot raw material hese estimate	vith EU Technology ubstance, if outer box ctor devices guarantee suppliers. suppliers. so do not	0.11	(mg) Total Doped Gold (mg) Total	7440-21-3 Total Wire Bond 7440-57-5 Total Plating on external leads (pins)	100 100.00 % of Total Weight 100 100.00 % of Total Weight	0.77
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). upliance with the above EU Directives has been verified vi- chemical substance is absent from the list above, the che rporated's knowledge and belief as of the date of this doc is not below the threshold of regulatory concern for any ding compounds used by Microchip meet the UL94 V0 flat //ul.com/global/eng/pages/offerings/industries/chemicals protective "tubes" in which the specific product is shipp certain "reels" may be made from PVC plastic. ochip Technology Incorporated believes the information ier original packing materials is true and correct to the br completeness and accuracy of data in this form because plier information is often protected from disclosure as tra mation is provided only as estimates of the average weig de trace levels of dopants, metals, and non-metal materi ochip Technology Incorporated does not provide any wal anties provided by Microchip Technology Incorporated a	mply with EU Directive 2002/95 ia internal design controls, sup emical substance is NOT an intr cument, there is no credible re- regulatory scheme world-wide mmability standard for plastics //plastics/ ed are made from polyvinyl chl in this form concerning substa est of its knowledge and belief, it has been compiled based on ade secrets and some information ade secrets and some information der rranty, express or implied, with and the subsidiaries are contain twoices.	Total Mass //EC (RoHS Directive), EU Directive 2011/65/EU plier declarations, and /or analytical test data entional ingredient in the semiconductor devic ason to believe that the unavoidable impurity of You can access the UL iQTM family of datab oride (PVC) plastic. "Window envelopes" use nces restricted by RoHS in Microchip Techno as of the date listed in this form. Microchip T the ranges provided in Material Safety Data S on may not have been provided by subcontra age weight of anticipated significant toxic met vices (silicon IC) in the finished parts. respect to the information provided in this de ed in Microchip's standard terms and conditional tarations and shall not be liable for any damage	J (RoHS Recast Di ce and, to the best concentration of th ases to obtain a te d to hold the packi logy Incorporated's echnology Incorpo theets provided by ct assemblers and als components. T eclaration. The exc ms of sale. These a	rective) and v of Microchip le chemical su ist report at ng slip on the s semiconduc rated cannot raw material hese estimate clusive, limited are provided i ect, conseque	vith EU Technology ubstance, if outer box ctor devices guarantee suppliers. suppliers. as do not d product n ntial or	0.11	(mg) Total Doped Gold (mg) Total Nickel	7440-21-3 Total Wire Bond 7440-57-5 Total Plating on external leads (pins) 7440-02-0	100 100.00 % of Total Weight 100 100.00 % of Total Weight 95.73	0.77

	e Type: 08 TDFN 2x3x0.75m	m (80)		ation Base (oper Alloy (nogeneous Materials: e.g. pc boards, display	ys)	JEDEC 97 Produ Marking and/or Pkg. Labeling e4
		"Contained In"	% Total			25.74	() T	Mold Compound	% ot Total Weight	53.08
Basic Substance	CAS Number	Sub-Component	Weight	mg/part	ppm	25.74	(mg) Total	Mola Compouna	% of Total weight	53.08
Silica, vitreous (or fused)	60676-86-0	Mold Compound	45.118	21.882	451,180		Silica, vitreous (or fused)	60676-86-0	85.00	
Epoxy Resin	Trade Secret	Mold Compound	4.618	2.240	46,180		Epoxy Resin	Trade Secret	8.70	
Phenolic Resin	Trade Secret	Mold Compound	3.185	1.545	31,848		Phenolic Resin	Trade Secret	6.00	
Carbon Black	1333-86-4	Mold Compound	0.159	0.077	1,592		Carbon Black	1333-86-4	0.30	
Copper	7440-50-8	Lead Frame	39.338	19.079	393,384			Total	100.00	
Iron	7439-89-6	Lead Frame	0.930	0.451	9,299	19.61	(mg) Total	Lead Frame	% of Total Weight	40.43
Phosphorous Zinc (Metal)	7723-14-0 7440-44-0	Lead Frame Lead Frame	0.101	0.049	1,011 606		Copper	7440-50-8 7439-89-6	97.30 2.30	
Silver	7440-44-0	Die Attach	0.061	0.029	1.463		Iron Phosphorous	7439-89-6	0.25	
Epoxy resin	Trade Secret	Die Attach	0.146	0.071	380		Zinc (Metal)	7440-44-0	0.25	
Metal oxide	Trade Secret	Die Attach	0.006	0.003	57		Zinc (Wetai)	Total	100.00	
Silicon	7440-21-3	Chip (Die)	3.980	1.930	39.800	0.09	(mg) Total	Die Attach	% of Total Weight	0.19
Gold	7440-21-3	Wire Bond	0.560	0.272	5.600	0.09	(mg) Total Silver	7440-22-4	% of Total weight 77	0.19
Nickel	7440-07-0	Plating on external leads (pins)	1.584	0.272	5,600		Epoxy resin	Trade Secret	20	
Palladium	7440-02-0	Plating on external leads (pins)	0.088	0.043	880		Metal oxide	Trade Secret	20	
Gold	7440-03-3	Plating on external leads (pins)	0.088	0.043	880		Ivietal Oxide	Total	100.00	
Gold	7440-57-5	TOTA		48.500	1.000.000	1.93	Total (mg)	Chip (Die)	% of Total Weight	3.98
		IUIA				1.93				3.98
	0.0485 g T comply with EU Directive 2002/95			ctive) and wit	,,		Dope Silicon	7440-21-3 Total	100 100.00	
ive 2002/53/EC (End-of-Life Vehicles (ELV) Directive).	omply with EU Directive 2002/95	/EC (RoHS Directive), EU Directive 2011/65/EU (F		ctive) and wit	,,	0.27		7440-21-3	100	0.56
ve 2002/53/EC (End-of-Life Vehicles (ELV) Directive). iance with the above EU Directives has been verified emical substance is absent from the list above, the ch orated's knowledge and belief as of the date of this d	omply with EU Directive 2002/95 via internal design controls, sup nemical substance is NOT an inte ocument, there is no credible rea	/EC (RoHS Directive), EU Directive 2011/65/EU (F plier declarations, and /or analytical test data. entional ingredient in the semiconductor device a son to believe that the unavoidable impurity con	oHS Recast Direct	Microchip Te	h EU echnology	0.27	Dope Silicon	7440-21-3 Total	100 100.00	0.56
ve 2002/53/EC (End-of-Life Vehicles (ELV) Directive). iance with the above EU Directives has been verified emical substance is absent from the list above, the ch orated's knowledge and belief as of the date of this di not below the threshold of regulatory concern for an ing compounds used by Microchip meet the UL94 V0 fl	omply with EU Directive 2002/95 via internal design controls, sup nemical substance is NOT an inte ocument, there is no credible rea y regulatory scheme world-wide. ammability standard for plastics.	/EC (RoHS Directive), EU Directive 2011/65/EU (F plier declarations, and /or analytical test data. entional ingredient in the semiconductor device a son to believe that the unavoidable impurity con	oHS Recast Direct	Microchip Te chemical sub	h EU echnology	0.27	Dope Silicon (mg) Total	7440-21-3 Total Wire Bond	100 100.00 % of Total Weight	0.56
emiconductor device and its homogenous materials o ive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). liance with the above EU Directives has been verified emical substance is absent from the list above, the cr borated's knowledge and belief as of the date of this d s not below the threshold of regulatory concern for an g compounds used by Microchip meet the UL94 V0 fl ul.com/global/eng/pages/offerings/industries/chemica rotective "tubes" in which the specific product is ship artain "reels" may be made from PVC plastic.	with EU Directive 2002/95 via internal design controls, supplemical substance is NOT an inte ocument, there is no credible ree y regulatory scheme world-wide. ammability standard for plastics. (s/plastics/	/EC (RoHS Directive), EU Directive 2011/65/EU (F plier declarations, and /or analytical test data. Intional ingredient in the semiconductor device a son to believe that the unavoidable impurity con You can access the UL iQTM family of database	oHS Recast Direct nd, to the best of entration of the c s to obtain a test	Microchip Te chemical sub report at	h EU echnology stance, if	0.27	Dope Silicon (mg) Total	7440-21-3 Total Wire Bond 7440-57-5	100 100.00 % of Total Weight 100	0.56
ve 2002/53/EC (End-of-Life Vehicles (ELV) Directive). ance with the above EU Directives has been verified emical substance is absent from the list above, the cf brated's knowledge and belief as of the date of this di- not below the threshold of regulatory concern for an g compounds used by Microchip meet the UL94 V0 fi l.com/global/eng/pages/offerings/industries/chemica otective "tubes" in which the specific product is ship rtain "reels" may be made from PVC plastic. hip Technology Incorporated believes the information riginal packing materials is true and correct to the be steness and accuracy of data in this form because it l ar information is often protected from disclosure as t ation is provided only as estimates of the average we	with EU Directive 2002/95 via internal design controls, sup memical substance is NOT an inte ocument, there is no credible rea y regulatory scheme world-wide. ammability standard for plastics. (s/plastics/ ped are made from polyvinyl chlo n in this form concerning substan st of its knowledge and belief, as has been compiled based on the cade secrets and some informatii ight of these parts and the avera	/EC (RoHS Directive), EU Directive 2011/65/EU (F plier declarations, and /or analytical test data. Intional ingredient in the semiconductor device a ison to believe that the unavoidable impurity con You can access the UL iQTM family of database bride (PVC) plastic. "Window envelopes" used to nces restricted by RoHS in Microchip Technolog of the date listed in this form. Microchip Technolog ranges provided in Material Safety Data Sheets p on may not have been provided by subcontract a ge weight of anticipated significant toxic metals	oHS Recast Direct nd, to the best of centration of the s to obtain a test hold the packing Incorporated's s logy Incorporated's s coyided by raw m ssemblers and ra	Microchip Te chemical sub report at slip on the o semiconducto d cannot guan aterial suppl w material suppl	h EU echnology stance, if uter box or devices in rantee the iers. appliers.		Oppe Silicon (mg) Total Doped Gold	7440-21-3 Total Wire Bond 7440-57-5 Total Plating on external leads	100 100.00 % of Total Weight 100 100.00	
ive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). liance with the above EU Directives has been verified emical substance is absent from the list above, the ch porated's knowledge and belief as of the date of this de is not below the threshold of regulatory concern for an ng compounds used by Microchip meet the UL94 V0 fl u.com/global/eng/pages/offerings/industries/chemica rotective "tubes" in which the specific product is ship	with EU Directive 2002/95 via internal design controls, sup memical substance is NOT an inte ocument, there is no credible rea y regulatory scheme world-wide. ammability standard for plastics. (s/plastics/ ped are made from polyvinyl chle n in this form concerning substan st of its knowledge and belief, as has been compiled based on the rade secrets and some informati- ight of these parts and the avera- rials contained within silicon dev arranty, express or implied, with	/EC (RoHS Directive), EU Directive 2011/65/EU (F plier declarations, and /or analytical test data. Intional ingredient in the semiconductor device a son to believe that the unavoidable impurity con You can access the UL iQTM family of database bride (PVC) plastic. "Window envelopes" used to the date listed in this form. Microchip Technolog of the date listed in this form. Microchip Technolog ranges provided in Material Safety Data Sheets p on may not have been provided by subcontract to ge weight of anticipated significant toxic metals ices (silicon IC) in the finished parts.	oHS Recast Direct nd, to the best of centration of the s to obtain a test hold the packing Incorporated's s logy Incorporated rovided by raw m semblers and ra- components. The ration. The exclus	Microchip Te chemical sub report at slip on the o semiconducto d cannot guat aterial supp material sup se estimates sive, limited p	h EU schnology stance, if uter box or devices in rantee the iers. uppliers. do not		(mg) Total (mg) Total (mg) Total	7440-21-3 Total Wire Bond 7440-57-5 Total Plating on external leads (pins)	100 100.00 % of Total Weight 100 100.00 % of Total Weight	
ive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). liance with the above EU Directives has been verified emical substance is absent from the list above, the ch torated's knowledge and belief as of the date of this di s not below the threshold of regulatory concern for an rg compounds used by Microchip meet the UL94 V0 ff ul.com/global/eng/pages/offerings/industries/chemica rotective "tubes" in which the specific product is ship rrtain "reels" may be made from PVC plastic. chip Technology Incorporated believes the information irrginal packing materials is true and correct to the be eteness and accuracy of data in this form because it I lier information is often protected from disclosure as t attoin is provided only as estimates of the average we e trace levels of dopants, metals, and non-metal mate chip Technology Incorporated does not provide any w tites provided by Microchip Technology Incorporated	with EU Directive 2002/95 via internal design controls, sup memical substance is NOT an inte ocument, there is no credible rea y regulatory scheme world-wide. ammability standard for plastics. Is/plastics/ ped are made from polyvinyl chle in this form concerning substant st of its knowledge and belief, as has been compiled based on the rade secrets and some informati- ight of these parts and the avera- rials contained within silicon dev arranty, express or implied, with and its subsidiaries are containe changes to Material Content Decl- ne users' reliance on the informati-	/EC (RoHS Directive), EU Directive 2011/65/EU (F plier declarations, and /or analytical test data. Intional ingredient in the semiconductor device a son to believe that the unavoidable impurity con You can access the UL iQTM family of database oride (PVC) plastic. "Window envelopes" used to neces restricted by RoHS in Microchip Technolog of the date listed in this form. Microchip Technolog of the date listed in this form. Microchip Technolog on may not have been provided by subcontract a ge weight of anticipated significant toxic metals ices (silicon IC) in the finished parts. respect to the information provided in this decla ed in Microchip's standard terms and conditions arations and shall not be liable for any damages,	oHS Recast Direct and, to the best of centration of the of s to obtain a test hold the packing incorporated's s logy incorporated's s logy incorporated's s logy incorporated semblers and ra components. The ration. The exclusion of sale. These are direct or indirect	Microchip Te chemical sub report at slip on the o semiconducto d cannot guan atterial suppl w material su se estimates sive, limited p provided in , consequent	h EU schnology stance, if uter box or devices in rantee the iers. uppliers. do not product Microchip's ial or		(mg) Total (mg) Total (mg) Total Nickel	7440-21-3 Total Wire Bond 7440-57-5 Total Plating on external leads (pins) 7440-02-0	100 100.00 % of Total Weight 100 100.00 % of Total Weight 90.00	

AICROCHIP Semiconductor Device	Type: QAE 8 (Lead) T	DFN-S 6x5x0.8mm (U3)		nation Base / pper Alloy (C				ogeneous Materials: g. pc boards, display	rs)	JEDEC 97 Product Markin and/or Pkg. Labeling e3
		"Contained In"	% Total			38.82	(mg) Total	Mold Compound	% ot Total Weight	52.6
Basic Substance	CAS Number	Sub-Component	Weight	mg/part	ppm	56.62				52.0
Silica, fused	60676-86-0	Mold Compound	47.340	34.937	473,400	_	Silica, fused	60676-86-0	90.00	
Epoxy Resin (NLP # 500-033-5) Phenolic Resin	Trade Secret Trade Secret	Mold Compound Mold Compound	2.551 2.551	1.883 1.883	25,511 25,511	Epoxy	y Resin (NLP # 500-033-5) Phenolic Resin	Trade Secret Trade Secret	4.85 4.85	
Carbon Black	1333-86-4	Mold Compound	0.158	0.116	1,578		Carbon Black	1333-86-4	4.85	
Copper	7440-50-8	Lead Frame	38.215	28.203	382,150		Ourboin Black	Total	100.00	l
Iron	7439-89-6	Lead Frame	0.940	0.694	9,400	29.52	(mg) Total	Lead Frame	% of Total Weight	40
Silver	7440-22-4	Lead Frame	0.762	0.562	7.620		Copper	7440-50-8	95.54	
Zinc	7440-66-6	Lead Frame	0.050	0.037	500		Iron	7439-89-6	2.35	
Phosphorous	7723-14-0	Lead Frame	0.033	0.024	330		Silver	7440-22-4	1.91	
Silver (Ag)	7440-22-4	Die Attach	0.704	0.520	7,040		Zinc	7440-66-6	0.13	
Epoxy Resin	Trade Secret	Die Attach	0.150	0.110	1,496		Phosphorous	7723-14-0	0.08	
Copper (Cu)	7440-50-8	Die Attach	0.026	0.019	264			Total	100.00	
Silicon	7440-21-3	Chip (Die)	5.140	3.793	51,400	0.65	(mg) Total	Die Attach	% of Total Weight	0.88
Gold	7440-57-5	Wire Bond	0.270	0.199	2,700		Silver (Ag)	7440-22-4	80	
Tin	7440-31-5 P	lating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	1.110 100.000	0.819 73.800	11,100 1,000,000		Epoxy Resin	Trade Secret 7440-50-8	17	
		TOTALS:	100.000	73.000	1,000,000		Copper (Cu)	7440-50-8 Total	ى 100.00	
		Total Mass						Iotai	100.00	
s semiconductor device and its homogenous materials c	omply with EU Directive 200	2/95/EC (RoHS Directive), EU Directive 2011/65/EU (RoHS Recast	Directive) and	d with EU	3.79	T = (= 1 (= = =)			
						0.75	Total (mg)	Chip (Die)	% of Total Weight	5.14
mpliance with the above EU Directives has been verified v	C .					0.10	Doped Silicon	7440-21-3	100	
active 2002/53/EC (End-of-Life Vehicles (ELV) Directive). mpliance with the above EU Directives has been verified of chemical substance is absent from the list above, the ch chology Incorporated's knowledge and belief as of the d stance, if any, is not below the threshold of regulatory or lding compounds used by Microchip meet the UL94 V0 fit	emical substance is NOT an late of this document, there oncern for any regulatory so ammability standard for plas	intentional ingredient in the semiconductor device is no credible reason to believe that the unavoidabl heme world-wide.	e impurity con	centration of	the chemical	0.20	,	,		
mpliance with the above EU Directives has been verified chemical substance is absent from the list above, the ch chnology incorporated's knowledge and belief as of the d ostance, if any, is not below the threshold of regulatory co	emical substance is NOT an late of this document, there oncern for any regulatory so ammability standard for plas Is/plastics/	intentional ingredient in the semiconductor device is no credible reason to believe that the unavoidable theme world-wide. tics. You can access the UL iQTM family of databas	e impurity con es to obtain a	centration of test report at	the chemical		Doped Silicon	7440-21-3 Total	100 100.00	
mpliance with the above EU Directives has been verified chemical substance is absent from the list above, the ch shology Incorporated's knowledge and belief as of the d stance, if any, is not below the threshold of regulatory cc lding compounds used by Microchip meet the UL94 V0 fit p://ul.com/global/eng/pages/offerings/industries/chemical e protective "tubes" in which the specific product is shipp	emical substance is NOT an late of this document, there oncern for any regulatory so ammability standard for plas ls/plastics/ ped are made from polyvinyl in this form concerning su it to the best of its knowledg rm because it has been com osure as trade secrets and overage weight of these parts	intentional ingredient in the semiconductor device is no credible reason to believe that the unavoidable heme world-wide. tics. You can access the UL iQTM family of databas chloride (PVC) plastic. "Window envelopes" used t bstances restricted by RoHS in Microchip Technolo e and belief, as of the date listed in this form. Micro piled based on the ranges provided in Material Safe some information may not have been provided by st and the average weight of anticipated significant t	e impurity con es to obtain a o hold the pao gy Incorporate chip Technolo ty Data Sheet: bacontract ass oxic metals cc	centration of test report at cking slip on t ed's semicono ogy Incorpora s provided by semblers and	the chemical the outer box ductor ted cannot raw material raw material		Doped Silicon (mg) Total	7440-21-3 Total	100 100.00 % of Total Weight	
mpliance with the above EU Directives has been verified a chemical substance is absent from the list above, the ch shoology Incorporated's knowledge and belief as of the d stance, if any, is not below the threshold of regulatory cc dig compounds used by Microchip meet the UL94 V0 fit or//ul.com/global/eng/pages/offerings/industries/chemical e protective "tubes" in which the specific product is shipp a certain "reels" may be made from PVC plastic. rochip Technology Incorporated believes the information rices in their original packing materials is true and correc arantee the completeness and accuracy of data in this for ppliers. Supplier information is often protected from discl- ppliers. Information is provided only as estimates of the a	emical substance is NOT an late of this document, there oncern for any regulatory so ammability standard for plas is/plastics/ ped are made from polyvinyl in in this form concerning su it to the best of its knowledg rm because it has been com osure as trade secrets and i verage weight of these parts d non-metal materials contai arranty, express or implied, and its subsidiaries are con	intentional ingredient in the semiconductor device is no credible reason to believe that the unavoidable heme world-wide. tics. You can access the UL iQTM family of databas chloride (PVC) plastic. "Window envelopes" used to bstances restricted by RoHS in Microchip Technolo e and belief, as of the date listed in this form. Micro piled based on the ranges provided in Material Safe some information may not have been provided by sis and the average weight of anticipated significant to ined within silicon devices (silicon IC) in the finished with respect to the information provided in this dec	e impurity con es to obtain a o hold the pac gy Incorporate chip Technolo ty Data Sheet: Jbcontract ass oxic metals co i parts.	centration of test report at cking slip on t ed's semicono gy Incorpora s provided by semblers and mponents. Ti exclusive, limi	the chemical the outer box ductor ted cannot raw material raw material hese ted product		Doped Silicon (mg) Total	7440-21-3 Total Wire Bond 7440-57-5	100 100.00 % of Total Weight 100	0.27
mpliance with the above EU Directives has been verified to chemical substance is absent from the list above, the ch shonlogy Incorporated's knowledge and belief as of the d bastance, if any, is not below the threshold of regulatory co lding compounds used by Microchip meet the UL94 V0 fla 5://ul.com/global/eng/pages/offerings/industries/chemical e protective "tubes" in which the specific product is ship I certain "reels" may be made from PVC plastic. rochip Technology Incorporated believes the information rices in their original packing materials is true and correc- trantee the completeness and accuracy of data in this for pipiers. Supplier information is often protected from discl oppliers. Information is provided only as estimates of the a imates do not include trace levels of dopants, metals, and rochip Technology Incorporated does not provide any w ranties provided by Microchip Technology Incorporated	emical substance is NOT an late of this document, there oncern for any regulatory so ammability standard for plas (s/plastics/ ped are made from polyviny) in this form concerning su it to the best of its knowledg rm because it has been com osure as trade secrets and a verage weight of these parts d non-metal materials contai arranty, express or implied, and its subsidiaries are con invoices. hanges to Material Content te users' reliance on the infor	intentional ingredient in the semiconductor device is no credible reason to believe that the unavoidable theme world-wide. tics. You can access the UL iQTM family of databas I chloride (PVC) plastic. "Window envelopes" used to bstances restricted by RoHS in Microchip Technoloo piled based on the ranges provided in Material Safe some information may not have been provided by st is and the average weight of anticipated significant t ined within silicon devices (silicon IC) in the finished with respect to the information provided in this dec tained in Microchip's standard terms and conditions Declarations and shall not be liable for any damage	e impurity con es to obtain a o hold the pac gy Incorporate chip Technolo ty Data Sheet: Jbcontract ass oxic metals co i parts. Iaration. The e s of sale. Thes s, direct or ind	centration of test report at cking slip on t ed's semicono gy Incorpora s provided by semblers and mponents. TI exclusive, limi ise are provide lirect, conseq	the chemical the outer box ductor ted cannot raw material nese ted product d in uential or	0.20	Doped Silicon (mg) Total Doped Gold	7440-21-3 Total Wire Bond 7440-57-5 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for	100 100.00 % of Total Weight 100 100.00	0.27

	Turner ODAE - 00			nation Base A pper Alloy (C			•	ogeneous Materials: g. pc boards, display	rs)	JEDEC 97 Product Markir and/or Pkg. Labeling e3
Semiconductor Device	Type: Q2AE 08 (Lea	d) I DFN-S 6x8x0.8mm (S9) "Contained In"	% Total	1						63
Basic Substance	CAS Number	Sub-Component	Weight	mg/part	ppm	52.55	(mg) Total	Mold Compound	% ot Total Weight	37.14
Fused Silica	60676-86-0	Mold Compound	32.869	46.509	328,689	1	Fused Silica	60676-86-0	88.50	1
Epoxy Resin 1	Trade Secret	Mold Compound	2.414	3.416	24,141		Epoxy Resin	Trade Secret	6.50	
Phenol Resin	Trade Secret	Mold Compound	1.764	2.496	17,642		Phenol Resin	Trade Secret	4.75	
Carbon Black	1333-86-4	Mold Compound	0.093	0.131	929		Carbon Black	1333-86-4	0.25	
Copper	7440-50-8	Lead Frame	47.490	67.199	474,904			Total	100.00	
Silver	7440-22-4	Lead Frame	3.287	4.651	32,867	73.82	(mg) Total	Lead Frame	% of Total Weight	52.17
Iron	7439-89-6	Lead Frame	1.143	1.617	11,425		Copper	7440-50-8	91.03	
Zinc	7440-66-6	Lead Frame	0.177	0.251	1,774		Silver	7440-22-4	6.30	
Phosphorus	7723-14-0 7440-22-4	Lead Frame	0.073	0.103	730 9.625		Iron	7439-89-6	2.19	
Silver Acrylic Resin	Trade secret	Die Attach Die Attach	0.963	0.150	9,625		Zinc Phosphorus	7440-66-6 7723-14-0	0.34	
	Trade secret	Die Attach	0.081	0.150	813		Phosphorus		0.14	1
Polybutadiene derivative & copolymer		Die Attach Die Attach	0.081	0.097	688	4 77	(a) T . ()	Total		
Acrylate	Trade secret	Die Attach Die Attach	0.069	0.097	313	1.77	(mg) Total	Die Attach	% of Total Weight	1.25
Epoxy Resin 2 Silicon	Trade secret 7440-21-3	Chip (Die)	7.800	11.037	78.000		Silver Acrylic Resin	7440-22-4 Trade secret	77.00 8.50	
Gold	7440-21-3	Wire Bond	0.040	0.057	400	Dalukutadia	ne derivative & copolymer	Trade secret	6.50	
Tin		Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	1.600	2.264	16,000	Polybuladier	Acrylate	Trade secret	5.50	
1111	7440-31-5	TOTALS:	100.000	141.500	1.000.000		Epoxy Resin	Trade secret	2.50	
	0.4.445 -	Total Mass	100.000	141.000	1,000,000		LDOXY IVESIII	Total	100.00	1
lianaa with the shaws EU Disections has been weitind vi							Total (mg)	Chip (Die)	% of Total Weight	7.8
nemical substance is absent from the list above, the che nology Incorporated's knowledge and belief as of the da	emical substance is NOT ar ate of this document, there	n intentional ingredient in the semiconductor device is no credible reason to believe that the unavoidabl				ĺ	Doped Silicon	7440-21-3 Total	100 100.00	
nemical substance is absent from the list above, the che nology Incorporated's knowledge and belief as of the da ance, if any, is not below the threshold of regulatory co ng compounds used by Microchip meet the UL94 V0 fla	emical substance is NOT an ate of this document, there uncern for any regulatory so mmability standard for plas	n intentional ingredient in the semiconductor device is no credible reason to believe that the unavoidabl cheme world-wide.	le impurity con	ncentration of	the chemical	0.06		7440-21-3	100]
hemical substance is absent from the list above, the che nology Incorporated's knowledge and belief as of the da tance, if any, is not below the threshold of regulatory co ing compounds used by Microchip meet the UL94 V0 fla //ul.com/global/eng/pages/offerings/industries/chemicals protective "tubes" in which the specific product is shipp	emical substance is NOT ar ate of this document, there incern for any regulatory so mmability standard for plas s/plastics/	n intentional ingredient in the semiconductor device is no credible reason to believe that the unavoidabl cheme world-wide. stics. You can access the UL iQTM family of databas	le impurity con ses to obtain a	ncentration of a test report at	the chemical	0.06	Doped Silicon	7440-21-3 Total	100	
pliance with the above EU Directives has been verified vi hemical substance is absent from the list above, the che nology Incorporated's knowledge and belief as of the da tance, if any, is not below the threshold of regulatory cor- ing compounds used by Microchip meet the UL94 V0 flar //ul.com/global/eng/pages/offerings/industries/chemicals protective "tubes" in which the specific product is shipp certain "reels" may be made from PVC plastic. Dochip Technology Incorporated believes the information zes in their original packing materials is true and correct antee the completeness and accuracy of data in this forr lifers. Supplier information is often protected from disclo lifers. Information is provided only as estimates of the av nates do not include trace levels of dopants, metals, and	emical substance is NOT at the of this document, there incern for any regulatory so mmability standard for plas s/plastics/ ed are made from polyviny in this form concerning su to the best of its knowledgen m because it has been com usure as trade secrets and rerage weight of these part	n intentional ingredient in the semiconductor device is no credible reason to believe that the unavoidabl cheme world-wide. stics. You can access the UL iQTM family of databas I chloride (PVC) plastic. "Window envelopes" used bistances restricted by RoHS in Microchip Technolo ge and belief, as of the date listed in this form. Micro piled based on the ranges provided in Material Safe some information may not have been provided by s	le impurity con ses to obtain a to hold the pa ogy Incorporat pety Data Sheej ubcontract as toxic metals c	ncentration of a test report at cking slip on t ted's semiconc ogy Incorporat ts provided by semblers and	the chemical he outer box luctor ed cannot raw material raw material	0.06	Doped Silicon (mg) Total	7440-21-3 Total Wire Bond	100 100.00 % of Total Weight	0.04
hemical substance is absent from the list above, the che nology Incorporated's knowledge and belief as of the da tance, if any, is not below the threshold of regulatory coi ing compounds used by Microchip meet the UL94 V0 flar //ul.com/global/eng/pages/offerings/industries/chemicals protective "tubes" in which the specific product is shipp certain "reels" may be made from PVC plastic. bochip Technology Incorporated believes the information ces in their original packing materials is true and correct antee the completeness and accuracy of data in this forr liers. Supplier information is often protected from disclo liers. Information is provided only as estimates of the av	emical substance is NOT at the of this document, there incern for any regulatory so mmability standard for plas s/plastics/ ied are made from polyviny in this form concerning su to the best of its knowledg m because it has been com sure as trade secrets and non-metal materials conta unon-metal materials conta unon-metal materials conta	n intentional ingredient in the semiconductor device is no credible reason to believe that the unavoidable cheme world-wide. stics. You can access the UL iQTM family of database of chloride (PVC) plastic. "Window envelopes" used ubstances restricted by RoHS in Microchip Technolo ge and belief, as of the date listed in this form. Micro upiled based on the ranges provided in Material Saft some information may not have been provided by s s and the average weight of anticipated significant to ined within silicon devices (silicon IC) in the finishe with respect to the information provided in this dec	le impurity con ses to obtain a to hold the pa ogy Incorporat chip Technol ty Data Sheet ubcontract as toxic metals co d parts.	ncentration of a test report at cking slip on t ed's semiconc ogy Incorporat ts provided by semblers and omponents. Th exclusive, limit	the chemical he outer box luctor ed cannot raw material rese red product	0.06	Doped Silicon (mg) Total	7440-21-3 Total Wire Bond 7440-57-5	100 100.00 % of Total Weight	0.04
hemical substance is absent from the list above, the che nology Incorporated's knowledge and belief as of the da tance, if any, is not below the threshold of regulatory cor- ing compounds used by Microchip meet the UL94 V0 flar //ul.com/global/eng/pages/offerings/industries/chemicals orotective "tubes" in which the specific product is shipp pertain "reels" may be made from PVC plastic. bochip Technology Incorporated believes the information ese in their original packing materials is true and correct antee the completeness and accuracy of data in this forr liers. Supplier information is often protected from disclo liers. Information is proteed from disclo these do not include trace levels of dopants, metals, and bochip Technology Incorporated does not provide any wa anties provided by Microchip Technology Incorporated a	emical substance is NOT at the of this document, there incern for any regulatory so mmability standard for plas s/plastics/ ed are made from polyviny in this form concerning su to the best of its knowledg m because it has been con osure as trade secrets and rerage weight of these part non-metal materials conta arranty, express or implied, and its subsidiaries are cor nvoices.	n intentional ingredient in the semiconductor device is no credible reason to believe that the unavoidabl cheme world-wide. stics. You can access the UL iQTM family of database of chloride (PVC) plastic. "Window envelopes" used obstances restricted by RoHS in Microchip Technolo ge and belief, as of the date listed in this form. Micro piled based on the ranges provided in Material Safe some information may not have been provided by s in and the average weight of anticipated significant to ined within silicon devices (silicon IC) in the finishe with respect to the information provided in this dec tataned in Microchip's standard terms and condition Declarations and shall not be liable for any damage	le impurity con ses to obtain a to hold the pa ogy Incorporat ochip Technol ety Data Sheet ubcontract as toxic metals c claration. The s of sale. The es, direct or inn	ncentration of a test report at cking slip on t ted's semiconc ogy Incorporat ts provided by semblers and omponents. Th exclusive, limit se are provide direct, conseq	the chemical he outer box luctor ed cannot raw material raw material lesse red product d in uuential or		(mg) Total Doped Gold	7440-21-3 Total Wire Bond 7440-57-5 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour 7440-31-5	100 100.00 % of Total Weight 100 100.00	0.04
nemical substance is absent from the list above, the che nology Incorporated's knowledge and belief as of the da ance, if any, is not below the threshold of regulatory con ng compounds used by Microchip meet the UL94 V0 flar /ul.com/global/eng/pages/offerings/industries/chemicals rotective "tubes" in which the specific product is shippe ertain "reels" may be made from PVC plastic. chip Technology Incorporated believes the information es in their original packing materials is true and correct intee the completeness and accuracy of data in this forr liers. Supplier information is often protected from disclo liers. Information is provided only as estimates of the av ates do not include trace levels of dopants, metals, and chip Technology Incorporated does not provide any wa nuties provided by Microchip Technology Incorporated a chip's quotations, sales order acknowledgement, and ir chip disclaims any duty to notify users of updates or ch wise, suffered by users or third parties as a result of the	emical substance is NOT at the of this document, there incern for any regulatory so mmability standard for plas s/plastics/ ed are made from polyviny in this form concerning su to the best of its knowledg m because it has been con osure as trade secrets and rerage weight of these part non-metal materials conta arranty, express or implied, and its subsidiaries are cor nvoices.	n intentional ingredient in the semiconductor device is no credible reason to believe that the unavoidabl cheme world-wide. stics. You can access the UL iQTM family of database of chloride (PVC) plastic. "Window envelopes" used obstances restricted by RoHS in Microchip Technolo ge and belief, as of the date listed in this form. Micro piled based on the ranges provided in Material Safe some information may not have been provided by s in and the average weight of anticipated significant to ined within silicon devices (silicon IC) in the finishe with respect to the information provided in this dec tataned in Microchip's standard terms and condition Declarations and shall not be liable for any damage	le impurity con ses to obtain a to hold the pa ogy Incorporat ochip Technol ety Data Sheet ubcontract as toxic metals c claration. The s of sale. The es, direct or inn	ncentration of a test report at cking slip on t ted's semiconc ogy Incorporat ts provided by semblers and omponents. Th exclusive, limit se are provide direct, conseq	the chemical he outer box luctor ed cannot raw material raw material lesse red product d in uuential or		(mg) Total Doped Gold (mg) Total	7440-21-3 Total Wire Bond 7440-57-5 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	100 100.00 % of Total Weight 100 100.00 % of Total Weight	0.04

Semiconductor Devic	e Type: QAF 08 (Lead)	Г DFN-S 6x5x0.8 mm (9A)		nation Base A pper Alloy (C			•	nogeneous Materials: e.g. pc boards, displa		JEDEC 97 Product Marking and/or Pkg. Labeling e4
Basic Substance	CAS Number	Sub-Component	Weight	mg/part	ppm	38.79	(mg) Total	Mold Compound	% ot Total Weight	51.17
Silica, vitreous (or fused)	60676-86-0	Mold Compound	43,495	32,969	434.945	50.75	Silica, vitreous (or fused)	60676-86-0	85.00	51.17
Epoxy Resin	Trade Secret	Mold Compound	4.452	3.374	44,518		Epoxy Resin	Trade Secret	8.70	
Phenolic Resin	Trade Secret	Mold Compound	3.070	2.327	30,702		Phenolic Resin	Trade Secret	6.00	
Carbon Black	1333-86-4	Mold Compound	0.154	0.116	1,535		Carbon Black	1333-86-4	0.30	
Copper	7440-50-8	Lead Frame	37.675	28.557	376,746		ourbon Black	Total	100.00	
Iron	7439-89-6	Lead Frame	0.891	0.675	8,906	29.35	(mg) Total	Lead Frame	% of Total Weight	38.72
Phosphorous	7723-14-0	Lead Frame	0.097	0.073	968	20.00	Copper	7440-50-8	97.30	00112
Zinc (Metal)	7440-66-0	Lead Frame	0.058	0.044	581		Iron	7439-89-6	2.30	
Silver	7440-22-4	Die Attach	1.051	0.797	10.508		Phosphorous	7723-14-0	0.25	
Epoxy resin	Trade Secret	Die Attach	0.284	0.215	2.840		Zinc (Metal)	7440-66-0	0.25	
Metal oxide	Trade Secret	Die Attach	0.043	0.032	426		Zinc (wetai)	Total		
Gamma-butyrolactone	96-48-0	Die Attach	0.043	0.032	426	1.08	(mg) Total	Die Attach	% of Total Weight	1.42
,	7440-21-3	Chip (Die)	8.220	6.231	82,200	1.08		7440-22-4		1.42
Silicon							Silver		74	
Gold	7440-57-5	Wire Bond	0.260	0.197	2,600		Epoxy resin	Trade Secret	20	
Nickel	7440-02-0	Plating on external leads (pins)	0.198	0.150	1,985		Metal oxide	Trade Secret	3	
Palladium Gold	7440-05-03 7440-57-5	Plating on external leads (pins)	0.011	0.008	105 11		Gamma-butyrolactone	96-48-0	-	
Gold	7440-57-5	Plating on external leads (pins) TOTAI		0.001 75.800	1.000.000			Total		
						6.23	Total (mg)	Chip (Die)	% of Total Weight	8.22
			5: 100.000	75.000	1,000,000					0.22
ve 2002/53/EC (End-of-Life Vehicles (ELV) Directive)		Dtal Mass 5/EC (RoHS Directive), EU Directive 2011/65/EU				0.20	Doped Silicon	7440-21-3 Total Wire Bond	100	0.26
tive 2002/53/EC (End-of-Life Vehicles (ELV) Directive) pliance with the above EU Directives has been verified nemical substance is absent from the list above, the c porated's knowledge and belief as of the date of this of	comply with EU Directive 2002/9 I via internal design controls, sup hemical substance is NOT an intr document, there is no credible re	Dtal Mass 5/EC (RoHS Directive), EU Directive 2011/65/EU oplier declarations, and /or analytical test data. antional ingredient in the semiconductor devicu- ason to believe that the unavoidable impurity c	RoHS Recast Dire and, to the best o	ective) and with of Microchip Te	h EU echnology		Doped Silicon	7440-21-3 Total	100 100.00	
tive 2002/53/EC (End-of-Life Vehicles (ELV) Directive) pliance with the above EU Directives has been verified hemical substance is absent from the list above, the of porated's knowledge and belief as of the date of this s is not below the threshold of regulatory concern for a ing compounds used by Microchip meet the UL94 V0	comply with EU Directive 2002/9: - d via internal design controls, sup hemical substance is NOT ani nit document, there is no credible re or regulatory scheme world-wide flammability standard for plastic:	Dtal Mass S/EC (RoHS Directive), EU Directive 2011/65/EU opplier declarations, and /or analytical test data. entional ingredient in the semiconductor device ason to believe that the unavoidable impurity c	RoHS Recast Dire and, to the best o ncentration of the	ective) and with of Microchip Te e chemical sub	h EU echnology		Doped Silicon (mg) Total	7440-21-3 Total Wire Bond	100 100.00 % of Total Weight	
semiconductor device and its homogenous materials tive 2002/53/EC (End-of-Life Vehicles (ELV) Directive) pliance with the above EU Directives has been verified hemical substance is absent from the list above, the or porated's knowledge and belief as of the date of this s is not below the threshold of regulatory concern for a ing compounds used by Microchip meet the UL94 V0 /ul.com/global/eng/pages/offerings/industries/chemic protective "tubes" in which the specific product is shi in "reels" may be made from PVC plastic.	comply with EU Directive 2002/9 d via internal design controls, sup hemical substance is NOT an intr document, there is no credible re ny regulatory scheme world-wide flammability standard for plastic: als/plastics/	Dtal Mass //EC (RoHS Directive), EU Directive 2011/65/EU opplier declarations, and /or analytical test data. entional ingredient in the semiconductor device ason to believe that the unavoidable impurity c s. You can access the UL iQTM family of databa	RoHS Recast Dire and, to the best o ncentration of the ses to obtain a tes	ective) and with of Microchip Te a chemical sub at report at	h EU Ichnology stance, if	0.20	Doped Silicon (mg) Total	7440-21-3 Total Wire Bond 7440-57-5	100 100.00 % of Total Weight 100	
tive 2002/53/EC (End-of-Life Vehicles (ELV) Directive) bliance with the above EU Directives has been verified nemical substance is absent from the list above, the or porated's knowledge and belief as of the date of this is s not below the threshold of regulatory concern for a ng compounds used by Microchip meet the UL94 V0 /ul.com/global/eng/pages/offerings/industries/chemic rotective "tubes" in which the specific product is shi	comply with EU Directive 2002/9 d via internal design controls, sup hemical substance is NOT an inth document, there is no credible re- ny regulatory scheme world-wide flammability standard for plastic: als/plastics/ pped are made from polyvinyl ch on in this form concerning subst. est of its knowledge and belief, ar has been compiled based on the crets and some information may is parts and the average weight c	batal Mass VEC (RoHS Directive), EU Directive 2011/65/EU pplier declarations, and /or analytical test data. entional ingredient in the semiconductor device ason to believe that the unavoidable impurity c s. You can access the UL iQTM family of databac loride (PVC) plastic. "Window envelopes" used ances restricted by RoHS in Microchip Technolis s of the date listed in this form. Microchip Technolis to the velope provided in Material Safety Data Sheett not have been provided by subcontract assemble f anticipated significant toxic metals componen	RoHS Recast Dire and, to the best o ncentration of the ses to obtain a tes to hold the packin gy Incorporated's jology Incorporated's provided by raw i ers and raw mate	ective) and with of Microchip Te e chemical sub at report at ag slip on the o semiconductor ad cannot guar material suppliers. I	h EU schnology stance, if uter box and or devices in rantee the ers. Supplier information	0.20	Doped Silicon (mg) Total Doped Gold	7440-21-3 Total Wire Bond 7440-57-5 Total Plating on external	100 100.00 % of Total Weight 100 100.00	0.26
tive 2002/53/EC (End-of-Life Vehicles (ELV) Directive) bliance with the above EU Directives has been verified porated's knowledge and belief as of the date of this is s not below the threshold of regulatory concern for a ing compounds used by Microchip meet the UL94 V0 /ul.com/global/eng/pages/offerings/industries/chemic rotective "tubes" in which the specific product is shi n reels" may be made from PVC plastic. chip Technology Incorporated believes the informatii original packing materials is true and correct to the b leteness and accuracy of data in this form because it mation is often protected from disclosure as trade sec	comply with EU Directive 2002/9 d via internal design controls, sup hemical substance is NOT an inti- document, there is no credible re- ny regulatory scheme world-wide flammability standard for plastic: als/plastics/ pped are made from polyvinyl ch on in this form concerning subst. est of its knowledge and belief, and has been compiled based on the rests and some information may is se parts and the average weight of ed within silicon devices (silicon warranty, express or implied, with	batal Mass VEC (RoHS Directive), EU Directive 2011/65/EU opplier declarations, and /or analytical test data. entional ingredient in the semiconductor device ason to believe that the unavoidable impurity c s. You can access the UL iQTM family of databac loride (PVC) plastic. "Window envelopes" used ances restricted by RoHS in Microchip Technolis s of the date listed in this form. Microchip Technolis s of the date listed in Material Safety Data Sheet not have been provided by subcontract assemble f anticipated significant toxic metals component IC) in the finished parts.	RoHS Recast Dire and, to the best o ncentration of the ses to obtain a tes to hold the packin gy Incorporated's lology Incorporate provided by raw i ers and raw mate ts. These estimate laration. The excli	ective) and with of Microchip Te e chemical sub it report at og slip on the o e semiconductor ed cannot guar material suppli rial suppliers. I ses do not inclu usive, limited p	h EU schnology stance, if uter box and or devices in antee the ers. Supplier information de trace product	0.20	(mg) Total Doped Gold (mg) Total	7440-21-3 Total Wire Bond 7440-57-5 Total Plating on external leads (pins)	100 100.00 % of Total Weight 100 100.00 % of Total Weight	0.26
tive 2002/53/EC (End-of-Life Vehicles (ELV) Directive) bliance with the above EU Directives has been verified benetical substance is absent from the list above, the of borated's knowledge and belief as of the date of this is is not below the threshold of regulatory concern for a ing compounds used by Microchip meet the UL94 V0 (ul.com/global/eng/pages/offerings/industries/chemic rotective "tubes" in which the specific product is shi n "reels" may be made from PVC plastic. chip Technology Incorporated believes the informatio rotection is often protected from disclosure as trade see vided only as estimates of the average weight of thes of dopants, metals, and non-metal materials contain chip Technology Incorporated does not provide any indices provided by Microchip Technology Incorporate	comply with EU Directive 2002/8 d via internal design controls, sup themical substance is NOT an intr document, there is no credible re- ny regulatory scheme world-wide flammability standard for plastic: als/plastics/ pped are made from polyvinyl ch on in this form concerning subst. to be on the substance weight can the store information may i te parts and the average weight ed within silicon devices (silicon warranty, express or implied, with d and its subsidiaries are contain changes to Material Content Dec the users' reliance on the information	betal Mass JACC (RoHS Directive), EU Directive 2011/65/EU poplier declarations, and /or analytical test data. entional ingredient in the semiconductor device asson to believe that the unavoidable impurity c s. You can access the UL iQTM family of databac loride (PVC) plastic. "Window envelopes" used ances restricted by RoHS in Microchip Technol s of the date listed in this form. Microchip Technol s of the date listed in this form. Microchip Technol s of the date listed in this form. Microchip Technol s of the date listed in this form. Microchip Technol s of the date listed in this form. Microchip Technol s of the date listed in this form. Microchip Technol s of the date listed in this form. Microchip Technol s of the date listed in this form. Microchip Technol s of the date listed in this form. Microchip Technol s of the date listed in this form. Microchip Technol s of the the date listed in this form. Microchip Technol s of the the tisted parts. n respect to the information provided in this de ed in Microchip's standard terms and condition larations and shall not be liable for any damage	RoHS Recast Dire and, to the best o ncentration of the ses to obtain a tes to hold the packin gy Incorporated's jology Incorporated's jology Incorporated provided by raw i ers and raw mate ts. These estimate laration. The exclision of sale. These are s, direct or indirect	ective) and with of Microchip Te e chemical sub at report at ng slip on the o s semiconductor ad cannot guar material suppliers. I es do not inclu usive, limited p re provided in I ct, consequent	h EU schnology stance, if outer box and or devices in antee the ers. Supplier information de trace product Microchip's ial or	0.20	(mg) Total Doped Gold (mg) Total Nickel	7440-21-3 Total Wire Bond 7440-57-5 Total Plating on external leads (pins) 7440-02-0	100 100.00 % of Total Weight 100 100.00 % of Total Weight 94.50	0.26

Semiconductor Devic	e Type: MN/HC/LC 10(Lead) TDFN 3x3x0.8mm (QA)		nation Base . pper Alloy (C	-		Package Homoge 8.1 Electronics (e.g.	eneous Materials: pc boards, displays)		JEDEC 97 Product Markin and/or Pkg. Labeling e3
Basic Substance	CAS Number	"Contained In" Sub-Component	% I otal Weight	mg/part	ppm	12.60	(mg) Total	Mold Compound	% ot Total Weight	60.00
Silica, vitreous (or fused)	60676-86-0	Mold Compound	51.000	10.710	510,000		Silica, vitreous (or fused)	60676-86-0	85.00	l
Epoxy Resin	Trade Secret	Mold Compound	5.220	1.096	52.200		Epoxy Resin	Trade Secret	8.70	
Phenolic Resin	Trade Secret	Mold Compound	3,600	0.756	36,000		Phenolic Resin	Trade Secret	6.00	
Carbon Black	1333-86-4	Mold Compound	0.180	0.038	1,800		Carbon Black	1333-86-4	0.30	
Copper	7440-50-8	Lead Frame	30.572	6.420	305,720			Total	100.00	1
Iron	7439-89-6	Lead Frame	0.752	0.158	7,520	6.72	(mg) Total	Lead Frame	% of Total Weight	32.00
Silver	7440-22-4	Lead Frame	0.610	0.128	6.096		Copper	7440-50-8	95.54	
Zinc	7440-66-6	Lead Frame	0.040	0.008	400		Iron	7439-89-6	2.35	
Phosphorous	7723-14-0	Lead Frame	0.026	0.006	264		Silver	7440-22-4	1.91	
Silver	7440-22-4	Die Attach	0.059	0.012	590		Zinc	7440-66-6	0.13	
Epoxy Resin	9003-36-5	Die Attach	0.015	0.003	150		Phosphorous	7723-14-0	0.08	
t-Butyl phenyl glycidyl ether	3101-60-8	Die Attach	0.005	0.001	50			Total	100.00	4
Phenolic hardener	92-88-6	Die Attach	0.000	0.000	2	0.02	(mg) Total	Die Attach	% of Total Weight	0.08
Butyl cellosolye acetate	112-07-2	Die Attach	0.001	0.000	6		Silver	7440-22-4	73.80	
Silicon	7440-21-3	Chip (Die)	4.820	1.012	48,200		Epoxy Resin	9003-36-5	18.80	
Doped Gold	7440-57-5	Wire Bond	0.100	0.021	1,000		t-Butyl phenyl glycidyl ether	3101-60-8	6.30	
Tin	7440-31-5 Plating or	n external leads (pins) - Matte Tin / annealed at 150°C for 1 ho	Jr 3.000	0.630	30,000		Phenolic hardener	92-88-6	0.30	
		TOTAL	S: 100.000	21.000	1,000,000		Butyl cellosolve acetate	112-07-2	1	
	0.0210 a Tot	al Mass						Total	100.00	
								TOLAI	100.00	
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive).		C (RoHS Directive), EU Directive 2011/65/EU (Ro	HS Recast Dire	ective) and wit	h EU	1.01	(mg) Total	Chip (Die)	% of Total Weight	4.82
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). pliance with the above EU Directives has been verified	via internal design controls, suppli	er declarations, and /or analytical test data.			-	1.01	(mg) Total Doped Silicon	Chip (Die) 7440-21-3	% of Total Weight	4.82
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). pliance with the above EU Directives has been verified themical substance is absent from the list above, the ch rporated's knowledge and belief as of the date of this d is not below the threshold of regulatory concern for an ting compounds used by Microchip meet the UL94 V0 fl	via internal design controls, suppli nemical substance is NOT an intent ocument, there is no credible reaso y regulatory scheme world-wide. lammability standard for plastics. Y	er declarations, and /or analytical test data. ional ingredient in the semiconductor device ar on to believe that the unavoidable impurity conc	d, to the best o entration of the	f Microchip Te chemical sub	echnology	0.02		Chip (Die)	% of Total Weight	4.82
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). pliance with the above EU Directives has been verified themical substance is absent from the list above, the ch rporated's knowledge and belief as of the date of this d is not below the threshold of regulatory concern for an	via internal design controls, suppli nemical substance is NOT an intent ocument, there is no credible reaso y regulatory scheme world-wide. lammability standard for plastics. Y Is/plastics/	er declarations, and /or analytical test data. ional ingredient in the semiconductor device ar in to believe that the unavoidable impurity conc ou can access the UL iQTM family of databases	d, to the best o entration of the to obtain a tes	f Microchip Te chemical sub t report at	echnology ostance, if		Doped Silicon	Chip (Die) 7440-21-3 Total	% of Total Weight 100 100.00	
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). Ipliance with the above EU Directives has been verified themical substance is absent from the list above, the ch rporated's knowledge and belief as of the date of this d is not below the threshold of regulatory concern for an ling compounds used by Microchip meet the UL94 V0 fi //ul.com/global/eng/pages/offerings/industries/chemica protective "tubes" in which the specific product is ship	via internal design controls, suppli nemical substance is NOT an intenti ocument, there is no credible reaso y regulatory scheme world-wide. lammability standard for plastics. Y lis/plastics/ pped are made from polyvinyl chlori n in this form concerning substance best of its knowledge and belief, as e it has been compiled based on the rade secrets and some information sight of these parts and the average	er declarations, and /or analytical test data. ional ingredient in the semiconductor device ar on to believe that the unavoidable impurity conc 'ou can access the UL iQTM family of databases de (PVC) plastic. "Window envelopes" used to es restricted by RoHS in Microchip Technology of the date listed in this form. Microchip Technology may not have been provided by subcontract as weight of anticipated significant toxic metals c	d, to the best o entration of the to obtain a tes hold the packin Incorporated's ology Incorpor, s provided by r; semblers and r	f Microchip To e chemical sub t report at g slip on the o semiconduct ated cannot g aw material s	echnology ostance, if outer box or devices uarantee uppliers. uppliers.		Doped Silicon	Chip (Die) 7440-21-3 Total Wire Bond	% of Total Weight 100 100.00 % of Total Weight	
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). Ipliance with the above EU Directives has been verified themical substance is absent from the list above, the ch rporated's knowledge and belief as of the date of this d is not below the threshold of regulatory concern for an ting compounds used by Microchip meet the UL94 V0 ff //ul.com/global/eng/pages/offerings/industries/chemica protective "tubes" in which the specific product is ship certain "reels" may be made from PVC plastic. ochip Technology Incorporated believes the informatio eir original packing materials is true and correct to the completeness and accuracy of data in this form becauss olier information is often protected from disclosure as to mation is provided only as estimates of the average we	via internal design controls, suppli nemical substance is NOT an intenti ocument, there is no credible reaso y regulatory scheme world-wide. lammability standard for plastics. Y us/plastics/ uped are made from polyvinyl chlori n in this form concerning substanc best of its knowledge and belief, as e it has been compiled based on th- rade secrets and some information eight of these parts and the average rials contained within silicon devic varranty, express or implied, with re and its subsidiaries are contained	er declarations, and /or analytical test data. ional ingredient in the semiconductor device ar in to believe that the unavoidable impurity conc 'ou can access the UL iQTM family of databases de (PVC) plastic. "Window envelopes" used to res restricted by RoHS in Microchip Technology of the date listed in this form. Microchip Technology of the date listed in this form. Microchip Technology was not have been provided by subcontract as weight of anticipated significant toxic metals of es (silicon IC) in the finished parts. spect to the information provided in this declar	d, to the best o entration of the to obtain a tes nold the packin Incorporated's ology Incorpor, s provided by r semblers and omponents. Th ation. The exclu	f Microchip To e chemical sub t report at g slip on the o semiconduct ated cannot g aw material su aw material su sese estimates usive, limited	echnology sstance, if outer box or devices uarantee uppliers. uppliers. s do not		Doped Silicon (mg) Total (mg) Total (mg) Total	Chip (Die) 7440-21-3 Total Wire Bond 7440-57-5	% of Total Weight 100 100.00 % of Total Weight 100.00	
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). Ipliance with the above EU Directives has been verified shemical substance is absent from the list above, the ch prorated's knowledge and belief as of the date of this d is not below the threshold of regulatory concern for an ling compounds used by Microchip meet the UL94 V0 fi //ul.com/global/eng/pages/offerings/industries/chemical protective "tubes" in which the specific product is ship certain "reels" may be made from PVC plastic. ochip Technology Incorporated believes the informatio ier original packing materials is true and correct to the completeness and accuracy of data in this form becaus pleir information is often protected from disclosure as t mation is provided only as estimates of the average we de trace levels of dopants, metals, and non-metal mate ochip Technology Incorporated does not provide any w anties provided by Microchip Technology Incorporated	via internal design controls, suppli nemical substance is NOT an intenti ocument, there is no credible reaso y regulatory scheme world-wide. lammability standard for plastics. Y ils/plastics/ uped are made from polyvinyl chlori n in this form concerning substance best of its knowledge and belief, as e it has been compiled based on the rade secrets and some information sight of these parts and the average rirals contained within silicon devic varranty, express or implied, with re and its subsidiaries are contained invoices. changes to Material Content Declar; te users' reliance on the information	er declarations, and /or analytical test data. ional ingredient in the semiconductor device ar on to believe that the unavoidable impurity conc ou can access the UL iQTM family of databases ide (PVC) plastic. "Window envelopes" used to res restricted by RoHS in Microchip Technology of the date listed in this form. Microchip Technology is of the date listed in this form. Microchip Technology is of the date listed in this form. Microchip Technology is of the date listed in this form. Microchip Technology is spect to the information provided in this declar in Microchip's standard terms and conditions of ations and shall not be liable for any damages,	d, to the best o entration of the to obtain a tes hold the packin lncorporated's ology incorpor- semblers and r omponents. Th ation. The exclu f sale. These ar lirect or indirect	f Microchip To e chemical sub t report at g slip on the o semiconduct ated cannot g aw material s aw material s ese estimates usive, limited e provided in t, consequent	echnology sstance, if outer box or devices uarantee uppliers. uppliers. do not product	0.02	Doped Silicon (mg) Total (mg) Total (mg) Total	Chip (Die) 7440-21-3 Total Wire Bond 7440-57-5 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1	% of Total Weight 100 100.00 % of Total Weight 100.00 100.00	0.10

Semiconductor Devi	ice Type: AIA 10 VDFN 3x	3x0.9 (9Q)		ination Base opper Alloy (•	ogeneous Materials: .g. pc boards, display	rs)	JEDEC 97 Product Marking and/or Pkg. Labeling e4
Basic Substance	CAS Number	"Contained In" Sub-Component	% I otal Weight	mg/part	ppm	13.56	(mg) Total	Mold Compound	% ot Total Weight	48.96
Silica, fused	60676-86-0	Mold Compound	42.204	11.690	422.035		Silica, fused	60676-86-0	86.20	
Epoxy Resin	Trade Secret	Mold Compound	2.938	0.814	29,376		Epoxy Resin	Trade Secret	6.00	
Phenolic Resin A	Trade Secret	Mold Compound	2.938	0.814	29,376		Phenolic Resin A	Trade Secret	6.00	
Aluminium hydroxide	21645-51-2	Mold Compound	0.734	0.203	7,344		Aluminium hydroxide	21645-51-2	1.50	
Carbon Black	1333-86-4	Mold Compound	0.147	0.041	1,469		Carbon Black	1333-86-4	0.30	
Copper	7440-50-8	Lead Frame	37.993	10.524	379,928			Total	100.00	
Iron	7439-89-6	Lead Frame	0.917	0.254	9,172	10.81	(mg) Total	Lead Frame	% of Total Weight	39.03
Zinc	7440-66-6	Lead Frame	0.049	0.014	488	10.01	Copper	7440-50-8	97.34	00.00
Silver	7440-22-4	Lead Frame	0.039	0.011	390		Iron	7439-89-6	2.35	
Phosphorus	7723-14-0	Lead Frame	0.032	0.009	322		Zinc	7440-66-6	0.13	
Silver	7440-22-4	Die Attach	0.477	0.132	4,774		Silver	7440-22-4	0.10	
Epoxy resin	Trade Secret	Die Attach	0.124	0.034	1,240		Phosphorus	7723-14-0	0.08	
Metal oxide	Trade Secret	Die Attach	0.019	0.005	186			Total	100.00	
Silicon	7440-21-3	Chip (Die)	9,110	2.523	91,100	0.17	(mg) Total	Die Attach	% of Total Weight	0.62
Doped Gold	7440-57-5	Wire Bond	0.080	0.022	800	0	Silver	7440-22-4	77.00	0.02
Nickel	7440-02-0	Plating on external leads (pins)	1.980	0.548	19.800		Epoxy resin	Trade Secret	20.00	
Palladium	7440-05-3	Plating on external leads (pins)	0.110	0.030	1.100		Metal oxide	Trade Secret	3.00	
Gold	7440-57-5	Plating on external leads (pins)	0.110	0.030	1,100		Motal Oxido	Total	0.00	
0014	1110 01 0	TOTAL		27.700	1.000.000	2.52	(mg) Total	Chip (Die)	% of Total Weight	9.11
	0.0077 T			21.100	1,000,000	2.32	(ilig) Total	Chip (Die)		9.11
	0.0277 g To						D 101	7440.04.0	100.00	
		EC (RoHS Directive), EU Directive 2011/65/EU (R	oHS Recast Dire	ctive) and wit	h EU		Doped Silicon	7440-21-3 Total	100.00 100.00	
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive) pliance with the above EU Directives has been verifie). ed via internal design controls, supp	EC (RoHS Directive), EU Directive 2011/65/EU (R lier declarations, and /or analytical test data.				0.02	Doped Silicon (mg) Total			0.08
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive) pliance with the above EU Directives has been verifier hemical substance is absent from the list above, the c rporated's knowledge and belief as of the date of this). ed via internal design controls, supp chemical substance is NOT an inter document, there is no credible rea:	EC (RoHS Directive), EU Directive 2011/65/EU (R Nier declarations, and /or analytical test data.	nd, to the best o	f Microchip Te	echnology	0.02	· · ·	Total Wire Bond 7440-57-5	100.00 % of Total Weight 100.00	0.08
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive) pliance with the above EU Directives has been verifier themical substance is absent from the list above, the or prorated's knowledge and belief as of the date of this is not below the threshold of regulatory concern for a ting compounds used by Microchip meet the UL94 V0). In via internal design controls, supp chemical substance is NOT an inter document, there is no credible reas any regulatory scheme world-wide. I flammability standard for plastics.	EC (RoHS Directive), EU Directive 2011/65/EU (R lier declarations, and /or analytical test data. ational ingredient in the semiconductor device an son to believe that the unavoidable impurity com-	nd, to the best o centration of the	f Microchip Te chemical sub	echnology	0.02	(mg) Total	Total Wire Bond	100.00 % of Total Weight	0.08
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive) apliance with the above EU Directives has been verifier croorated's knowledge and belief as of the date of this is not below the threshold of regulatory concern for a ding compounds used by Microchip meet the UL94 V0 ://ul.com/global/eng/pages/offerings/industries/chemic protective "tubes" in which the specific product is shi). ed via internal design controls, supp chemical substance is NOT an inter document, there is no credible reas any regulatory scheme world-wide. I flammability standard for plastics. cals/plastics/	EC (RoHS Directive), EU Directive 2011/65/EU (R lifer declarations, and /or analytical test data. ational ingredient in the semiconductor device an son to believe that the unavoidable impurity con You can access the UL iQTM family of database	nd, to the best o centration of the s to obtain a tes	f Microchip Te chemical sub t report at	echnology ostance, if	0.02	(mg) Total	Total Wire Bond 7440-57-5	100.00 % of Total Weight 100.00	0.08
ctive 2002/53/EC (End-of-Life Vehicles" (ELV) Directive) apliance with the above EU Directives has been verifier chemical substance is absent from the list above, the or prorated's knowledge and belief as of the date of this is not below the threshold of regulatory concern for a ding compounds used by Microchip meet the UL94 V0 ://ul.com/global/eng/pages/offerings/industries/chemic protective "tubes" in which the specific product is shi ain "reels" may be made from PVC plastic. rochip Technology Incorporated believes the informatif original packing materials is true and correct to the b pleteness and accuracy of data in this form because it rmation is often protected from disclosure as trade see vided only as estimates of the average weight of these). ed via internal design controls, suppresent via internal design controls, suppresent any regulatory scheme world-wide. any regulatory scheme world-wide.) flammability standard for plastics. cals/plastics/ ipped are made from polyvinyl chlor ion in this form concerning substant pest of its knowledge and belief, as it has been compiled based on the re- screts and some information may not parts and the average weight of an	EC (RoHS Directive), EU Directive 2011/65/EU (R lier declarations, and /or analytical test data. thional ingredient in the semiconductor device a son to believe that the unavoidable impurity com You can access the UL iQTM family of database ride (PVC) plastic. "Window envelopes" used to nees restricted by RoHS in Microchip Technology of the date listed in this form. Microchip Technology thave been provided by subcontract assembler ticipated significant toxic metals components. T	nd, to the best o centration of the s to obtain a tes hold the packin r Incorporated's ogy Incorporate vided by raw r s and raw mate	f Microchip Te chemical sub t report at g slip on the o semiconduct d cannot gua naterial suppliers.	echnology ostance, if outer box and or devices in rantee the iers. Supplier Information is		(mg) Total	Total Wire Bond 7440-57-5 Total Plating on external	100.00 % of Total Weight 100.00 100.00	
s semiconductor device and its homogenous materials ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive) npliance with the above EU Directives has been verifier chemical substance is absent from the list above, the c proprated's knowledge and belief as of the date of this is not below the threshold of regulatory concern for a ding compounds used by Microchip meet the UL94 V0 ://ul.com/global/eng/pages/offerings/industries/chemic protective "tubes" in which the specific product is shi ain "reels" may be made from PVC plastic. rochip Technology Incorporated believes the informati r original packing materials is true and correct to the pleteness and accuracy of data in this form because it rmation is often protected from disclosure as trade ser- vided only as estimates of the average weight of these opants, metals, and non-metal materials contained wit rochip Technology Incorporated does not provide any trochip Technology Incorporated does not provide any inters provided by Microchip Technology Incorporated tations, sales order acknowledgement, and invoices.). et via internal design controls, support chemical substance is NOT an inter document, there is no credible reat any regulatory scheme world-wide.) flammability standard for plastics. cals/plastics/ ipped are made from polyvinyl chlo ion in this form concerning substant best of its knowledge and belief, as it has been compiled based on the re- secrets and some information may not parts and the average weight of an thin silicon devices (silicon IC) in th warranty, express or implied, with	EC (RoHS Directive), EU Directive 2011/65/EU (R lier declarations, and /or analytical test data. thional ingredient in the semiconductor device an son to believe that the unavoidable impurity com You can access the UL IQTM family of database ride (PVC) plastic. "Window envelopes" used to nees restricted by RoHS in Microchip Technology of the date listed in this form. Microchip Technology of the date listed in this form. Microchip Technology thave been provided by subcontract assembler ticipated significant toxic metals components. T ie finished parts.	nd, to the best o centration of the s to obtain a tes hold the packin r Incorporated's ogy Incorporate ovided by raw r s and raw mate hese estimates ration. The excli	f Microchip Te chemical sub t report at g slip on the c semiconduct d cannot gua naterial suppli rial suppliers. do not include usive, limited	echnology ostance, if outer box and or devices in rantee the iers. Supplier Information is e trace levels product		(mg) Totai Doped Gold (mg) Total	Total Wire Bond 7440-57-5 Total Plating on external leads (pins)	100.00 % of Total Weight 100.00 % of Total Weight	
tive 2002/53/EC (End-of-Life Vehicles (ELV) Directive) pllance with the above EU Directives has been verifier hemical substance is absent from the list above, the of porated's knowledge and belief as of the date of this is not below the threshold of regulatory concern for a ing compounds used by Microchip meet the UL94 V0 //ul.com/global/eng/pages/offerings/industries/chemic porotective "tubes" in which the specific product is shi in "reels" may be made from PVC plastic. bochip Technology Incorporated believes the informati original packing materials is true and correct to the b oleteness and accuracy of data in this form because it mation is often protected from disclosure as trade see pants, metals, and non-metal materials contained wit bochip Technology Incorporated does not provide any anties provided by Microchip Technology Incorporate). Ad via internal design controls, support chemical substance is NOT an inter document, there is no credible rear any regulatory scheme world-wide. I flammability standard for plastics. cals/plastics/ ipped are made from polyvinyl chlo ion in this form concerning substar best of its knowledge and belief, as it has been compiled based on the r screts and some information may no parts and the average weight of ar thin silicon devices (silicon IC) in th warranty, express or implied, with ed and its subsidiaries are containeer r changes to Material Content Decla the users' reliance on the information.	EC (RoHS Directive), EU Directive 2011/65/EU (R ilier declarations, and /or analytical test data. titional ingredient in the semiconductor device al son to believe that the unavoidable impurity com You can access the UL iQTM family of database ride (PVC) plastic. "Window envelopes" used to the date listed in this form. Microchip Technology of the date listed in this form. Microchip Technology of the date listed in this form. Microchip Technology to have been provided by subcontract assembler ticipated significant toxic metals components. The e finished parts. respect to the information provided in this declad d in Microchip's standard terms and conditions of arations and shall not be liable for any damages,	nd, to the best o centration of the s to obtain a tes hold the packin r Incorporated's ogy Incorporate ovided by raw r s and raw mark hese estimates ration. The exclu of sale. These ar direct or indirect	f Microchip Te chemical sub t report at g slip on the o semiconduct d cannot gua naterial suppliers. do not includo isive, limited e provided in t, consequent	echnology ostance, if outer box and or devices in rantee the iers. Supplier Information is e trace levels product Microchip's tial or		(mg) Total Doped Gold (mg) Total Nickel	Total Wire Bond 7440-57-5 Total Plating on external leads (pins) 7440-02-0	100.00 % of Total Weight 100.00 % of Total Weight 90.00	

F

AICROCHIP Semiconductor Device	e Type: MUY 08 (Lead)	UDFN 2x3x0.5mm (6Q)		nation Base A pper Alloy (C				ogeneous Materials: g. pc boards, displa		JEDEC 97 Product Marking and/or Pkg. Labeling e4
Basic Substance	CAS Number	"Contained In" Sub-Component	% Total Weight	mg/part	ppm	5.37	(mg) Total	Mold Compound	% ot Total Weight	67.95
Silica, fused	60676-86-0	Mold Compound	61.155	4.831	611.550		Silica, fused	60676-86-0	90.00	
Epoxy Resin (NLP # 500-033-5)	Trade Secret	Mold Compound	3.296	0.260	32,956	Enox	(Resin (NLP # 500-033-5)	Trade Secret	4.85	
Phenolic Resin	Trade Secret	Mold Compound	3.296	0.260	32,956	Epon	Phenolic Resin	Trade Secret	4.85	
Carbon Black	1333-86-4	Mold Compound	0.204	0.016	2,039		Carbon Black	1333-86-4	0.30	
Copper	7440-50-8	Lead Frame	20.779	1.642	207,786	•		Total	100.00	
Tin	7440-31-5	Lead Frame	0.053	0.004	533	1.69	(mg) Total	Lead Frame	% of Total Weight	21.33
Silver	7440-22-4	Lead Frame	0.406	0.032	4,063		Copper	7440-50-8	97.42	
Zinc	7440-66-6	Lead Frame	0.038	0.003	384		Tin	7440-31-5	0.25	
Chromium	7440-47-3	Lead Frame	0.053	0.004	533		Silver	7440-22-4	1.91	
Silver	7440-22-4	Die Attach	1.911	0.151	19,110		Zinc	7440-66-6	0.18	
Acrylate resins Proprietary	Trade Secret	Die Attach	0.441	0.035	4,410 490		Chromium	7440-47-3	0.25	l
Treated silica	Trade Secret	Die Attach	0.049	0.004	490		()= ()	Total		0.15
Heterocyclic organic compound	Trade Secret	Die Attach	0.049	0.004		0.19	(mg) Total	Die Attach	% of Total Weight	2.45
Silicon	7440-21-3 7440-57-5	Chip (Die)	7.350	0.581	73,500		Silver	7440-22-4	78	
Gold Nickel	7440-57-5	Wire Bond	0.750	0.059	7,500 1.627		Acrylate resins Proprietary Treated silica	Trade Secret Trade Secret	18	
Palladium	7440-02-0	Plating on external leads (pins) Plating on external leads (pins)	0.163	0.013	1,627	11-4-4	rocyclic organic compound	Trade Secret	2	
JGPSSI (D02) (Gold)	7440-03-03	Plating on external leads (pins)	0.003	0.000	18	Hete	rocyclic organic compound	Tade Secret	ź	l
		riating on external leads (pins)		0.000	10					
		T01	ALC: 100.000	7 000	1 000 000	0.50	Tatal (man)			7.05
semiconductor device and its homogenous materials of 2/53/EC (End-of-Life Vehicles (ELV) Directive).	0.0079 g To comply with EU Directive 2002/95	otal Mass	ALS: 100.000	7.900) and with EU I	1,000,000 Directive	0.58	Total (mg) Doped Silicon	Chip (Die) 7440-21-3 Total	% of Total Weight 100	7.35
semiconductor device and its homogenous materials	comply with EU Directive 2002/95	otal Mass //EC (RoHS Directive), EU Directive 2011/65/EU	I (RoHS Recast Directive		,,	0.58		Chip (Die) 7440-21-3	% of Total Weight 100	7.35
semiconductor device and its homogenous materials o 2/53/EC (End-of-Life Vehicles (ELV) Directive).	comply with EU Directive 2002/99 via internal design controls, sup nemical substance is NOT an into ocument, there is no credible rea	otal Mass JFEC (RoHS Directive), EU Directive 2011/65/EU oplier declarations, and /or analytical test data. entional ingredient in the semiconductor devic	I (RoHS Recast Directive e and, to the best of Mici) and with EU I rochip Techno	Directive		Doped Silicon	Chip (Die) 7440-21-3 Total	% of Total Weight 100 100.00	
semiconductor device and its homogenous materials of 2/53/EC (End-of-Life Vehicles (ELV) Directive). Inpliance with the above EU Directives has been verified chemical substance is absent from the list above, the cl rporated's knowledge and belief as of the date of this d	via internal design controls, sup memical substance is NOT an intro ocument, there is no credible re- y scheme world-wide.	Dtal Mass SPEC (RoHS Directive), EU Directive 2011/65/EU oplier declarations, and /or analytical test data. antional ingredient in the semiconductor devic ason to believe that the unavoidable impurity o	I (RoHS Recast Directive e and, to the best of Micc concentration of the cher) and with EU I rochip Techno nical substanc	Directive		Doped Silicon (mg) Total	Chip (Die) 7440-21-3 Total Wire Bond	% of Total Weight 100 100.00 % of Total Weight 100 100 100	
semiconductor device and its homogenous materials of 2/53/EC (End-of-Life Vehicles (ELV) Directive). apliance with the above EU Directives has been verified chemical substance is absent from the list above, the cl rporated's knowledge and belief as of the date of this d w the threshold of regulatory concern for any regulator ding compounds used by Microchip meet the UL94 V0 f	via internal design controls, sup wia internal design controls, sup nemical substance is NOT an inte ocument, there is no credible re- y scheme world-wide. lammability standard for plastics ls/plastics/	btal Mass VEC (RoHS Directive), EU Directive 2011/65/EU opplier declarations, and /or analytical test data. antional ingredient in the semiconductor devid ason to believe that the unavoidable impurity of ason to believe that the UL iQTM family of datab	I (RoHS Recast Directive e and, to the best of Mici concentration of the cher ases to obtain a test repo) and with EU I rochip Techno nical substanc	Directive logy .e, if any, is not		Doped Silicon (mg) Total	Chip (Die) 7440-21-3 Total Wire Bond 7440-57-5	% of Total Weight 100 100.00 % of Total Weight 100 100 100	
semiconductor device and its homogenous materials of 2/53/EC (End-of-Life Vehicles (ELV) Directive). apliance with the above EU Directives has been verified chemical substance is absent from the list above, the cl rporated's knowledge and belief as of the date of this d with ethreshold of regulatory concern for any regulator ding compounds used by Microchip meet the UL94 V0 f ://ul.com/global/eng/pages/offerings/industries/chemica protective "tubes" in which the specific product is ship	via internal design controls, sup via internal design controls, sup memical substance is NOT an inte ocument, there is no credible re- y scheme world-wide. lammability standard for plastics is/plastics/ ped are made from polyvinyl chi n in this form concerning substa its knowledge and belief, as of th illed based on the ranges provid nation may not have been provid to of anticipated significant toxic i	Datal Mass SPEC (RoHS Directive), EU Directive 2011/65/EU pplier declarations, and /or analytical test data. entional ingredient in the semiconductor device ason to believe that the unavoidable impurity of ason to believe that the unavoidabl	I (RoHS Recast Directive e and, to the best of Mice concentration of the cher ases to obtain a test report d to hold the packing slip logy Incorporated's semi gy Incorporated cannot g raw material suppliers. S) and with EU I rochip Techno nical substanc ort at o on the outer I iconductor dev guarantee the e upplier inform is provided or	Directive logy .e, if any, is not box and certain vices in their completeness ation is often nly as estimates	0.06	Doped Silicon (mg) Total Doped Gold	Chip (Die) 7440-21-3 Total Wire Bond 7440-57-5 Total Plating on external	% of Total Weight 100 100.00 % of Total Weight 100 100	0.75
a semiconductor device and its homogenous materials of 2/53/EC (End-of-Life Vehicles (ELV) Directive). Inpliance with the above EU Directives has been verified chemical substance is absent from the list above, the cl ryporated's knowledge and belief as of the date of this d with threshold of regulatory concern for any regulator ding compounds used by Microchip meet the UL94 V0 f ://ul.com/global/eng/pages/offerings/industries/chemica protective "tubes" in which the specific product is ship is" may be made from PVC plastic. Tochip Technology Incorporated believes the informatio inal packing materials is true and correct to the best of accuracy of data in this form because it has been comp ected from disclosure as trade secrets and some inforn e average weight of these parts and the average weight	via internal design controls, sup via internal design controls, sup memical substance is NOT an into ocument, there is no credible rea y scheme world-wide. lammability standard for plastics ls/plastics/ ped are made from polyvinyl chi n in this form concerning substa its knowledge and belief, as of th illed based on the ranges provid hation may not have been provid to f anticipated significant toxic i finished parts.	patal Mass WEC (RoHS Directive), EU Directive 2011/65/EU pplier declarations, and /or analytical test data. antional ingredient in the semiconductor devic ason to believe that the unavoidable impurity of ason to believe that the unavoidable impurity of the test of the unavoidable impurity of ason to believe the unavoidable in the test of the unavoidable in test of the unavoidable in test of the unavoidable in the test of the unavoidable in test of the unavoidable in the test of the unavoidable is the test of the unavoidable in test of the unavoidable is the test of the unavoidable in test of the unavoidable in the test of the unavoidable is the test of test of test of test of the unavoidable is the test of te	I (RoHS Recast Directive e and, to the best of Micr concentration of the cher ases to obtain a test report d to hold the packing slip logy Incorporated's semi gy Incorporated cannot raw material suppliers. S al suppliers. Information icclude trace levels of dop eclaration. The exclusive,) and with EU I rochip Techno nical substanc ort at o on the outer the guarantee the outer the upplier inform is provided or pants, metals, i , limited produ	Directive logy .e, if any, is not pox and certain vices in their completeness ation is often nly as estimates and non-metal ct warranties	0.06	Doped Silicon (mg) Total Doped Gold (mg) Total	Chip (Die) 7440-21-3 Total Wire Bond 7440-57-5 Total Plating on external leads (pins)	% of Total Weight 100 100.00 % of Total Weight 100 100.00 % of Total Weight 100	0.75
a semiconductor device and its homogenous materials of 2/53/EC (End-of-Life Vehicles (ELV) Directive). Inpliance with the above EU Directives has been verified chemical substance is absent from the list above, the cliporated's knowledge and belief as of the date of this direction of regulatory concern for any regulator ding compounds used by Microchip meet the UL94 V0 f f///Licom/global/eng/pages/offerings/industries/chemicz protective "tubes" in which the specific product is ship is" may be made from PVC plastic. rochip Technology Incorporated believes the informatio inal packing materials is true and correct to the best of accuracy of data in this form because it has been competials of these parts and the average weight of corporated does not provide any wided by Microchip Technology Incorporated and its sul	via internal design controls, sup memical substance is NOT an into ocument, there is no credible re- y scheme world-wide. lammability standard for plastics is/plastics/ ped are made from polyvinyl chl n in this form concerning substa tis knowledge and belief, as of ti villed based on the ranges provid ation may not have been provid ation may not have been provid to f anticipated significant toxic i finished parts. varranty, express or implied, with psidlaries are contained in Micro changes to Material Content Dec	batal Mass SFEC (RoHS Directive), EU Directive 2011/65/EU pplier declarations, and /or analytical test data. entional ingredient in the semiconductor device ason to believe that the unavoidable impurity of s. You can access the UL iQTM family of datab loride (PVC) plastic. "Window envelopes" use ances restricted by RoHS in Microchip Technolo te date listed in this form. Microchip Technolo te date listed in this distribution the listed of this distribution terespect to the information provided in this distribution this distribution terms and conditions of sale.	I (RoHS Recast Directive e and, to the best of Mice concentration of the cher ases to obtain a test report d to hold the packing slip logy Incorporated cannot c raw material suppliers. S al suppliers. Information clude trace levels of dop eclaration. The exclusive, These are provided in Mi-) and with EU I rochip Techno nical substanc ort at o on the outer the guarantee the e upplier inform is provided or pants, metals, i , limited produ crochip's quot	Directive logy le, if any, is not box and certain vices in their completeness ation is often hy as estimates and non-metal ct warranties ations, sales otherwise,	0.06	Doped Silicon (mg) Total Doped Gold (mg) Total Nickel	Chip (Die) 7440-21-3 Total Wire Bond 7440-57-5 Total Plating on external leads (pins) 7440-02-0	% of Total Weight 100 100.00 % of Total Weight 100 100.00 % of Total Weight 95.73	0.75

Semiconductor Device 1		0x1.4mm V6		nation Base opper Alloy (•	ogeneous Materials: .g. pc boards, display	rs)	JEDEC 97 Product Marking and/or Pkg. Labeling e3
		"Contained In"	% Total			119.94	(mg) Total	Mold Compound	% ot Total Weight	71.95
Basic Substance	CAS Number	Sub-Component	Weight	mg/part	ppm					
Fused Silica	60676-86-0	Mold Compound	60.870	101.470	608,697		Fused Silica	60676-86-0	84.60	
Epoxy Resin 1 & 2	Trade Secret	Mold Compound	4.245	7.076	42,451		Epoxy Resin 1 & 2	Trade Secret	5.90	
Metal Hydroxide Phenol Resin	Trade Secret Trade Secret	Mold Compound Mold Compound	4.101 2.590	6.837 4.318	41,012 25,902	-	Metal Hydroxide Phenol Resin	Trade Secret Trade Secret	5.70 3.60	
Carbon Black	1333-86-4	Mold Compound Mold Compound	0.144	0.240	1,439		Carbon Black	1333-86-4	0.20	
Copper	7440-50-8	Lead Frame	20.724	34.548	207,244		Calibuli Bidck	Total		J
Nickel	7440-02-0	Lead Frame	0.553	0.921	5,527	36.27	(mg) Total	Lead Frame	% of Total Weight	21.76
Silicon	7440-02-0	Lead Frame	0.098	0.921	979	30.27	(mg) rotal Copper	7440-50-8	95.24	21.76
Magnesium	7439-95-4	Lead Frame	0.022	0.036	218		Nickel	7440-02-0	2.54	
Silver	7439-95-4	Lead Frame	0.363	0.605	3,632		Silicon	7440-02-0 7440-21-3	0.45	
Silver	7440-22-4	Die Attach	0.146	0.244	1,463		Magnesium	7439-95-4	0.45	
Acrylic Resin	Trade secret	Die Attach	0.016	0.027	1,403		Silver	7440-22-4	1.67	
Polybutadiene derivative & Coplolymer	9003-17-2	Die Attach	0.012	0.021	124		Gilver	Total		1
Acrylated EP-Resin	Trade secret	Die Attach	0.012	0.017	105	0.32	(mg) Total	Die Attach	% of Total Weight	0.19
Epoxy Resin	Trade secret	Die Attach	0.005	0.008	48	0.02	Silver	7440-22-4	77.00	0.15
Silicon	7440-21-3	Chip (Die)	2.550	4.251	25,500		Acrylic Resin	Trade secret	8.50	
Gold	7440-57-5	Wire Bond	0.490	0.817	4,900	Polybutadier	e derivative & Coplolymer		6.50	
			3.060	5.101	30,600	1 orybutadier	Acrylated EP-Resin	Trade secret	5.50	
Tin	7440-31-5	Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour				-				
In is semiconductor device and its homogenous materials com ective 2002/53/EC (End-of-Life Vehicles (ELV) Directive).	0.1667	g Total Mass	100.000	166.700	1,000,000	4.25	(mg) Total	Trade secret Trade secret Total Chip (Die)	2.50	2.55
is semiconductor device and its homogenous materials com ective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). mpliance with the above EU Directives has been verified via	0.1667 ply with EU Directive 20 internal design controls	TOTALS: g Total Mass 02/95/EC (RoHS Directive), EU Directive 2011/65/EU s, supplier declarations, and /or analytical test data.	100.000 RoHS Recas	166.700 at Directive) an	1,000,000 nd with EU		Epoxy Resin	Trade secret Total	2.50 100.00 % of Total Weight 100	2.55
is semiconductor device and its homogenous materials com ective 2002/53/EC (End-of-Life Vehicles (ELV) Directive).	0.1667 ply with EU Directive 20 internal design controls ical substance is NOT a of this document, there	TOTALS: <u>g Total Mass</u> 02/95/EC (RoHS Directive), EU Directive 2011/65/EU s, supplier declarations, and /or analytical test data. In intentional ingredient in the semiconductor device is no credible reason to believe that the unavoidabl	100.000 RoHS Recas and, to the b	166.700 at Directive) an best of Microc	1,000,000 nd with EU hip		Epoxy Resin (mg) Total	Trade secret Total Chip (Die) 7440-21-3	2.50 100.00 % of Total Weight 100	2.55
is semiconductor device and its homogenous materials com ective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). mpliance with the above EU Directives has been verified via chemical substance is absent from the list above, the chem chnology Incorporated's knowledge and belief as of the date	0.1667 ply with EU Directive 20 internal design controls ical substance is NOT a of this document, there ttory concern for any re mability standard for pla	TOTALS: <u>g Total Mass</u> 02/95/EC (RoHS Directive), EU Directive 2011/65/EU s, supplier declarations, and /or analytical test data. In intentional ingredient in the semiconductor device is no credible reason to believe that the unavoidabl gulatory scheme world-wide.	100.000 (RoHS Recas and, to the k e impurity co	166.700 at Directive) an best of Microc ncentration o	hip f the	4.25	Epoxy Resin (mg) Total	Trade secret Total Chip (Die) 7440-21-3	2.50 100.00 % of Total Weight 100	0.49
is semiconductor device and its homogenous materials com ective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). mpliance with the above EU Directives has been verified via chemical substance is absent from the list above, the chem chnology Incorporated's knowledge and belief as of the date emical substance, if any, is not below the threshold of regula Iding compounds used by Microchip meet the UL94 V0 flam	0.1667 ply with EU Directive 20 internal design controls ical substance is NOT a of this document, there tory concern for any re mability standard for pla lastics/	TOTALS: g Total Mass 02/95/EC (RoHS Directive), EU Directive 2011/65/EU is, supplier declarations, and /or analytical test data. In intentional ingredient in the semiconductor device is in ocredible reason to believe that the unavoidabl gulatory scheme world-wide. Instics. You can access the UL iQTM family of database	100.000 (RoHS Recas and, to the b e impurity co ses to obtain	166.700 it Directive) an poest of Microc oncentration o a test report a	hip f the	4.25	Epoxy Resin (mg) Total Doped Silicon	Trade secret Total Chip (Die) 7440-21-3 Total Wire Bond 7440-57-5	2.50 100.00 % of Total Weight 100 100.00 % of Total Weight 100.00	
is semiconductor device and its homogenous materials com ective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). mpliance with the above EU Directives has been verified via chemical substance is absent from the list above, the chem chnology Incorporated's knowledge and belief as of the date emical substance, if any, is not below the threshold of regula Iding compounds used by Microchip meet the UL94 V0 flam p://ul.com/global/eng/pages/offerings/industries/chemicals/p e protective "tubes" in which the specific product is shipped	0.1667 ply with EU Directive 20 internal design controls ical substance is NOT a of this document, there tory concern for any re mability standard for pla lastics/ l are made from polyvin this form concerning si the best of its knowled because it has been con disclosure as trade sec so of the average weight	TOTALS: g Total Mass 02/95/EC (RoHS Directive), EU Directive 2011/65/EU a, supplier declarations, and /or analytical test data. In intentional ingredient in the semiconductor device is no credible reason to believe that the unavoidabl gulatory scheme world-wide. Istics. You can access the UL iQTM family of database yl chloride (PVC) plastic. "Window envelopes" used ubstances restricted by RoHS in Microchip Technolo ge and belief, as of the date listed in this form. Micro mpiled based on the ranges provided in Material Safe rets and some information may not have been provi of these parts and the average weight of anticipater	100.000 (RoHS Recas and, to the b e impurity co ses to obtain to hold the part chip Techno chip Techno ty Data Shee ded by subcc I significant t	t Directive) and best of Microconcentration of a test report a acking slip on logy Incorpor tes provided b pontract assem ioxic metals c	hip f the at the outer nductor ated cannot y raw blers and	4.25 0.82 Doped Gold	Epoxy Resin (mg) Total Doped Silicon (mg) Total	Trade secret Total Chip (Die) 7440-21-3 Total Wire Bond	2.50 100.00 % of Total Weight 100 100.00 % of Total Weight 100.00	
is semiconductor device and its homogenous materials com ective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). mpliance with the above EU Directives has been verified via chemical substance is absent from the list above, the chem chnology Incorporated's knowledge and belief as of the date emical substance, if any, is not below the threshold of regula iding compounds used by Microchip meet the UL94 V0 flam p://ul.com/global/eng/pages/offerings/industries/chemicals/p e protective "tubes" in which the specific product is shipped x and certain "reels" may be made from PVC plastic. crochip Technology Incorporated believes the information in vices in their original packing materials is true and correct to arantee the completeness and accuracy of data in this form terial suppliers. Information is provided only as estimat	0.1667 ply with EU Directive 20 internal design controls ical substance is NOT a of this document, there tory concern for any re mability standard for pla lastics/ I are made from polyvin this form concerning si the best of its knowled because it has been con disclosure as trade see so of the average weight and non-metal material anty, express or implied rated and its subsidiarie	TOTALS: <u>g Total Mass</u> 02/95/EC (RoHS Directive), EU Directive 2011/65/EU s, supplier declarations, and /or analytical test data. In intentional ingredient in the semiconductor device is no credible reason to believe that the unavoidabl gulatory scheme world-wide. Istics. You can access the UL iQTM family of database yl chloride (PVC) plastic. "Window envelopes" used ubstances restricted by RoHS in Microchip Technolo ge and belief, as of the date listed in this form. Micro mpiled based on the ranges provided in Material Safe crets and some information may not have been provi of these parts and the average weight of anticipater Is contained within silicon devices (silicon IC) in the , with respect to the information provided in this dec	100.000 (RoHS Recas and, to the b e impurity co ses to obtain to hold the part chip Techno ty Data Shee ded by subcc led by subcc led by subcc led by subcc led by subcc finished parts laration. The	t Directive) and best of Microconcentration of a test report a acking slip on ted's semicor logy Incorpor tes provided b pontract assem coxic metals of s.	hip f the f the at the outer ated cannot y raw blers and omponents.	4.25 0.82 Doped Gold	Epoxy Resin (mg) Total Doped Silicon (mg) Total	Trade secret Total Chip (Die) 7440-21-3 Total Wire Bond 7440-57-5	2.50 100.00 % of Total Weight 100 100.00 % of Total Weight 100.00	
is semiconductor device and its homogenous materials com ective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). mpliance with the above EU Directives has been verified via i chemical substance is absent from the list above, the chem chnology Incorporated's knowledge and belief as of the date emical substance, if any, is not below the threshold of regula lding compounds used by Microchip meet the UL94 V0 flam p://ul.com/global/eng/pages/offerings/industries/chemicals/p e protective "tubes" in which the specific product is shipped x and certain "reels" may be made from PVC plastic. crochip Technology Incorporated believes the information in vices in their original packing materials is true and correct to arantee the completeness and accuracy of data in this form terial suppliers. Supplier information is often protected from v material suppliers. Information is provided only as estimate see estimates do not include trace levels of dopants, metals crochip Technology Incorporated does not provide any warr oduct warranties provided by Microchip Technology Incorpo	0.1667 ply with EU Directive 20 internal design controls ical substance is NOT a of this document, there tory concern for any re mability standard for pla lastics/ l are made from polyvin this form concerning si the best of its knowled because it has been con disclosure as trade sec so of the average weight, and non-metal material anty, express or implied rated and its subsidiarie nvoices. ngest o Material Content sers' reliance on the inf	TOTALS: g Total Mass 02/95/EC (RoHS Directive), EU Directive 2011/65/EU s, supplier declarations, and /or analytical test data. In intentional ingredient in the semiconductor device is no credible reason to believe that the unavoidabl gulatory scheme world-wide. Istics. You can access the UL iQTM family of database yl chloride (PVC) plastic. "Window envelopes" used ubstances restricted by RoHS in Microchip Technolo ge and belief, as of the date listed in this form. Micro mpiled based on the ranges provided in Material Saft rests and some information may not have been provi to of these parts and the average weight of anticipated is contained within silicon devices (silicon IC) in the with respect to the information provided in this dec is are contained in Microchip's standard terms and c t Declarations and shall not be liable for any damage	100.000 (RoHS Recas and, to the b e impurity co ses to obtain to hold the pr gy Incorpora chip Techno dy Data Shee ded by subco I significant t inished parts laration. The onditions of s, direct or ir	t Directive) and best of Microconcentration of a test report a acking slip on ted's semicon logy Incorpor tes provided b ontract assem toxic metals of s. exclusive, lin sale. These an indirect, conse	to the outer the outer at the o	4.25 0.82 Doped Gold	Epoxy Resin (mg) Total (mg) Total Gold	Trade secret Total Chip (Die) 7440-21-3 Total Wire Bond 7440-57-5 Total Plating on external leads (pins) - Matte Tin	2.50 100.00 % of Total Weight 100 % of Total Weight 100.00 100.00	0.49

	ce Type: 100 LQFP 14x14	x1.4mm (H7)		nation Base A pper Alloy (C	-		Package Homo	geneous Materials		JEDEC 97 Product Markin and/or Pkg. Labeling e3
Basic Substance		"Contained In" Sub-Component	% Total Weight			348.46	(mg) Total	Mold Compound	% ot Total Weight	71.68
	CAS Number		•	mg/part	ppm					
Silica, vitreous (or fused)	60676-86-0	Mold Compound	60.928	296.189	609,280		Silica, vitreous (or fused)	60676-86-0	85.00	
Epoxy Resin Phenolic Resin	Trade Secret Trade Secret	Mold Compound Mold Compound	6.236 4.301	30.316 20.907	62,362 43.008		Epoxy Resin Phenolic Resin	Trade Secret Trade Secret	8.70 6.00	
Carbon Black	1333-86-4	Mold Compound	0.215	20.907	2,150		Carbon Black	1333-86-4	6.00	
Carbon Black	7440-50-8	Lead Frame	23.626	114.855	236,264		Carbon Black	1333-86-4 Total	0.30	
	7439-89-6		0.581	2.825		100.00				
Iron		Lead Frame	0.581		5,812	120.22	(mg) Total	Lead Frame	% of Total Weight	24.73
Silver	7440-22-4	Lead Frame		2.290	4,711		Copper	7440-50-8	95.54	
Zinc	7440-66-6	Lead Frame	0.031	0.150	309		Iron	7439-89-6	2.35	
Phosphorous	7723-14-0	Lead Frame	0.020	0.099	204		Silver	7440-22-4	1.91	
Silver (Ag)	7440-22-4	Die Attach	0.332	1.614	3,320		Zinc	7440-66-6	0.13	
ANHYDRIDE	Trade Secret	Die Attach	0.036	0.175	360		Phosphorous	7723-14-0	0.08	
EPOXY RESIN	Trade Secret	Die Attach	0.032	0.156	320			Total	100.00	
Silicon	7440-21-3	Chip (Die)	1.640	7.973	16,400	1.94	(mg) Total	Die Attach	% of Total Weight	0.4
Doped Gold	7440-57-5	Wire Bond	0.430	2.090	4,300		Silver (Ag)	7440-22-4	83.00	
Tin	7440-31-5 Platin	g on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	1.120	5.445	11,200		ANHYDRIDE	Trade Secret	9.00	
		TOTALS:	100.000	486.130	1,000,000		EPOXY RESIN	Trade Secret	8.00	
	0.4861 g T	otal Mass						Total	100.00	
, ,				Directive) and		7.97	Total (mg)	Chip (Die)	% of Total Weight	1.64
pliance with the above EU Directives has been verified	d via internal design controls, su	pplier declarations, and /or analytical test data.			ŀ	7.97	Total (mg) Doped Silicon	Chip (Die) 7440-21-3 Total	% of Total Weight 100 100.00	1.64
pliance with the above EU Directives has been verified hemical substance is absent from the list above, the o nology Incorporated's knowledge and belief as of the	d via internal design controls, su chemical substance is NOT an in date of this document, there is r	pplier declarations, and /or analytical test data. tentional ingredient in the semiconductor device to credible reason to believe that the unavoidable	and, to the be	st of Microchip		7.97		7440-21-3	100	1.64
bliance with the above EU Directives has been verified nemical substance is absent from the list above, the ology incorporated's knowledge and belief as of the ance, if any, is not below the threshold of regulatory ing compounds used by Microchip meet the UL94 V0	d d via internal design controls, su chemical substance is NOT an in date of this document, there is r concern for any regulatory sche flammability standard for plastic	pplier declarations, and /or analytical test data. tentional ingredient in the semiconductor device to credible reason to believe that the unavoidable me world-wide.	and, to the be e impurity con	st of Microchip centration of th		2.09		7440-21-3	100	0.43
pliance with the above EU Directives has been verifier hemical substance is absent from the list above, the o nology incorporated's knowledge and belief as of the tance, if any, is not below the threshold of regulatory ing compounds used by Microchip meet the UL94 V0 //ul.com/global/eng/pages/offerings/industries/chemic protective "tubes" in which the specific product is shi	d d via internal design controls, su chemical substance is NOT an in date of this document, there is r concern for any regulatory sche flammability standard for plastic cals/plastics/	pplier declarations, and /or analytical test data. tentional ingredient in the semiconductor device to credible reason to believe that the unavoidable me world-wide. ts. You can access the UL IQTM family of databas	and, to the be e impurity con- ses to obtain a	st of Microchip centration of th test report at) he chemical		Doped Silicon	7440-21-3 Total Wire Bond 7440-57-5	100 100.00 % of Total Weight	
pliance with the above EU Directives has been verifies themical substance is absent from the list above, the of unology Incorporated's knowledge and belief as of the stance, if any, is not below the threshold of regulatory ling compounds used by Microchip meet the UL94 V0 //ul.com/global/eng/pages/offerings/industries/chemic protective "tubes" in which the specific product is shi certain "reels" may be made from PVC plastic. ochip Technology Incorporated believes the informati ces in their original packing materials is true and corre antee the completeness and accuracy of data in this f bliers. Supplier information is often protected from dis liers. Information is provided only as estimates of the	d via internal design controls, su chemical substance is NOT an in e date of this document, there is r concern for any regulatory sche flammability standard for plastic cals/plastics/ ipped are made from polyvinyl cf ion in this form concerning subsi ect to the best of its knowledge a orm because it has been complik sclosure as trade secrets and sor a vereage weight of these parts a	pplier declarations, and /or analytical test data. tentional ingredient in the semiconductor device to credible reason to believe that the unavoidable me world-wide. s. You can access the UL iQTM family of databas nloride (PVC) plastic. "Window envelopes" used in tances restricted by RoHS in Microchip Technolo and belief, as of the date listed in this form. Micro d based on the ranges provided in Material Safet ne information may not have been provided by st of the verage weight of anticipated significant t	and, to the be e impurity con- ses to obtain a to hold the pac gy Incorporate chip Technolo ty Data Sheets ubcontract ass	st of Microchip centration of th test report at sking slip on th ed's semicond gy Incorporate provided by rr emblers and r	o he chemical ne outer box uctor uctor d cannot aw material aw material		(mg) Total	7440-21-3 Total Wire Bond	100 100.00 % of Total Weight	
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive) upliance with the above EU Directives has been verifier themical substance is absent from the list above, the of nology Incorporated's knowledge and belief as of the stance, if any, is not below the threshold of regulatory ding compounds used by Microchip meet the UL94 V0 //ul.com/global/eng/pages/offerings/industries/chemic protective "tubes" in which the specific product is shi certain "reels" may be made from PVC plastic. oohip Technology Incorporated believes the informati ces in their original packing materials is true and corrr antee the completeness and accuracy of data in this f bilers. Supplier information is often protected from dis bilers. Information is provided only as estimates of the nates do not include trace levels of dopants, metals, a ochip Technology Incorporated does not provide any anties provided by Microchip Technology Incorporate ochip's quotations, sales order acknowledgement, an	d via internal design controls, su chemical substance is NOT an in date of this document, there is r concern for any regulatory sche flammability standard for plastic cals/plastics/ ipped are made from polyvinyl cl ion in this form concerning subsi- ect to the best of its knowledge a form because it has been compile sclosure as trade secrets and sor e average weight of these parts a and non-metal materials containe warranty, express or implied, wil d and its subsidiaries are contain	pplier declarations, and /or analytical test data. tentional ingredient in the semiconductor device to credible reason to believe that the unavoidable me world-wide. s. You can access the UL iQTM family of databas nloride (PVC) plastic. "Window envelopes" used in tances restricted by RoHS in Microchip Technolo ind belief, as of the date listed in this form. Micro- dbased on the ranges provided in Material Safet ne information may not have been provided by sin d the average weight of anticipated significant t d within silicon devices (silicon IC) in the finisher th respect to the information provided in this dec	and, to the be e impurity con- ses to obtain a to hold the pac chip Technolo ty Data Sheets ubcontract ass oxic metals co d parts. laration. The e	st of Microchig centration of th test report at king slip on th class semicond gy Incorporate provided by ra memblers and r mponents. Th xclusive, limite	he chemical he outer box uctor di cannot aw material aw material ese ed product		(mg) Total (mg) Total	7440-21-3 Total Wire Bond 7440-57-5	100 100.00 % of Total Weight	
pliance with the above EU Directives has been verifier hemical substance is absent from the list above, the nology incorporated's knowledge and belief as of the tance, if any, is not below the threshold of regulatory ing compounds used by Microchip meet the UL94 V0 //ul.com/global/eng/pages/offerings/industries/chemic protective "tubes" in which the specific product is shi zertain "reels" may be made from PVC plastic. Drother Technology Incorporated believes the informati- tives in their original packing materials is true and corre antee the completeness and accuracy of data in this f lilers. Supplier information is often protected from dis lilers. Information is provided only as estimates of the ates do not include trace levels of dopants, metals, a bochip Technology Incorporated does not provide any anties provided by Microchip Technology Incorporate	d via internal design controls, su chemical substance is NOT an ini date of this document, there is r concern for any regulatory sche flammability standard for plastic cals/plastics/ ipped are made from polyvinyl cf ion in this form concerning subsi- ect to the best of its knowledge a form because it has been compile sclosure as trade secrets and sor a verage weight of these parts a and non-metal materials containe warranty, express or implied, will d and its subsidiaries are contail d invoices. r changes to Material Content De the users' reliance on the inform	pplier declarations, and /or analytical test data. tentional ingredient in the semiconductor device to credible reason to believe that the unavoidable me world-wide. ss. You can access the UL iQTM family of databas noride (PVC) plastic. "Window envelopes" used the tances restricted by RoHS in Microchip Technolo and belief, as of the date listed in this form. Micro dbased on the ranges provided in Material Safet ne information may not have been provided by sin d the average weight of anticipated significant t d within silicon devices (silicon IC) in the finisher the respect to the information provided in this dec- ned in Microchip's standard terms and conditions clarations and shall not be liable for any damage	and, to the be e impurity con- ses to obtain a to hold the pac- gy Incorporate chip Technolo ty Data Sheets oxic metals co- d parts. laration. The e s of sale. Thes s, direct or ind	st of Microchig centration of th test report at king slip on th ed's semicond gy Incorporate provided by ri- emblers and r mponents. Th xclusive, limite e are provided irect, consequ	o he chemical ne outer box uctor ed cannot aw material aw material ese ed product in uential or	2.09	(mg) Total (mg) Total	7440-21-3 Total Wire Bond 7440-57-5 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1	100 100.00 % of Total Weight 100 100.00	0.43

				ination Base opper Alloy (•	ogeneous Materials: .g. pc boards, display	/s)	JEDEC 97 Product Markin and/or Pkg. Labeling
Semiconductor Device Ty	pe: 100 LQFP 1									e3
Basic Substance	CAS Number	"Contained In" Sub-Component	% Total Weight	mg/part	ppm	491.77	(mg) Total	Mold Compound	% ot Total Weight	84.73
Silica Fused	60676-86-0	Mold Compound	74.791	434.088	747,912		Silica Fused	60676-86-0	88.27	
Epoxy Resin	Trade Secret	Mold Compound	5.287	30.687	52,872		Epoxy Resin	Trade Secret	6.24	
Phenol Resin	Trade Secret	Mold Compound	4.397	25.523	43,975		Phenol Resin	Trade Secret	5.19	
Carbon Black	1333-86-4	Mold Compound	0.254	1.475	2,542		Carbon Black	1333-86-4	0.30	
Copper	7440-50-8	Lead Frame	12.172	70.645	121,718			Total	100.00	9
Nickel	7440-02-0	Lead Frame	0.325	1.884	3,246	74.18	(mg) Total	Lead Frame	% of Total Weight	12.78
Silver	7440-22-4	Lead Frame	0.213	1.238	2,133		Copper	7440-50-8	95.24	
Silicon	7440-21-3	Lead Frame	0.058	0.334	575		Nickel	7440-02-0	2.54	
Magnesium	7439-95-4	Lead Frame	0.013	0.074	128		Silver	7440-22-4	1.67	
Silver	7440-22-4	Die Attach	0.031	0.179	308		Silicon	7440-21-3	0.45	
Acrylic Resin	Trade secret	Die Attach	0.003	0.020	34		Magnesium	7439-95-4	0.10	
Epoxy Resin	Trade secret	Die Attach	0.001	0.006	10		magnoolam	Total		J
Acrylated EP-Resin	Trade secret	Die Attach	0.001	0.000	22	0.23	(mg) Total	Die Attach	% of Total Weight	0.04
, ,						0.23				0.04
Polybutadiene derivative & Coplolymer	9003-17-2	Die Attach	0.003	0.015	26		Silver	7440-22-4	77.00	
Silicon	7440-21-3	Chip (Die)	0.570	3.308	5,700		Acrylic Resin	Trade secret	8.50	
Copper	7440-50-8	Wire Bond	0.098	0.570	983		Epoxy Resin	Trade secret	2.50	
Palladium	7440-05-3	Wire Bond	0.002	0.010	18	_	Acrylated EP-Resin	Trade secret	5.50	
		Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	1.780	10.331	17,800	Poly	butadiene derivative & Copl	9003-17-2	7	
Tin	7440-31-5									
lin	7440-31-3	TOTALS:	100.000	580.400	1,000,000		-	Total	100.00	
emiconductor device and its homogenous mate ve) and with EU Directive 2002/53/EC (End-of-L	0.5804 erials comply with EL ife Vehicles (ELV) Di	TOTALS: g Total Mass J Directive 2002/95/EC (RoHS Directive), EU Direct rective).	100.000 ive 2011/65/I	580.400 EU (RoHS Red	,,	3.31	(mg) Total Doped Silicon	Total Chip (Die) 7440-21-3 Total	% of Total Weight	0.57
emiconductor device and its homogenous mate ve) and with EU Directive 2002/53/EC (End-of-L iance with the above EU Directives has been ve	0.5804 erials comply with EL ife Vehicles (ELV) Di erified via internal de	TOTALS: <u>g Total Mass</u> J Directive 2002/95/EC (RoHS Directive), EU Direct rective). sign controls, supplier declarations, and /or analy	100.000 ive 2011/65/l tical test dat	580.400 EU (RoHS Rec	cast	3.31		Chip (Die) 7440-21-3	% of Total Weight	0.57
emiconductor device and its homogenous mate ve) and with EU Directive 2002/53/EC (End-of-L iance with the above EU Directives has been ve emical substance is absent from the list above, thip Technology Incorporated's knowledge and	0.5804 erials comply with EL ife Vehicles (ELV) Di erified via internal de the chemical substa belief as of the date	TOTALS: g Total Mass J Directive 2002/95/EC (RoHS Directive), EU Direct rective).	100.000 ive 2011/65/I tical test dat onductor dev elieve that ti	580.400 EU (RoHS Red ta. vice and, to th he unavoidab	e best of	3.31 0.58		Chip (Die) 7440-21-3	% of Total Weight	0.57
emiconductor device and its homogenous mate ve) and with EU Directive 2002/53/EC (End-of-L iance with the above EU Directives has been ve emical substance is absent from the list above, hip Technology Incorporated's knowledge and tration of the chemical substance, if any, is no g compounds used by Microchip meet the ULS at http://ul.com/global/eng/pages/offerings/ind	0.5804 erials comply with EL ife Vehicles (ELV) Di erified via internal de the chemical substa belief as of the date ot below the threshol below the threshol 04 V0 flammability sta ustries/chemicals/pla	TOTALS: g Total Mass J Directive 2002/95/EC (RoHS Directive), EU Directive rective). sign controls, supplier declarations, and /or analy nce is NOT an intentional ingredient in the semico of this document, there is no credible reason to b d of regulatory concern for any regulatory scheme andard for plastics. You can access the UL iQTM fa- istics/	100.000 ive 2011/65/l tical test dat onductor dev elieve that th world-wide amily of data	580.400 EU (RoHS Red ta. vice and, to th ne unavoidab abases to obt	cast e best of le impurity ain a test		Doped Silicon	Chip (Die) 7440-21-3 Total	% of Total Weight 100 100.00]
emiconductor device and its homogenous mate ve) and with EU Directive 2002/53/EC (End-of-L iance with the above EU Directives has been ve emical substance is absent from the list above, hip Technology Incorporated's knowledge and ntration of the chemical substance, if any, is no g compounds used by Microchip meet the ULS at http://ul.com/global/eng/pages/offerings/ind otective "tubes" in which the specific product the outer box and certain "reels" may be mad	0.5804 arials comply with EL ife Vehicles (ELV) Di erified via internal de the chemical substa belief as of the date ot below the thresholo below the thresholo 4 V0 flammability sta ustries/chemicals/pla is shipped are made e from PVC plastic.	TOTALS: g Total Mass J Directive 2002/95/EC (RoHS Directive), EU Direct rective). sign controls, supplier declarations, and /or analy nce is NOT an intentional ingredient in the semico of this document, there is no credible reason to b d of regulatory concern for any regulatory scheme andard for plastics. You can access the UL iQTM fa- istics/ from polyvinyl chloride (PVC) plastic. "Window er	100.000 ive 2011/65/l tical test dat onductor dev elieve that the world-wide amily of data ovelopes" us	580.400 EU (RoHS Red ta. vice and, to th ne unavoidab abases to obt sed to hold th	e best of le impurity ain a test e packing		mg) Total	Chip (Die) 7440-21-3 Total Wire Bond	% of Total Weight 100 100.00 % of Total Weight 98 2]
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emiconductor device and its homogenous mate ve) and with EU Directive 2002/53/EC (End-of-L iance with the above EU Directives has been vi- emical substance is absent from the list above, thip Technology Incorporated's knowledge and thration of the chemical substance, if any, is no g compounds used by Microchip meet the UL2 at http://ul.com/global/eng/pages/offerings/ind otective "tubes" in which the specific product the outer box and certain "reels" may be mad thip Technology Incorporated believes the info onductor devices in their original packing mate ology Incorporated cannot guarantee the comp al Safety Data Sheets provided by raw material ot have been provided by subcontract assembl and the average weight of anticipated significar als contained within silicon devices (silicon IC) whip Technology Incorporated does not provided ive, limited product warranties provided by Mic ions of sale. These are provided in Microchip's thip disclaims any duty to notify users of update	0.5804 erials comply with EL ife Vehicles (ELV) Di erified via internal de the chemical substa belief as of the date of below the threshole 04 V0 flammability sta ustries/chemicals/pla is shipped are made e from PVC plastic. rmation in this form of rials is true and corrr leteness and accuration suppliers. Supplier i ers and raw material to toxic metals compo in the finished parts e any warranty, expre- crochip Technology I quotations, sales or tes or changes to Material to material to material	TOTALS: <u>g Total Mass</u> J Directive 2002/95/EC (RoHS Directive), EU Directive rective). sign controls, supplier declarations, and /or analy nce is NOT an intentional ingredient in the semico of this document, there is no credible reason to b d of regulatory concern for any regulatory scheme andard for plastics. You can access the UL iQTM fa- istics/ from polyvinyl chloride (PVC) plastic. "Window er concerning substances restricted by RoHS in Micr ect to the best of its knowledge and belief, as of th cy of data in this form because it has been compili- nformation is often protected from disclosure as t suppliers. Information is provided only as estimat onents. These estimates do not include trace level s. ss or implied, with respect to the information provide ncorporated and its subsidiaries are contained in der acknowledgement, and invoices. terial Content Declarations and shall not be liable	100.000 ive 2011/65/i tical test dat onductor dev elieve that the world-wide amily of data avelopes" us ochip Techr he date listed ed based on rade secrets es of the ave s of dopants rided in this Microchip's for any dam	580.400 EU (RoHS Red ta. vice and, to the unavoidab abases to obt sed to hold th the ranges p d in this form. the ranges weight s, metals, and declaration. T standard terr ages, direct c	e best of le impurity ain a test e packing orated's Microchip rovided in formation of these non-metal The ns and or indirect,	0.58	(mg) Total Copper Palladium	Chip (Die) 7440-21-3 Total Wire Bond 7440-50-8 7440-05-3 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	% of Total Weight 100 100.00 % of Total Weight 98 2 100.00 % of Total Weight	0.1
emiconductor device and its homogenous mate ve) and with EU Directive 2002/53/EC (End-of-L iance with the above EU Directives has been vi- emical substance is absent from the list above, thip Technology Incorporated's knowledge and thration of the chemical substance, if any, is no g compounds used by Microchip meet the UL2 at http://ul.com/global/eng/pages/offerings/ind otective "tubes" in which the specific product the outer box and certain "reels" may be mad thip Technology Incorporated believes the info onductor devices in their original packing mate ology Incorporated cannot guarantee the comp al Safety Data Sheets provided by raw material ot have been provided by subcontract assembl and the average weight of anticipated significar als contained within silicon devices (silicon IC) whip Technology Incorporated does not provided ive, limited product warranties provided by Mic ions of sale. These are provided in Microchip's thip disclaims any duty to notify users of update	0.5804 erials comply with EL ife Vehicles (ELV) Di erified via internal de the chemical substa belief as of the date of the da	TOTALS: <u>g Total Mass</u> J Directive 2002/95/EC (RoHS Directive), EU Directive rective). sign controls, supplier declarations, and /or analy nce is NOT an intentional ingredient in the semicor of this document, there is no credible reason to b d of regulatory concern for any regulatory scheme andard for plastics. You can access the UL iQTM for isstics/ from polyvinyl chloride (PVC) plastic. "Window er concerning substances restricted by RoHS in Micr ect to the best of its knowledge and belief, as of th zy of data in this form because it has been compili information is often protected from disclosure as to suppliers. Information is provided only as estimated onents. These estimates do not include trace level c. ss or implied, with respect to the information prov ncorporated and its subsidiaries are contained in der acknowledgement, and invoices. terial Content Declarations and shall not be liable of the users' reliance on the information in Materia	100.000 ive 2011/65/i tical test dat onductor dev elieve that the world-wide amily of data avelopes" us ochip Techr he date listed ed based on rade secrets es of the ave s of dopants rided in this Microchip's for any dam	580.400 EU (RoHS Red ta. vice and, to the unavoidab abases to obt sed to hold th the ranges p d in this form. the ranges weight s, metals, and declaration. T standard terr ages, direct c	e best of le impurity ain a test e packing orated's Microchip rovided in formation of these non-metal The ns and or indirect,	0.58	Copper Palladium	Chip (Die) 7440-21-3 Total Wire Bond 7440-50-8 7440-05-3 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for	% of Total Weight 100 100.00 % of Total Weight 98 2 100.00 % of Total Weight 100.00	0.1

MICROCHIP Semiconductor Device Typ	De: PH 144 (Lead) LQF	P 20x20x1.4mm (H8)		nation Base A pper Alloy (C				nogeneous Materials: e.g. pc boards, displa		JEDEC 97 Product Marking and/or Pkg. Labeling e3
		"Contained In"	% Total			439.61	(mg) Total	Mold Compound	% ot Total Weight	68.23
Basic Substance	CAS Number	Sub-Component	Weight	mg/part	ppm	439.61				68.23
Silica, vitreous (or fused)	60676-86-0	Mold Compound	57.996	373.665	579,955		Silica, vitreous (or fused)	60676-86-0	85.00	
Epoxy Resin	Trade Secret	Mold Compound	5.936	38.246	59,360		Epoxy Resin	Trade Secret	8.70	
Phenolic Resin	Trade Secret	Mold Compound	4.094	26.376	40,938		Phenolic Resin	Trade Secret	6.00	
Carbon Black	1333-86-4	Mold Compound	0.205	1.319	2,047		Carbon Black	1333-86-4	0.30	
Copper	7440-50-8	Lead Frame	26.955	173.669	269,547			Total	100.00	
Tin	7440-31-5	Lead Frame	0.069	0.446	692	178.28	(mg) Total	Lead Frame	% of Total Weight	27.67
Silver	7440-22-4	Lead Frame	0.527	3.396	5,271		Copper	7440-50-8	97.42	
Zinc	7440-66-6	Lead Frame	0.050	0.321	498		Tin	7440-31-5	0.25	
Chromium	7440-47-3	Lead Frame	0.069	0.446	692		Silver	7440-22-4	1.91	
Silver	7440-22-4	Die Attach	0.357	2.300	3,570		Zinc	7440-66-6	0.18	
Epoxy resin	Trade Secret	Die Attach	0.102	0.657	1,020		Chromium	7440-47-3	0.25	
Aliphatic acid anhydride / TPU-ALET	Trade Secret	Die Attach	0.051	0.329	510			Total	100.00	
Silicon	7440-21-3	Chip (Die)	2.090	13.466	20,900	3.29	(mg) Total	Die Attach	% of Total Weight	0.51
Gold	7440-57-5	Wire Bond	0.280	1.804	2,800		Silver	7440-22-4	70	
Tin	7440-31-5 Plating of	on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	1.220	7.860	12,200		Epoxy resin	Trade Secret	20	
		TOTALS:	100.000	644.300	1,000,000	Aliphatic a	cid anhydride / TPU-ALET	Trade Secret	10	
	0.6443 g Tot	tal Mass						Total	100.00	
This semiconductor device and its homogenous materials comp Directive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). Compliance with the above EU Directives has been verified via in If a chemical substance is absent from the list above, the chemic	ternal design controls, supp al substance is NOT an inter	lier declarations, and /or analytical test data.	, to the best of	Microchip Teo	hnology	13.47	Total (mg) Doped Silicon	Chip (Die) 7440-21-3 Total	% of Total Weight 100 100.00	
Incorporated's knowledge and belief as of the date of this docum any, is not below the threshold of regulatory concern for any reg Molding compounds used by Microchip meet the UL94 V0 flamm http://ul.com/global/eng/pages/offerings/industries/chemicals/pla	ulatory scheme world-wide. ability standard for plastics.				tance, if	1.80	(mg) Total	Wire Bond	% of Total Weight	0.28
The protective "tubes" in which the specific product is shipped a certain "reels" may be made from PVC plastic.	re made from polyvinyl chlo	ride (PVC) plastic. "Window envelopes" used to he	old the packing	slip on the ou	iter box and		Doped Gold	7440-57-5	100	
Microchip Technology Incorporated believes the information in t their original packing materials is true and correct to the best of completeness and accuracy of data in this form because it has b information is often protected from disclosure as trade secrets a provided only as estimates of the average weight of these parts i of dopants, metals, and non-metal materials contained within sili	its knowledge and belief, as een compiled based on the r nd some information may no and the average weight of an	of the date listed in this form. Microchip Technolog anges provided in Material Safety Data Sheets pro- ot have been provided by subcontract assemblers a ticipated significant toxic metals components. The	y Incorporated vided by raw m and raw materi	l cannot guara aterial supplie al suppliers. Ir	intee the ers. Supplier information is			Total	100.00	ч
Microchip Technology Incorporated does not provide any warrar warranties provided by Microchip Technology Incorporated and quotations, sales order acknowledgement, and invoices.						7.86	(mg) Total	Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	% of Total Weight	1.22
Microchip disclaims any duty to notify users of updates or chang otherwise, suffered by users or third parties as a result of the use of this Certificate of Compliance for semiconductor products.							Tin	7440-31-5	100.00	
								Total	100.00	-
						644.300				100.000

MICROCHIP Semiconductor Device Type:	PQ 44 (Lead)	NQFP (10x10x2mm) (T8)		nation Base A oper Alloy (C			•	mogeneous Materials (e.g. pc boards, displ		JEDEC 97 Product Marking and/or Pkg. Labeling e3
Basic Substance	CAS Number	"Contained In" Sub-Component	% Total Weight	mg/part	ppm	314.89	(mg) Total	Mold Compound	% ot Total Weight	64.87
Silica, vitreous (or fused)	60676-86-0	Mold Compound	55.140	267.653	551,395		Silica, vitreous (or fused)	60676-86-0	85.00	1
Epoxy Resin	Trade Secret	Mold Compound	5.644	27.395	56.437		Epoxy Resin	Trade Secret	8.70	
Phenolic Resin	Trade Secret	Mold Compound	3.892	18.893	38,922		Phenolic Resin	Trade Secret	6.00	
Carbon Black	1333-86-4	Mold Compound	0.195	0.945	1,946		Carbon Black	1333-86-4	0.30	
Copper	7440-50-8	Lead Frame	27.106	131.573	271.056			Total	100.00	4
Nickel	7440-02-0	Lead Frame	0.723	3.509	7.229	138.15	(mg) Total	Lead Frame	% of Total Weight	28.46
Silver	7440-22-4	Lead Frame	0.475	2.306	4,750		Copper	7440-50-8	95.24	20110
Silicon	7440-21-3	Lead Frame	0.128	0.622	1,281		Nickel	7440-02-0	2.54	
Magnesium	7439-95-4	Lead Frame	0.028	0.138	285		Silver	7440-22-4	1.67	
Silver (Ag)	7440-22-4	Die Attach	0.556	2.699	5.561		Silicon	7440-21-3	0.45	
ANHYDRIDE	Trade Secret	Die Attach	0.060	0.293	603		Magnesium	7439-95-4	0.10	
EPOXY RESIN	Trade Secret	Die Attach	0.054	0.260	536			Total	100.00	
Silicon	7440-21-3	Chip (Die)	3.970	19.271	39,700	3.25	(mg) Total	Die Attach	% of Total Weight	0.67
Gold	7440-57-5	Wire Bond	0.210	1.019	2,100	0.20	Silver (Ag)	7440-22-4	83	0.0.
Tin	7440-31-5	Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	1.820	8.834	18,200		ANHYDRIDE	Trade Secret	9	
		TOTALS:	100.000	485.410	1.000.000		EPOXY RESIN	Trade Secret	8	
	0 / 85/	g Total Mass			,,			Total	100.00	
This semiconductor device and its homogenous materials comply w Directive 2002/53/EC (End-of-Life Vehicles (ELV) Directive).		<u>v</u>	IS Recast Direct	ctive) and with	EU	19.27	Total (mg)	Chip (Die)	% of Total Weight	3.97
Compliance with the above EU Directives has been verified via interr	al design contro	Is sumplier declarations, and /or analytical test data					Doped Silicon	7440-21-3	100	1
	iai acoigii conti c	is, supplier deblarations, and for analytical test data.					Doped Onicon			
If a chemical substance is absent from the list above, the chemical s Incorporated's knowledge and belief as of the date of this document any, is not below the threshold of regulatory concern for any regular Molding compounds used by Microchip meet the UL94 V0 flammabil	, there is no cred ory scheme work ity standard for p	ible reason to believe that the unavoidable impurity conce d-wide.	entration of the	chemical sub		1.02	(mg) Total	Total Wire Bond	100.00 % of Total Weight	
http://ul.com/global/eng/pages/offerings/industries/chemicals/plastic						1.02	(ing) rotai	Wire Bolia	% of Total Weight	0.21
The protective "tubes" in which the specific product is shipped are a certain "reels" may be made from PVC plastic.	nade from polyvi	nyl chloride (PVC) plastic. "Window envelopes" used to he	old the packing	slip on the ou	iter box and		Doped Gold	7440-57-5	100	
								Total	100.00	
Microchip Technology Incorporated believes the information in this their original packing materials is true and correct to the best of its I completeness and accuracy of data in this form because it has been information is often protected from disclosure as trade secrets and provided only as estimates of the average weight of these parts and of dopants, metals, and non-metal materials contained within silicon	nowledge and be compiled based some information the average weig	elief, as of the date listed in this form. Microchip Technolo on the ranges provided in Material Safety Data Sheets pro may not have been provided by subcontract assemblers ht of anticipated significant toxic metals components. The	gy Incorporate ovided by raw n and raw materi	d cannot guar naterial suppli al suppliers. I	antee the ers. Supplier nformation is					
Microchip Technology Incorporated does not provide any warranty, warranties provided by Microchip Technology Incorporated and its s quotations, sales order acknowledgement, and invoices.						8.83	(mg) Total	Plating on external leads (pins) - Matte Tin / annealed at 150°C for	% of Total Weight	1.82
Microchip disclaims any duty to notify users of updates or changes otherwise, suffered by users or third parties as a result of the users' of this Certificate of Compliance for semiconductor products.				· •			Tin	7440-31-5	100.00	
								Total	100.00	
						485.410				100.000

Basic Subtance CAS Number Violating In Stord Might miggart ppm Might might miggart ppm Might miggart ppm<	ICROCHIP Semiconductor Device Ty	/pe: MS and UA	8 (Lead) MSOP 3x3mm (A3)		nation Base pper Alloy ((•	ogeneous Materials: g. pc boards, display	s)	JEDEC 97 Product Markin and/or Pkg. Labeling e3
Site Under State Mode Compound 67.8 with 6	Basic Substance	CAS Number			ma/part	nnm	20.43	(mg) Total	Mold Compound	% ot Total Weight	79.8
Epon Real Table Social Model Compound 4.888 1.251 4.887 Processor 6.13 Provide Real 133344 Model Compound 223 924 200 Carlon Blanc 173344 Model Compound 223 924 200 Non 7456564 Lead Fame 0.207 0.005 2.468 200 100.514 <td></td> <td></td> <td>•</td> <td></td> <td></td> <td></td> <td></td> <td>Silica vitreous</td> <td>60676-86-0</td> <td>85.00</td> <td>1</td>			•					Silica vitreous	60676-86-0	85.00	1
Piradic Bean Trade Sector Model Compound 4.88 1.25 8.48 Piradic Bean Trade Sector 6.13 Corpor 7.400.036 1.885 0.001 1.885 0.001 1.985 0.001 1.985 0.001 1.985 0.001 1.985 0.001 1.995											
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Copper 7449-50-0 Lead Finane 100.01 2.568 100.314 Teal 100.00 Silver 7409-50-0 Lead Finane 0.247 0.055 2.600 2	Epoxy, Cresol Novolac				0.501						
Inion 1493-bit on Lead Finane 0.247 0.053 2.468 2.46 Image of the state state sthe state of the state of the state of the state of the s	Carbon Black							Carbon Black			
Sker 7440-224 Lead Firme 0.200 0.001 2.000 1.200 7440-254 Lead Firme 0.003 0.033 0.003 0.033 </td <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>100.00</td> <td></td>										100.00	
Zno 7440666 Lead Finne 0.013 0.003 131 Bigginous 17/23-16.0 Lead Finne 0.003 0.013 0.003 131 Wood of Find 17/23-16.0 De Attach 0.026 0.146 5.660 Dibychycher of Lagenen /F 5206-55-3 De Attach 0.026 0.014 5.60 Modified Anime 8274-50 De Attach 0.026 0.014 5.60 Dibychycher of Lagenen /F 1.6000 7.400-214 1.60 7.400-224 7.61 Data Machine 8274-50 De Attach 0.026 0.000 2.500 1.0000 1.0000 1.0000 0.0000 0.000 <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td>2.69</td><td></td><td></td><td></td><td>10.5</td></td<>							2.69				10.5
Phosphorum 7723-14-0 Lead Frame 0.003 0.002 67 Biller (Ag) 7440-224 De Attach 0.656 0.014 6.656 Digly month in the second provide of the second provide provide of the second provide of the second provide								Copper			
Silver (Ag) 7440-22-4 Dip Altach 0.563 0.144 5.625 Modified Epony Resin 0.306 0.024 0.026 0.014 6.627 100 Diplocity/enter of bephenol-F 6.2(0)/6.33 Dip Altach 0.026 0.014 6.63 0.014 6.63 Model (Construction) 0.206 0.014 6.63 0.014 6.63 0.014 6.63 0.014 6.63 0.014 6.63 0.014 6.63 0.014 6.63 0.014 6.63 0.014 6.63 0.014 6.63 0.014 6.63 0.016 7.60 1.00 0.026											
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Dgycylydyler of bisphenci-f 54208 63-b Die Attach 0.056 0.014 563 Under Composition Modified Annie 8274-80 Die Attach 0.026 1001 7500 1590 75.000 1590 76.000 1590 76.000 1590 75.000 1590 75.000 1590 75.000 1590 75.000 1590 75.000 1590 75.000											
Officited Annie 827-43-0 Die Attach 0.026 0.007 283 0.19 (mg) Tetal Die Attach % of Total Weight 0.75 Doed Gold 74402413 Chip (Die) 7.500 1.520 0.200 0.051 2.000 1.020 0.200 0.000 0								Phosphorous			J
Sition 7440 21:3 One (Dip) 7.500 19.20 75,000 Site (Ag) 7440 22:4 75 Tri 7440 31:5 Range essential segments Wite Bood 3.320 12,500 Divide/United Export Rein 1365: 465 14 Tri 7440 31:5 Range essential segments 1000.00 2.600 1,000,00 6.000 2.600 1,000,00 6.000 <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>-</td> <td></td> <td></td> <td></td> <td></td>							-				
Open Gold 7440-515 Wrie Bond 0.200 0.051 2.000 Tot 7440-515 Purego evented tability total with a function in the second with general state second with a second with a second with a second with a second with EU Directive 2002/95/EC (RoHS Directive), EU Directive 2011/65/EU (RoHS Recast Directive) and with a second with EU Directive 2002/95/EC (RoHS Directive), EU Directive 2011/65/EU (RoHS Recast Directive) and with a second with EU Directives has been verified via internal design controls, supplier declarations, and /or analytical test data. Total 100.00 senticonductor device and is bornogenous materials comply with EU Directives (EU) Directives has been verified via internal design controls, supplier declarations, and /or analytical test data. 1.92 (mg) Total Chip Dole % of Total Weight 7.5 via cond with a second with a sec							0.19				0.75
Tin 7440315 Juing a work kauging: Must True intervention 1250 0.320 12,500 DUPCIDE INTERVENTION INTERVENTINE IN											
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chip Technology Incorporated does not provide any warranty, express or implied, with respect to the information provided in this declaration. The exclusive, limited uct warranties provided by Microchip Technology Incorporated and its subsidiaries are contained in Microchip's standard terms and conditions of sale. These are ded in Microchip's quotations, sales order acknowledgement, and invoices. chip disclaims any duty to notify users of updates or changes to Material Content Declarations and shall not be liable for any damages, direct or indirect, equential or otherwise, suffered by users or third parties as a result of the users' reliance on the information in Material Content Declarations (MCD) or independent party test reports (SGS) or of this Certificate of Compliance for semiconductor products.	rective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). aliance with the above EU Directives has been verified via in nemical substance is absent from the list above, the chemic nology Incorporated's knowledge and belief as of the date ical substance, if any, is not below the threshold of regulat ng compounds used by Microchip meet the UL94 V0 flamm /ul.com/global/eng/pages/offerings/industries/chemicals/pia rotective "tubes" in which the specific product is shipped box and certain "reels" may be made from PVC plastic.	nternal design controls cal substance is NOT a of this document, there ory concern for any re- ability standard for pla astics/ are made from polyviny	supplier declarations, and /or analytical test da n intentional ingredient in the semiconductor de is no credible reason to believe that the unavoi julatory scheme world-wide. stics. You can access the UL iQTM family of dat 1 chloride (PVC) plastic. "Window envelopes" u	nta. vice and, to t dable impuri abases to ob sed to hold ti	the best of Mi y concentrati tain a test rep ne packing sli	icrochip ion of the port at ip on the		Doped Silicon (mg) Total	7440-21-3 Total Wire Bond 7440-57-5	100 100.00 % of Total Weight 100	
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	rective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). Aliance with the above EU Directives has been verified via in memical substance is absent from the list above, the chemic hology Incorporated's knowledge and belief as of the date ical substance, if any, is not below the threshold of regulat ng compounds used by Microchip meet the UL94 V0 flamm ful.com/global/eng/pages/offerings/industries/chemicals/pli- rotective "tubes" in which the specific product is shipped box and certain "reels" may be made from PVC plastic. chip Technology Incorporated believes the information in the sin their original packing materials is true and correct to ot guarantee the completeness and accuracy of data in this w material suppliers. Supplier information is often protecten- holers and raw material suppliers. Information is provided of s components. These estimates do not include trace levels chip Technology Incorporated does not provide any warra- tict warranties provided by Microchip Technology Incorpora- ded in Microchip's quotations, sales order acknowledgeme chip disclaims any duty to notify users of updates or chan- geuential or otherwise, suffered by users or third parties as	Aternal design controls cal substance is NOT a of this document, there ory concern for any re- ability standard for pla astics/ are made from polyviny his form concerning su the best of its knowled of the best of its knowled to form because it has b d from disclosure as tr only as estimates of the of dopants, metals, an nty, express or implied ted and its subsidiarie nt, and invoices. ges to Material Content a result of the users' r	supplier declarations, and /or analytical test da n intentional ingredient in the semiconductor de is no credible reason to believe that the unavoi julatory scheme world-wide. stics. You can access the UL iQTM family of dat I chloride (PVC) plastic. "Window envelopes" un bistances restricted by RoHS in Microchip Tech ge and belief, as of the date listed in this form. No een compiled based on the ranges provided in Micro average weight of these parts and the average d non-metal materials contained within silicon d with respect to the information provided in this s are contained in Microchip's standard terms a Declarations and shall not be liable for any dam eliance on the information in Material Content D	ata. wice and, to i dable impuri abases to ob sed to hold th nology Incor ficrochip Tec Material Safet been provid weight of an levices (silico declaration. nd condition	the best of Mi y concentrati tain a test rep ne packing sli porated's ser hnology Inco y Data Sheet: ed by subcon ticipated sign on IC) in the fi The exclusiv s of sale. The or indirect,	icrochip ion of the port at ip on the niconductor orporated s provided tract ifficant toxic inished e, limited se are	0.05	(mg) Total (mg) Total	7440-21-3 Total Wire Bond 7440-57-5 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour 7440-31-5	100 100.00 % of Total Weight 100 100.00	0.2

	MSOP 3x3mm (E3)	Termination Base Alloy: Copper Alloy (Cu)				Package Homogeneous Materials: 8.1 Electronics (e.g. pc boards, displays)					
		"Contained In"	% Total			6.66	(mg) Total	Mold Compound	% ot Total Weight	e3 28.71	
Basic Substance	CAS Number	Sub-Component	Weight	mg/part	ppm	0.00			,	20111	
Silica, vitreous	60676-86-0	Mold Compound	24.404	5.662	244,035		Silica, vitreous	60676-86-0	85.00		
Epoxy Resin (No bromine, No diantimony trioxide)	Trade Secret	Mold Compound	1.758	0.408	17,585		Epoxy Resin	Trade Secret	6.13		
Phenolic Resin (No Br / CL SbO3, No diantimony trioxide)	Trade Secret	Mold Compound	1.758	0.408	17,585		Phenolic Resin	Trade Secret	6.13		
Epoxy, Cresol Novolac	29690-82-2	Mold Compound	0.703	0.163	7,034		Epoxy, Cresol Novolac	29690-82-2	2.45		
Carbon Black	1333-86-4	Mold Compound	0.086	0.020	861		Carbon Black	1333-86-4	0.30		
Copper	7440-50-8	Lead Frame	42.830	9.937	428,299			Total	100.00		
Nickel	7440-02-0	Lead Frame	1.142	0.265	11,422	10.43	(mg) Total	Lead Frame	% of Total Weight	44.97	
Silver	7440-22-4	Lead Frame	0.751	0.174	7,505		Copper	7440-50-8	95.24	1	
Silicon	7440-21-3	Lead Frame	0.202	0.047	2,024		Nickel	7440-02-0	2.54		
Magnesium	7439-95-4	Lead Frame	0.045	0.010	450		Silver	7440-22-4	1.67		
Silver	7440-22-4	Die Attach	0.601	0.139	6.006		Silicon	7440-21-3	0.45		
Acrylate resins Proprietary	Trade Secret	Die Attach	0.139	0.032	1,386		Magnesium	7439-95-4	0.10	1	
Treated silica	Trade Secret	Die Attach	0.015	0.004	154			Total		4	
Heterocyclic organic compound	Trade Secret	Die Attach	0.015	0.004	154	0.18	(mg) Total	Die Attach	% of Total Weight	0.77	
Silicon	7440-21-3	Chip (Die)	2.800	0.650	28.000	0.10	(ing) rotai Silver	7440-22-4	78	0.77	
Gold	7440-21-3	Wire Bond	0.680	0.650	6.800		Acrvlate resins Proprietary	Trade Secret			
Tin			22.070	5.120	220,700		Treated silica	Trade Secret	18		
1III	7440-31-5	Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour		23.200	1,000,000				2		
		TOTALS:	100.000	23.200	1,000,000	Hete	rocyclic organic compound	Trade Secret	_		
	0.0232 g	g Total Mass						Total	100.00		
semiconductor device and its homogenous materials comply	/ with FLI Directive 20										
		02/95/EC (RoHS Directive), EU Directive 2011/65	6/EU (RoHS Re	cast Directive)	and with EU	0.65	Total (mg)	Chip (Die)	% of Total Weight	2.8	
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). pliance with the above EU Directives has been verified via int	ernal design controls	, supplier declarations, and /or analytical test d	ata.			0.65	Total (mg) Doped Silicon	Chip (Die) 7440-21-3 Total	100		
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). pliance with the above EU Directives has been verified via int hemical substance is absent from the list above, the chemica mology Incorporated's knowledge and belief as of the date of nical substance, if any, is not below the threshold of regulator ing compounds used by Microchip meet the UL94 V0 flamma	ernal design controls al substance is NOT a i this document, there ry concern for any re bility standard for pla	a supplier declarations, and /or analytical test data intentional ingredient in the semiconductor details is no credible reason to believe that the unavoig gulatory scheme world-wide.	ata. evice and, to th idable impurity	e best of Micro concentration	ochip of the	0.65	,	7440-21-3	100		
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ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). Ipliance with the above EU Directives has been verified via inter- schemical substance is absent from the list above, the chemical nology Incorporated's knowledge and belief as of the date of mical substance, if any, is not below the threshold of regulator ting compounds used by Microchip meet the UL94 V0 flamma //ul.com/global/eng/pages/offerings/industries/chemicals/plas protective "tubes" in which the specific product is shipped ar and certain "reels" may be made from PVC plastic. ochip Technology Incorporated believes the information in th ces in their original packing materials is true and correct to the not guarantee the completeness and accuracy of data in this for material suppliers. Information is provided only as estima ponents. These estimates do not include trace levels of dopan ochip Technology Incorporated does not provide any warrant	ernal design controls al substance is NOT a this document, there ry concern for any re bility standard for pla stics/ re made from polyvin is form concerning si be best of its knowled form because it has b m disclosure as trade ates of the average w ents, metals, and non- ty, express or implied	s, supplier declarations, and /or analytical test da n intentional ingredient in the semiconductor de is no credible reason to believe that the unavoi gulatory scheme world-wide. Isstics. You can access the UL iQTM family of dat yl chloride (PVC) plastic. "Window envelopes" u ubstances restricted by RoHS in Microchip Tech ge and belief, as of the date listed in this form. M een compiled based on the ranges provided in l secrets and some information may not have be eight of these parts and the average weight of at metal materials contained within silicon devices , with respect to the information provided in this	ata. evice and, to th idable impurity tabases to obta used to hold the mology Incorp Wicrochip Tech Material Safety en provided b nticipated sign (silicon IC) in s declaration. 1	e best of Micro concentration ain a test repor packing slip o orated's semic mology Incorp Data Sheets p y subcontract ificant toxic m the finished pa 'he exclusive,	ochip of the t at on the outer onductor orated rovided by assemblers etals rts.	0.16	(mg) Total Doped Gold	7440-21-3 Total Wire Bond 7440-57-5	100 100.00 % of Total Weight 100 100.00	0.68	
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). pliance with the above EU Directives has been verified via int themical substance is absent from the list above, the chemical nology Incorporated's knowledge and belief as of the date of nical substance, if any, is not below the threshold of regulatoo ling compounds used by Microchip meet the UL94 V0 flamma //ul.com/global/eng/pages/offerings/industries/chemicals/plas protective "tubes" in which the specific product is shipped ar and certain "reels" may be made from PVC plastic. ochip Technology Incorporated believes the information in the tos in their original packing materials is true and correct to the tot guarantee the completeness and accuracy of data in this f material suppliers. Supplier information is often protected fro raw material suppliers. Information is provided only as estima ponents. These estimates do not include trace levels of dopan ochip Technology Incorporated does not provide any warrant luct warranties provided by Microchip Technology Incorpora- tided in Microchip's quotations, sales order acknowledgement ochip disclaims any duty to notify users of updates or change	ernal design controls al substance is NOT a this document, there ry concern for any re bility standard for pla stics/ re made from polyvin is form concerning si the best of its knowled form because it has b m disclosure as trade tites of the average we not, metals, and non- ty, express or implied ed and its subsidiarie t, and invoices.	s, supplier declarations, and /or analytical test da n intentional ingredient in the semiconductor de is no credible reason to believe that the unavoi gulatory scheme world-wide. Istics. You can access the UL iQTM family of dat yl chloride (PVC) plastic. "Window envelopes" u ubstances restricted by RoHS in Microchip Tech ge and belief, as of the date listed in this form. I een compiled based on the ranges provided in 1 s secrets and some information may not have be sight of these parts and the average weight of an metal materials contained within silicon devices u, with respect to the information provided in this is are contained in Microchip's standard terms a t Declarations and shall not be liable for any dan	ata. evice and, to th idable impurity tabases to obta used to hold the mology Incorp Microchip Tech Material Safety sen provided b nticipated sign (silicon IC) in s declaration. 1 and conditions mages, direct c	e best of Micro concentration ain a test repor e packing slip of orated's semic nology Incorp Data Sheets p y subcontract ificant toxic m the finished pa "he exclusive, of sale. These r indirect, con	ochip of the t at on the outer onductor orated rovided by assemblers etals rts. limited are sequential		(mg) Total (mg) Total	7440-21-3 Total Wire Bond 7440-57-5 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	100 100.00 % of Total Weight 100 100.00	0.68	
tive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). pliance with the above EU Directives has been verified via int hemical substance is absent from the list above, the chemical nology Incorporated's knowledge and belief as of the date of nical substance, if any, is not below the threshold of regulator ing compounds used by Microchip meet the UL94 V0 flamma //ul.com/global/eng/pages/offerings/industries/chemicals/plass protective "tubes" in which the specific product is shipped ar and certain "reels" may be made from PVC plastic. bochip Technology Incorporated believes the information in the tes in their original packing materials is true and correct to th ot guarantee the completeness and accuracy of data in this f naterial suppliers. Information is provided only as estima- boonents. These estimates do not include trace levels of dopan ochip Technology Incorporated does not provide any warrant uct warranties provided by Microchip Technology Incorporated ded in Microchip's quotations, sales order acknowledgement	ernal design controls al substance is NOT a this document, there ry concern for any re bility standard for pla stics/ re made from polyving is form concerning si the best of its knowled form because it has b m disclosure as tradé tes of the average win nts, metals, and non- ty, express or implied ed and its subsidiarie t, and invoices. Se to Material Content issers' reliance on the	s, supplier declarations, and /or analytical test da n intentional ingredient in the semiconductor de is no credible reason to believe that the unavoi gulatory scheme world-wide. Istics. You can access the UL iQTM family of dat yl chloride (PVC) plastic. "Window envelopes" u ubstances restricted by RoHS in Microchip Tech ge and belief, as of the date listed in this form. I een compiled based on the ranges provided in 1 s secrets and some information may not have be sight of these parts and the average weight of an metal materials contained within silicon devices u, with respect to the information provided in this is are contained in Microchip's standard terms a t Declarations and shall not be liable for any dan	ata. evice and, to th idable impurity tabases to obta used to hold the mology Incorp Microchip Tech Material Safety sen provided b nticipated sign (silicon IC) in s declaration. 1 and conditions mages, direct c	e best of Micro concentration ain a test repor e packing slip of orated's semic nology Incorp Data Sheets p y subcontract ificant toxic m the finished pa "he exclusive, of sale. These r indirect, con	ochip of the t at on the outer onductor orated rovided by assemblers etals rts. limited are sequential	0.16	(mg) Total (mg) Total	7440-21-3 Total Wire Bond 7440-57-5 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for	100 100.00 % of Total Weight 100 100.00	22.07	

	DIP (Small Outline300") (C4 / CK)		nation Base / opper Alloy (C			s)	JEDEC 97 Product Marking and/or Pkg. Labeling e3			
Basic Substance	CAS Number	"Contained In" Sub-Component	% Total Weight	mg/part	ppm	388.39	(mg) Total	Mold Compound	% ot Total Weight	79.8
Fused Silica	60676-86-0	Mold Compound	57,456	279.638	574,560		Fused Silica	60676-86-0	72.00	
Metal Hydro Oxide	Trade Secret	Mold Compound	8.778	42.723	87,780		Metal Hydro Oxide	Trade Secret	11.00	
Epoxy Resin	Trade Secret	Mold Compound	5.586	27.187	55,860		Epoxy Resin	Trade Secret	7.00	
Phenol Resin	Trade Secret	Mold Compound	5.586	27.187	55,860		Phenol Resin	Trade Secret	7.00	
SiO2	14808-60-7	Mold Compound	1.995	9.710	19,950		SiO2	14808-60-7	2.50	
Carbon Black	1333-86-4	Mold Compound	0.399	1.942	3,990		Carbon Black	1333-86-4	0.50	
Copper	7440-50-8	Lead Frame	10.031	48.823	100,314			Total	100.00	
Iron	7439-89-6	Lead Frame	0.247	1.201	2,468	51.10	(mg) Total	Lead Frame	% of Total Weight	10.5
Silver	7440-22-4	Lead Frame	0.200	0.974	2,000		Copper	7440-50-8	95.54	
Zinc	7440-66-6	Lead Frame	0.013	0.064	131		Iron	7439-89-6	2.35	
Phosphorous	7723-14-0	Lead Frame	0.009	0.042	87		Silver	7440-22-4	1.91	
Silver	7440-22-4	Die Attach	0.550	2.678	5,502		Zinc	7440-66-6	0.13	
Epoxy Resin	9003-36-5	Die Attach	0.110	0.535	1,100		Phosphorous	7723-14-0	0.08	
Diluent	3101-60-8	Die Attach	0.055	0.268	550			Total	100.00	
Phenolic hardener	Trade secret	Die Attach	0.022	0.107	220	3.65	(mg) Total	Die Attach	% of Total Weight	0.75
Amine type hardener	827-43-0	Die Attach	0.011	0.054	110		Silver	7440-22-4	73.36	
Dicyandiamide	461-58-5	Die Attach	0.002	0.009	18		Epoxy Resin	9003-36-5	14.67	
Silicon	7440-21-3	Chip (Die)	7.500	36,503	75,000		Diluent	3101-60-8	7.33	
Doped Gold	7440-57-5	Wire Bond	0.200	0.973	2,000		Phenolic hardener	Trade secret	2.93	
Tin	7440-31-5 Plating o	n external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	1.250	6.084	12,500		Amine type hardener	827-43-0	1.47	
		TOTALS	: 100.000	486.700	1.000.000		Dicyandiamide	461-58-5	0.24	
					.,,		Biojanalamido			
	0.4867 g Tot	al Mass			1,000,000		Dioyandiamido	Total	100.00	
semiconductor device and its homogenous materials c ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive).					,,	36.50	(mg) Total			7.5
	omply with EU Directive 2002/95/EC	(RoHS Directive), EU Directive 2011/65/EU			,,	36.50	u	Total	100.00	7.5
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). apliance with the above EU Directives has been verified v	omply with EU Directive 2002/95/EC	(RoHS Directive), EU Directive 2011/65/EU r declarations, and /or analytical test data.	RoHS Recast I	Directive) and	with EU	36.50	(mg) Total	Total Chip (Die)	100.00 % of Total Weight	
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive).	omply with EU Directive 2002/95/EC ria internal design controls, supplied emical substance is NOT an intentic ate of this document, there is no crea	(RoHS Directive), EU Directive 2011/65/EU r declarations, and /or analytical test data. anal ingredient in the semiconductor device dible reason to believe that the unavoidable	RoHS Recast I and, to the bes	Directive) and	with EU	36.50	(mg) Total	Total Chip (Die) 7440-21-3	100.00 % of Total Weight 100	
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). apliance with the above EU Directives has been verified a chemical substance is absent from the list above, the ch hnology Incorporated's knowledge and belief as of the da	omply with EU Directive 2002/95/EC via internal design controls, supplie emical substance is NOT an intentio ate of this document, there is no cre poncern for any regulatory scheme w ummability standard for plastics. Yo	(RoHS Directive), EU Directive 2011/65/EU r declarations, and /or analytical test data. anal ingredient in the semiconductor device dible reason to believe that the unavoidable orld-wide.	RoHS Recast I and, to the bee impurity conc	Directive) and st of Microchip entration of th	with EU	36.50 0.97	(mg) Total	Total Chip (Die) 7440-21-3	100.00 % of Total Weight 100	
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). apliance with the above EU Directives has been verified to chemical substance is absent from the list above, the ch hnology Incorporated's knowledge and belief as of the di- stance, if any, is not below the threshold of regulatory co ding compounds used by Microchip meet the UL94 V0 fla	omply with EU Directive 2002/95/EC via internal design controls, supplie emical substance is NOT an intentic ate of this document, there is no cre oncern for any regulatory scheme w ummability standard for plastics. Yo s/plastics/	(RoHS Directive), EU Directive 2011/65/EU r declarations, and /or analytical test data. onal ingredient in the semiconductor device dible reason to believe that the unavoidable orld-wide. u can access the UL iQTM family of databas	RoHS Recast I and, to the bes impurity conc ses to obtain a	Directive) and st of Microchip entration of th test report at	with EU		(mg) Total Doped Silicon	Total Chip (Die) 7440-21-3 Total Wire Bond 7440-57-5	100.00 % of Total Weight 100 100.00 % of Total Weight	
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). ppliance with the above EU Directives has been verified w chemical substance is absent from the list above, the ch honology Incorporated's knowledge and belief as of the di- stance, if any, is not below the threshold of regulatory cr ding compounds used by Microchip meet the UL94 V0 fit cl/ul.com/global/eng/pages/offerings/industries/chemical protective "tubes" in which the specific product is shipp	omply with EU Directive 2002/95/EC via internal design controls, supplier emical substance is NOT an intentic ate of this document, there is no cre oncern for any regulatory scheme w immability standard for plastics. Yo s/plastics/ bed are made from polyvinyl chlorid in this form concerning substances t to the best of its knowledge and bo m because it has been compiled bas osure as trade secrets and some inf verage weight of these parts and th	(RoHS Directive), EU Directive 2011/65/EU r declarations, and /or analytical test data. onal ingredient in the semiconductor device dible reason to believe that the unavoidable orld-wide. u can access the UL iQTM family of databas e (PVC) plastic. "Window envelopes" used s restricted by RoHS in Microchip Technolo elief, as of the date listed in this form. Micro sed on the ranges provided in Material Safe formation may not have been provided by s a average weight of anticipated significant t	RoHS Recast I and, to the bee impurity conc es to obtain a o hold the pac gy Incorporate chip Technolo yy Data Sheets ubcontract ass	Directive) and st of Microchip entration of th test report at king slip on th d's semicondu gy Incorporate provided by ra emblers and ra	with EU e chemical e outer box ictor ictor aw material aw material		(mg) Total Doped Silicon (mg) Total	Total Chip (Die) 7440-21-3 Total Wire Bond	100.00 % of Total Weight 100 100.00 % of Total Weight	
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). ppliance with the above EU Directives has been verified we chemical substance is absent from the list above, the ch- honology Incorporated's knowledge and belief as of the di- stance, if any, is not below the threshold of regulatory or ding compounds used by Microchip meet the UL94 V0 file cluid.com/global/eng/pages/offerings/industries/chemical protective "tubes" in which the specific product is shipp certain "reels" may be made from PVC plastic. ochip Technology Incorporated believes the information ces in their original packing materials is true and correct rantee the completeness and accuracy of data in this for pliers. Information is provided only as estimates of the a	mply with EU Directive 2002/95/EC via internal design controls, supplier emical substance is NOT an intentic ate of this document, there is no cre oncern for any regulatory scheme w immability standard for plastics. Yo s/plastics/ bed are made from polyvinyl chlorid in this form concerning substances t to the best of its knowledge and bi m because it has been compiled bai osure as trade secrets and some infor verage weight of these parts and this on-metal materials contained with arranty, express or implied, with res and its subsidiaries are contained in	(RoHS Directive), EU Directive 2011/65/EU r declarations, and /or analytical test data. onal ingredient in the semiconductor device dible reason to believe that the unavoidable orld-wide. u can access the UL iQTM family of databas u can access the UL iQTM family of databas e (PVC) plastic. "Window envelopes" used s restricted by RoHS in Microchip Technolo alief, as of the date listed in this form. Micro sed on the ranges provided in Material Safe ormation may not have been provided by s a average weight of anticipated significant t in silicon devices (silicon IC) in the finishe pect to the information provided in this dec	RoHS Recast I and, to the best impurity conc wes to obtain a o hold the pac gy Incorporate chip Technolo ty Data Sheets bacontract ass oxic metals co d parts.	Directive) and st of Microchip entration of th test report at king slip on th d's semicondu gy Incorporate provided by ra emblers and ra mponents. The cclusive, limite	with EU be chemical e outer box ictor ictor ictor aw material aw material ese		(mg) Total Doped Silicon (mg) Total Doped Gold	Total Chip (Die) 7440-21-3 Total Wire Bond 7440-57-5	100.00 % of Total Weight 100 100.00 % of Total Weight	
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). ppliance with the above EU Directives has been verified v chemical substance is absent from the list above, the ch honology Incorporated's knowledge and belief as of the di- stance, if any, is not below the threshold of regulatory cr ding compounds used by Microchip meet the UL94 V0 fit cl/ul.com/global/eng/pages/offerings/industries/chemical protective "tubes" in which the specific product is shipp certain "reels" may be made from PVC plastic. ochip Technology Incorporated believes the information ces in their original packing materials is true and correc rantee the completeness and accuracy of data in this for pliers. Information is often protected from disc pliers. Information is provided only as estimates of the a mates do not include trace levels of dopants, metals, and cochip Technology Incorporated does not provide any war ranties provided by Microchip Technology Incorporated does not provide any war	mply with EU Directive 2002/95/EC via internal design controls, supplier emical substance is NOT an intentic ate of this document, there is no cre- oncern for any regulatory scheme w ummability standard for plastics. Yo s/plastics/ wed are made from polyvinyl chlorid in this form concerning substances t to the best of its knowledge and bin m because it has been compiled ba- posure as trade secrets and some infive rage weight of these parts and this d non-metal materials contained with arranty, express or implied, with res and its subsidiaries are contained ir nvoices.	(RoHS Directive), EU Directive 2011/65/EU r declarations, and /or analytical test data. onal ingredient in the semiconductor device dible reason to believe that the unavoidable orld-wide. u can access the UL iQTM family of databas e (PVC) plastic. "Window envelopes" used s restricted by RoHS in Microchip Technolo elief, as of the date listed in this form. Micro sed on the ranges provided in Material Safe formation may not have been provided by s a average weight of anticipated significant t nin silicon devices (silicon IC) in the finishe- pect to the information provided in this dec Microchip's standard terms and condition ions and shall not be liable for any damage	RoHS Recast I and, to the best impurity conc es to obtain a o hold the pac gy Incorporate chip Technolo yy Data Sheets ubcontract ass buckic metals co d parts. laration. The es s of sale. These s, direct or indi	Directive) and bit of Microchip entration of th test report at king slip on th d's semicondu gy Incorporate provided by ra emblers and ra mponents. The cclusive, limite e are provided irect, consequi	with EU be chemical e outer box ector ed cannot aw material aw material esse ed product in ential or	0.97	(mg) Total Doped Silicon (mg) Total Doped Gold	Total Chip (Die) 7440-21-3 Total Wire Bond 7440-57-5 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1	100.00 % of Total Weight 100 % of Total Weight 100 100.00	0.2

Semiconductor Device	ead) PDIP (Small Outline300") (D2 / DF)		nation Base / pper Alloy (C			JEDEC 97 Product Marking and/or Pkg. Labeling e3				
Basic Substance	CAS Number	"Contained In" Sub-Component	% Total Weight	mg/part	ppm	760.73	(mg) Total	Mold Compound	% ot Total Weight	79.8
Fused Silica	60676-86-0	Mold Compound	57.456	547.728	574,560		Fused Silica	60676-86-0	72.00	
Metal Hydro Oxide	Trade Secret	Mold Compound	8.778	83.681	87,780		Metal Hydro Oxide	Trade Secret	11.00	
Epoxy Resin	Trade Secret	Mold Compound	5.586	53.251	55,860		Epoxy Resin	Trade Secret	7.00	
Phenol Resin	Trade Secret	Mold Compound	5,586	53.251	55,860		Phenol Resin	Trade Secret	7.00	
SiO2	14808-60-7	Mold Compound	1.995	19.018	19,950		SiO2	14808-60-7	2.50	
Carbon Black	1333-86-4	Mold Compound	0.399	3.804	3,990		Carbon Black	1333-86-4	0.50	
Copper	7440-50-8	Lead Frame	10.031	95.630	100,314			Total	100.00	
Iron	7439-89-6	Lead Frame	0.247	2.352	2,468	100.10	(mg) Total	Lead Frame	% of Total Weight	10.5
Silver	7440-22-4	Lead Frame	0.200	1.907	2,000		Copper	7440-50-8	95.54	
Zinc	7440-66-6	Lead Frame	0.013	0.125	131		Iron	7439-89-6	2.35	
Phosphorous	7723-14-0	Lead Frame	0.009	0.083	87		Silver	7440-22-4	1.91	
Silver	7440-22-4	Die Attach	0.563	5.362	5,625		Zinc	7440-66-6	0.13	
Diester Resin	94-80-4	Die Attach	0.113	1.072	1,125		Phosphorous	7723-14-0	0.08	
Functionalized Urethane Resin	72869-86-4	Die Attach	0.038	0.357	375			Total	100.00	
Epoxy Resin	9003-36-5	Die Attach	0.019	0.179	188	7.15	(mg) Total	Die Attach	% of Total Weight	0.75
Epoxy Resin	13561-08-5	Die Attach	0.019	0.179	188		Silver	7440-22-4	75	0.10
Silicon	7440-21-3	Chip (Die)	7.500	71.498	75.000		Diester Resin	94-80-4	15	
Gold	7440-57-5	Wire Bond	0.200	1.907	2.000	Fund	ctionalized Urethane Resin	72869-86-4	5	
Tin	7440-31-5	Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	1.250	11,916	12,500		Epoxy Resin	9003-36-5	3	
		TOTALS:	100.000	953.300	1.000.000		Epoxy Resin	13561-08-5	3	
	0.0522	g Total Mass			,,			Total	100.00	
	omply with EU Directive 2	002/95/EC (RoHS Directive), EU Directive 2011/65/	EU (RoHS Reca	ast Directive) a	and with EU	71.50	Total (mg)	Chip (Die)	% of Total Weight	7.5
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). pliance with the above EU Directives has been verified	via internal design control	s, supplier declarations, and /or analytical test dat	a.	·		71.50	Total (mg) Doped Silicon			7.5
semiconductor device and its homogenous materials of ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). upliance with the above EU Directives has been verified chemical substance is absent from the list above, the ch nology Incorporated's knowledge and belief as of the of nical substance, if any, is not below the threshold of reg ting compounds used by Microchip meet the UL94 V0 fl	via internal design control nemical substance is NOT late of this document, ther gulatory concern for any ro ammability standard for pl	s, supplier declarations, and /or analytical test dat an intentional ingredient in the semiconductor dev e is no credible reason to believe that the unavoid egulatory scheme world-wide.	a. rice and, to the lable impurity c	best of Micro	chip of the	71.50		Chip (Die) 7440-21-3	% of Total Weight	7.5
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). upliance with the above EU Directives has been verified chemical substance is absent from the list above, the ch- nnology Incorporated's knowledge and belief as of the c mical substance, if any, is not below the threshold of reg ting compounds used by Microchip meet the UL94 V0 fl //ul.com/global/eng/pages/offerings/industries/chemical protective "tubes" in which the specific product is ship	via internal design control memical substance is NOT late of this document, ther gulatory concern for any re ammability standard for pl ls/plastics/	s, supplier declarations, and /or analytical test dat an intentional ingredient in the semiconductor dev e is no credible reason to believe that the unavoid egulatory scheme world-wide. astics. You can access the UL iQTM family of data	ia. vice and, to the lable impurity c bases to obtain	best of Micro concentration n a test report	chip of the at		Doped Silicon (mg) Total	Chip (Die) 7440-21-3 Total Wire Bond	% of Total Weight 100 100.00 % of Total Weight	
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		nation Base A pper Alloy (C			JEDEC 97 Product Marking and/or Pkg. Labeling e3					
Semiconductor Device Typ	E: Pand PE 16 (Lead) P	DIP (Small Outline300") (D6 / DU)						-		e3
Basic Substance	CAS Number	"Contained In" Sub-Component	% I otal Weight			748.83	(mg) Total	Mold Compound	% ot Total Weight	67.3
		•		mg/part	ppm				-	7
Silica, vitreous	60676-86-0	Mold Compound	57.205	636.503	572,050		Silica, vitreous	60676-86-0	85.00	
Epoxy Resin (No bromine, No diantimony trioxide) Phenolic Resin (No Br / CL SbO3, No diantimony trioxide)	Trade Secret Trade Secret	Mold Compound Mold Compound	4.122 4.122	45.866 45.866	41,221 41.221		Epoxy Resin Phenolic Resin	Trade Secret Trade Secret	6.13 6.13	
Epoxy, Cresol Novolac	29690-82-2	Mold Compound	1.649	18.346	16.489		Epoxy, Cresol Novolac	29690-82-2	2.45	
Carbon Black	1333-86-4	Mold Compound	0.202	2.246	2.019		Carbon Black	1333-86-4	0.30	
Copper	7440-50-8	Lead Frame	29.426	327.409	294.256	I	Ourbon Diack	Total		IJ
Iron	7439-89-6	Lead Frame	0.724	8.054	7,238	342.70	(mg) Total	Lead Frame	% of Total Weight	30.8
Silver	7440-22-4	Lead Frame	0.587	6.528	5.867	342.10	Copper	7440-50-8	95.54	
Zinc	7440-66-6	Lead Frame	0.039	0.428	385		Iron	7439-89-6	2.35	1
Phosphorous	7723-14-0	Lead Frame	0.025	0.283	254		Silver	7440-22-4	1.91	1
Silver	7440-22-4	Die Attach	0.052	0.576	518		Zinc	7440-66-6	0.13	1
Epoxy resin	Trade Secret	Die Attach	0.016	0.179	161		Phosphorous	7723-14-0	0.08	1
Gamma-butyrolactone	96-48-0	Die Attach	0.002	0.023	21	L		Total	100.00	-
Silicon	7440-21-3	Chip (Die)	0.150	1.669	1,500	0.78	(mg) Total	Die Attach	% of Total Weight	0.07
Gold	7440-57-5	Wire Bond	0.040	0.445	400	[Silver	7440-22-4	74	1
Tin		on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	1.640	18.248	16,400		Epoxy resin	Trade Secret	23	1
		TOTALS:	100.000	1,112.670	1,000,000		Gamma-butyrolactone	96-48-0	3	1
						Total	100.00			
	1.1127 g To y with EU Directive 2002/95		EU (RoHS Reca	ast Directive) a	ind with EU	1.67	Total (mg)	Chip (Die)	% of Total Weight	
2002/53/EC (End-of-Life Vehicles (ELV) Directive).	y with EU Directive 2002/95	5/EC (RoHS Directive), EU Directive 2011/65/6	·	ast Directive) a	ind with EU	1.67	,	Chip (Die)	% of Total Weight	
niconductor device and its homogenous materials comply 2002/53/EC (End-of-Life Vehicles (ELV) Directive). nce with the above EU Directives has been verified via int	y with EU Directive 2002/95	5/EC (RoHS Directive), EU Directive 2011/65/	a.			1.67	Total (mg) Doped Silicon		% of Total Weight	0.15
2002/53/EC (End-of-Life Vehicles (ELV) Directive). The with the above EU Directives has been verified via intri- ical substance is absent from the list above, the chemica gy Incorporated's knowledge and belief as of the date of substance, if any, is not below the threshold of regulator	with EU Directive 2002/95 ternal design controls, sup al substance is NOT an inte i this document, there is no ry concern for any regulate	VEC (RoHS Directive), EU Directive 2011/65/ oplier declarations, and /or analytical test dat entional ingredient in the semiconductor dev o credible reason to believe that the unavoid ory scheme world-wide.	a. vice and, to the able impurity c	best of Micro	chip of the	1.67	,	Chip (Die) 7440-21-3	% of Total Weight	0.15
2002/53/EC (End-of-Life Vehicles (ELV) Directive).	with EU Directive 2002/95 ternal design controls, sup al substance is NOT an inte this document, there is no ry concern for any regulate ability standard for plastics	VEC (RoHS Directive), EU Directive 2011/65/ oplier declarations, and /or analytical test dat entional ingredient in the semiconductor dev o credible reason to believe that the unavoid ory scheme world-wide.	a. vice and, to the able impurity c	best of Micro	chip of the	0.45	,	Chip (Die) 7440-21-3	% of Total Weight	0.15
2002/53/EC (End-of-Life Vehicles (ELV) Directive). The with the above EU Directives has been verified via intri- tical substance is absent from the list above, the chemica gy Incorporated's knowledge and belief as of the date of substance, if any, is not below the threshold of regulator compounds used by Microchip meet the UL94 V0 flamma	with EU Directive 2002/95 ternal design controls, sup al substance is NOT an inte this document, there is no ry concern for any regulate ability standard for plastics stics/	5/EC (RoHS Directive), EU Directive 2011/65/ oplier declarations, and /or analytical test dat entional ingredient in the semiconductor dev o credible reason to believe that the unavoid ory scheme world-wide. s. You can access the UL iQTM family of data	a. vice and, to the lable impurity c abases to obtai	best of Micro concentration n a test report	chip of the : at		Doped Silicon	Chip (Die) 7440-21-3 Total	% of Total Weight 100 100.00	0.15
2002/53/EC (End-of-Life Vehicles (ELV) Directive). ce with the above EU Directives has been verified via int cal substance is absent from the list above, the chemica gy Incorporated's knowledge and belief as of the date of substance, if any, is not below the threshold of regulato compounds used by Microchip meet the UL94 V0 flamma om/global/eng/pages/offerings/industries/chemicals/plas ctive "tubes" in which the specific product is shipped ar ertain "reels" may be made from PVC plastic.	y with EU Directive 2002/95 ternal design controls, sup al substance is NOT an inte this document, there is n ry concern for any regulat ability standard for plastics stics/ re made from polyvinyl chl nis form concerning substa	WEC (RoHS Directive), EU Directive 2011/65/ Applier declarations, and /or analytical test dat entional ingredient in the semiconductor dev o credible reason to believe that the unavoid ory scheme world-wide. a. You can access the UL iQTM family of data loride (PVC) plastic. "Window envelopes" us ances restricted by RoHS in Microchip Techr	a. vice and, to the able impurity o abases to obtai sed to hold the nology Incorpo	best of Micro concentration n a test report packing slip c rated's semico	chip of the at n the outer onductor		Doped Silicon (mg) Total	Chip (Die) 7440-21-3 Total Wire Bond	% of Total Weight 100 100,000 % of Total Weight 100 100	0.15 0.04
2002/53/EC (End-of-Life Vehicles (ELV) Directive). ace with the above EU Directives has been verified via inti- ical substance is absent from the list above, the chemical gy Incorporated's knowledge and belief as of the date of substance, if any, is not below the threshold of regulation compounds used by Microchip meet the UL94 V0 flamma som/global/eŋ/pages/offerings/industries/chemicals/plas- tective "tubes" in which the specific product is shipped ar	y with EU Directive 2002/95 ternal design controls, sup al substance is NOT an inte this document, there is no ry concern for any regulat ability standard for plastics stics/ re made from polyvinyl chl his form concerning substa te best of its knowledge ar cause it has been compiler isclosure as trade secrets i of the average weight of th	VEC (RoHS Directive), EU Directive 2011/65/ pplier declarations, and /or analytical test dat entional ingredient in the semiconductor dev o credible reason to believe that the unavoid ory scheme world-wide. s. You can access the UL iQTM family of data loride (PVC) plastic. "Window envelopes" us ances restricted by RoHS in Microchip Techr Id belief, as of the date listed in this form. Mi d based on the ranges provided in Material S and some information may not have been pr uses parts and the average weight of anticipi	a. vice and, to the able impurity of abases to obtain sed to hold the nology Incorpo icrochip Techn arfety Data She rovided by sub ated significan	best of Micro concentration n a test report packing slip c rated's semico ology incorpo ets provided i contract asset t toxic metals	chip of the at n the outer onductor rated cannot sy raw mblers and		Doped Silicon (mg) Total	Chip (Die) 7440-21-3 Total Wire Bond 7440-57-5	% of Total Weight 100 100,000 % of Total Weight 100 100,000 100,000 100,000 100,000 100,000	0.15 0.04
2002/53/EC (End-of-Life Vehicles (ELV) Directive). ce with the above EU Directives has been verified via int cal substance is absent from the list above, the chemica gy Incorporated's knowledge and belief as of the date of substance, if any, is not below the threshold of regulator ompounds used by Microchip meet the UL94 V0 flamma om/global/eng/pages/offerings/industries/chemicals/plat ctive "tubes" in which the specific product is shipped ar ertain "reels" may be made from PVC plastic. Technology Incorporated believes the information in th their original packing materials is true and correct to th the completeness and accuracy of data in this form bec uppliers. Supplier information is often protected from di al suppliers. Information is provided only as estimates- ints. These estimates do not include trace levels of dopar Technology Incorporated does not provide any warrant arranties provided by Microchip Technology Incorporate	y with EU Directive 2002/95 ternal design controls, sup al substance is NOT an inte this document, there is no ry concern for any regulate ability standard for plastics stics/ re made from polyvinyl chl his form concerning substa te best of its knowledge ar cause it has been compiler isclosure as trade secrets of the average weight of the netals, and non-metal ty, express or implied, with ed and its subsidiaries are	VEC (RoHS Directive), EU Directive 2011/65/ pplier declarations, and /or analytical test dat entional ingredient in the semiconductor dev o credible reason to believe that the unavoid ory scheme world-wide. s. You can access the UL iQTM family of data loride (PVC) plastic. "Window envelopes" us ances restricted by RoHS in Microchip Techn to belief, as of the date listed in this form. Mi belief, as of the date listed in this form. Mi band some information may not have been pr nese parts and the average weight of anticip; materials contained within silicon devices (on respect to the information provided in this	a. vice and, to the lable impurity of abases to obtain sed to hold the nology Incorpo- icrochip Techn afety Data She ovided by sub- ated significan (silicon IC) in the declaration. The	best of Micro concentration n a test report packing slip o rated's semico ology Incorpo ets provided I contract asset t toxic metals te finished pa ae exclusive, li	chip of the at n the outer rated cannot ry raw mblers and rts. mited		Doped Silicon (mg) Total	Chip (Die) 7440-21-3 Total Wire Bond 7440-57-5	% of Total Weight 100 100,000 % of Total Weight 100 100,000 100,000 100,000 100,000 100,000	: 0.15 : 0.04
2002/53/EC (End-of-Life Vehicles (ELV) Directive). Ince with the above EU Directives has been verified via inti- ical substance is absent from the list above, the chemical gy Incorporated's knowledge and belief as of the date of substance, if any, is not below the threshold of regulator compounds used by Microchip meet the UL94 V0 flamma om/global/eng/pages/offerings/industries/chemicals/plas- ictive "tubes" in which the specific product is shipped ar- ertatin "reels" may be made from PVC plastic. D Technology Incorporated believes the information in thi- t heir original packing materials is true and correct to the the theorem of the specific product is shipped from dir if al suppliers. Information is often protected from dir al suppliers. Information is provided only as estimates -	y with EU Directive 2002/95 ternal design controls, sup al substance is NOT an inte this document, there is no ry concern for any regulat ability standard for plastics stics/ and from polyvinyl chl his form concerning substa te best of its knowledge are cause it has been compiled siclosure as trade secrets of the average weight of th nts, metals, and non-metal ty, express or implied, with ed and its subsidiaries are oices.	VEC (RoHS Directive), EU Directive 2011/65/ pplier declarations, and /or analytical test dat entional ingredient in the semiconductor dev o credible reason to believe that the unavoid ory scheme world-wide. s. You can access the UL iQTM family of data loride (PVC) plastic. "Window envelopes" us ances restricted by RoHS in Microchip Techr id belief, as of the date listed in this form. Mi based on the ranges provided in Material S and some information may not have been pr rese parts and the average weight of anticipy materials contained within silicon devices (n respect to the information provided in this i contained in Microchip's standard terms an larations and shall not be liable for any dama	a. vice and, to the lable impurity of abases to obtain sed to hold the nology Incorpo icrochip Techn afety Data She rovided by sub ated significan (silicon IC) in the declaration. The declaration of ages, direct or	best of Micro concentration n a test report packing slip o rated's semice ology incorpo ets provided i contract asset t toxic metals t finished pa ee exclusive, li f sale. These a indirect, cons	chip of the at n the outer onductor rated cannot yy raw nblers and rts. mited are provided equential or	0.45	(mg) Total	Chip (Die) 7440-21-3 Total Wire Bond 7440-57-5 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1	% of Total Weight 100 100.00 % of Total Weight 100 100.00	: 0.15 : 0.04

AICROCHIP Semiconductor Device	PDIP .300" (F3 / FP)		nation Base A pper Alloy (C			JEDEC 97 Product Marking and/or Pkg. Labeling e3				
Dania Oshatawa	CAO Number	"Contained In"	% Total			995.90	(mg) Total	Mold Compound	% ot Total Weight	79.8
Basic Substance	CAS Number	Sub-Component	Weight	mg/part	ppm					
Fused Silica	60676-86-0	Mold Compound Mold Compound	57.456 8.778	717.051 109.549	574,560 87,780		Fused Silica	60676-86-0	72.00	
Metal Hydro Oxide Epoxy Resin	Trade Secret	Mold Compound Mold Compound	5.586	69.713	55,860		Metal Hydro Oxide	Trade Secret		
Phenol Resin	Trade Secret Trade Secret	Mold Compound Mold Compound	5.586	69.713	55,860 55,860		Epoxy Resin Phenol Resin	Trade Secret Trade Secret	7.00	
			1.995	24.898	19,950		SiO2	14808-60-7	2.50	
SiO2 Carbon Black	14808-60-7 1333-86-4	Mold Compound Mold Compound	0.399	4.980	3,990				2.50	
							Carbon Black	1333-86-4		
Copper	7440-50-8	Lead Frame	10.031	125.192	100,314			Total		
Iron	7439-89-6	Lead Frame	0.247	3.079	2,468	131.04	(mg) Total	Lead Frame	% of Total Weight	10.5
Silver	7440-22-4	Lead Frame	0.200	2.496	2,000		Copper	7440-50-8	95.54	
Zinc	7440-66-6	Lead Frame	0.013	0.164	131		Iron	7439-89-6	2.35	
Phosphorous	7723-14-0	Lead Frame	0.009	0.108	87		Silver	7440-22-4	1.91	
Silver	7440-22-4	Die Attach	0.554	6.908	5,535		Zinc	7440-66-6	0.13	
Epoxy Resin	9003-36-5	Die Attach	0.141	1.760	1,410		Phosphorous	7723-14-0	0.08	
t-Butyl phenyl glycidyl ether	3101-60-8	Die Attach	0.047	0.590	473			Total		
Phenolic hardener	92-88-6	Die Attach	0.002	0.028	23	9.36	(mg) Total	Die Attach	% of Total Weight	0.75
Butyl cellosolve acetate	112-07-2	Die Attach	0.006	0.075	60		Silver	7440-22-4	74	
Silicon	7440-21-3	Chip (Die)	7.500	93.600	75,000		Epoxy Resin	9003-36-5	19	
Gold	7440-21-3	Wire Bond	0.200	2.496	2.000		t-Butyl phenyl glycidyl ether	3101-60-8	6	
Tin		Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	1.250	15.600	12,500		Phenolic hardener	92-88-6	0	
101	7440-31-5	TOTALS:		1,248.000	1,000,000		Butyl cellosolve acetate		1	
		Total Mass	100.000	1,240.000	1,000,000		Butyl cellosolve acetate	Total	100.00	
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). Ipliance with the above EU Directives has been verified vi	a internal design controls	s, supplier declarations, and /or analytical test d	ata.			93.60	Total (mg) Doped Silicon	Chip (Die) 7440-21-3	% of Total Weight	7.5
chemical substance is absent from the list above, the che nnology Incorporated's knowledge and belief as of the da nical substance, if any, is not below the threshold of regu	te of this document, there llatory concern for any re	e is no credible reason to believe that the unavo gulatory scheme world-wide.	idable impurity	concentration	n of the			Total	100.00	
ling compounds used by Microchip meet the UL94 V0 flan //ul.com/global/eng/pages/offerings/industries/chemicals		astics. You can access the UL iQTM family of da	tabases to obt	ain a test repo	rt at	2.50	(mg) Total	Wire Bond	% of Total Weight	0.2
protective "tubes" in which the specific product is shipped and certain "reels" may be made from PVC plastic.	ed are made from polyvin	yl chloride (PVC) plastic. "Window envelopes" u	ised to hold the	e packing slip	on the outer		Gold	7440-57-5	100	
ochip Technology Incorporated believes the information ces in their original packing materials is true and correct not guarantee the completeness and accuracy of data in f	to the best of its knowled his form because it has b d from disclosure as trade	lge and belief, as of the date listed in this form. I been compiled based on the ranges provided in a secrets and some information may not have be	Microchip Tech Material Safety een provided b	nnology Incorp / Data Sheets p y subcontract	orated provided by assemblers letals			Total	100.00	
material suppliers. Supplier information is often protected raw material suppliers. Information is provided only as es ponents. These estimates do not include trace levels of d				the finished pa	arts.					
raw material suppliers. Information is provided only as es	lopants, metals, and non- rranty, express or implied orated and its subsidiarie	metal materials contained within silicon devices I, with respect to the information provided in this	s (silicon IC) in s declaration. 1	The exclusive,	limited	15.60	(mg) Total	Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	% of Total Weight	1.25

1,248.000

Semiconductor Devic	DIP .300" (G6 / GV)		nation Base A pper Alloy (C			JEDEC 97 Product Marking and/or Pkg. Labeling e3				
Basic Substance	CAS Number	"Contained In" Sub-Component	% Total Weight	m a la a st		1045.39	(mg) Total	Mold Compound	% ot Total Weight	69.1
Fused Silica	60676-86-0	Mold Compound	49,752	mg/part 752.683	ppm 497,520		Fused Silica	60676-86-0	72.00	
Metal Hydro Oxide	Trade Secret	Mold Compound	7.601	114.993	76.010	1	Metal Hydro Oxide	Trade Secret	11.00	
Epoxy Resin	Trade Secret	Mold Compound Mold Compound	4.837	73.178	48.370	1	Epoxy Resin	Trade Secret	7.00	
Phenol Resin	Trade Secret	Mold Compound	4.837	73.178	48,370	1	Phenol Resin	Trade Secret	7.00	
SiO2	14808-60-7	Mold Compound	1.728	26.135	17,275	1	SiO2	14808-60-7	2.50	
Carbon Black	1333-86-4	Mold Compound	0.346	5.227	3,455	1	Carbon Black	1333-86-4	0.50	
Copper	7440-50-8	Lead Frame	27.687	418.865	276,868	1	<u>. </u>	Total	100.00	1
Iron	7439-89-6	Lead Frame	0.681	10,303	6,810	438.43	(mg) Total	Lead Frame	% of Total Weight	28.98
Silver	7440-22-4	Lead Frame	0.552	8.352	5.521		Copper	7440-50-8	95.54	
Zinc	7440-66-6	Lead Frame	0.036	0.548	362	1	Iron	7439-89-6	2.35	
Phosphorous	7723-14-0	Lead Frame	0.024	0.362	239	1	Silver	7440-22-4	1.91	
Silver (Ag)	7440-22-4	Die Attach	0.068	1.021	675		Zinc	7440-66-6	0.13	
Modified Epoxy Resin	13561-08-5	Die Attach	0.013	0.191	126		Phosphorous	7723-14-0	0.08	
Diglycidylether of bisphenol-F	54208-63-8	Die Attach	0.007	0.102	68	1		Total	100.00	
Modified Amine	827-43-0	Die Attach	0.003	0.048	32	1.36	(mg) Total	Die Attach	% of Total Weight	0.09
Silicon	7440-21-3	Chip (Die)	0.300	4.539	3.000	1.50	Silver (Ag)	7440-22-4	75	0.03
Gold	7440-21-5	Wire Bond	0.020	0.303	200		Modified Epoxy Resin	13561-08-5	14	
Tin		Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	1.510	22.844	15.100	· ,	Diglycidylether of bisphenol-	54208-63-8	8	
1111	7440-51-5	TOTALS:		1.512.870	1.000.000		Modified Amine	827-43-0	4	
	4 5400		100.000	1,512.070	1,000,000		Mourrieu Armine	021-40-0	4	
irective 2002/53/EC (End-of-Life Vehicles (ELV) Direct	comply with EU Directive 20 tive).	х <i>и</i>	·	cast Directive	and with	4.54	Total (mg)	Total Chip (Die)	100.00 % of Total Weight	0.3
semiconductor device and its homogenous materials irective 2002/53/EC (End-of-Life Vehicles (ELV) Direct pliance with the above EU Directives has been verified hemical substance is absent from the list above, the c	comply with EU Directive 20 tive). d via internal design controls	02/95/EC (RoHS Directive), EU Directive 2011/65	ata.			4.54	Total (mg) Doped Silicon			0.3
irective 2002/53/EC (End-of-Life Vehicles (ELV) Direct pliance with the above EU Directives has been verified	comply with EU Directive 20 tive). d via internal design controls chemical substance is NOT a date of this document, there	02/95/EC (RoHS Directive), EU Directive 2011/6 s, supplier declarations, and /or analytical test d an intentional ingredient in the semiconductor d e is no credible reason to believe that the unavo	ata. evice and, to ti	ne best of Micr	ochip	4.54		Chip (Die) 7440-21-3	% of Total Weight	0.3
irective 2002/53/EC (End-of-Life Vehicles (ELV) Direct pliance with the above EU Directives has been verifier hemical substance is absent from the list above, the o nology Incorporated's knowledge and belief as of the	comply with EU Directive 20 tive). d via internal design controls chemical substance is NOT a date of this document, there egulatory concern for any re flammability standard for pla	002/95/EC (RoHS Directive), EU Directive 2011/65 5, supplier declarations, and /or analytical test d an intentional ingredient in the semiconductor d b is no credible reason to believe that the unavo gulatory scheme world-wide.	ata. evice and, to th idable impurity	ne best of Micr / concentratio	ochip n of the	4.54		Chip (Die) 7440-21-3	% of Total Weight	0.3
irective 2002/53/EC (End-of-Life Vehicles (ELV) Direct pliance with the above EU Directives has been verified hemical substance is absent from the list above, the nology Incorporated's knowledge and belief as of the nical substance, if any, is not below the threshold of m ing compounds used by Microchip meet the UL94 V0	comply with EU Directive 20 tive). d via internal design controls chemical substance is NOT a date of this document, there egulatory concern for any re flammability standard for pla als/plastics/	002/95/EC (RoHS Directive), EU Directive 2011/65 s, supplier declarations, and /or analytical test d an intentional ingredient in the semiconductor de e is no credible reason to believe that the unavo gulatory scheme world-wide. astics. You can access the UL iQTM family of da	lata. evice and, to ti idable impurity tabases to obt	ne best of Micr / concentratio ain a test repo	ochip n of the rt at	0.30	Doped Silicon	Chip (Die) 7440-21-3 Total Wire Bond 7440-57-5	% of Total Weight 100 100.00 % of Total Weight 100	
irective 2002/53/EC (End-of-Life Vehicles (ELV) Direct pliance with the above EU Directives has been verified hemical substance is absent from the list above, the of nology Incorporated's knowledge and belief as of the hical substance, if any, is not below the threshold of r ing compounds used by Microchip meet the UL94 V0 //ul.com/global/eng/pages/offerings/industries/chemic protective "tubes" in which the specific product is shi	comply with EU Directive 20 tive). d via internal design controls chemical substance is NOT a date of this document, there egulatory concern for any re flammability standard for pla cals/plastics/ ipped are made from polyving on in this form concerning si act to the best of its knowled in this form because it has b cted from disclosure as trade s estimates of the average w	002/95/EC (RoHS Directive), EU Directive 2011/65 s, supplier declarations, and /or analytical test d an intentional ingredient in the semiconductor d e is no credible reason to believe that the unavo gulatory scheme world-wide. astics. You can access the UL iQTM family of da yl chloride (PVC) plastic. "Window envelopes" u ubstances restricted by RoHS in Microchip Tecl lge and belief, as of the date listed in this form. I eeen compiled based on the ranges provided in e secrets and some information may not have be eight of these parts and the average weight of a	ata. evice and, to ti idable impurity tabases to obt used to hold th hnology Incorp Microchip Teck Material Safety een provided ti nticipated sign	ne best of Micr / concentratio ain a test repo e packing slip norated's semi nology Incorp / Data Sheets / J subcontract lificant toxic m	ochip n of the rt at on the outer conductor porated provided by assemblers letals	0.30	(mg) Total	Chip (Die) 7440-21-3 Total Wire Bond	% of Total Weight 100 100.00 % of Total Weight	
irective 2002/53/EC (End-of-Life Vehicles (ELV) Direct pliance with the above EU Directives has been verified hemical substance is absent from the list above, the of nology Incorporated's knowledge and belief as of the hical substance, if any, is not below the threshold of r ing compounds used by Microchip meet the UL94 V0 //ul.com/global/eng/pages/offerings/industries/chemic orotective "tubes" in which the specific product is shi and certain "reels" may be made from PVC plastic. bechip Technology Incorporated believes the informative es in their original packing materials is true and corre of guarantee the completeness and accuracy of data naterial suppliers. Information is often proteo aw material suppliers. Information is provided only as	comply with EU Directive 20 tive). d via internal design controls chemical substance is NOT a date of this document, there egulatory concern for any re flammability standard for pla :als/plastics/ ipped are made from polyviny on in this form concerning si ect to the best of its knowled in this form because it has b cted from disclosure as trade s estimates of the average w of dopants, metals, and non- warranty, express or implied orporated and its subsidiarie	002/95/EC (RoHS Directive), EU Directive 2011/6 s, supplier declarations, and /or analytical test d an intentional ingredient in the semiconductor d a is no credible reason to believe that the unavo gulatory scheme world-wide. astics. You can access the UL iQTM family of da yl chloride (PVC) plastic. "Window envelopes" u ubstances restricted by RoHS in Microchip Tecl lge and belief, as of the date listed in this form. I secrets and some information may not have bu eight of these parts and the average weight of a metal materials contained within silicon devices I, with respect to the information provided in this	lata. evice and, to the idable impurity tabases to obthe used to hold the hnology Incorp Microchip Tech Material Safety en provided the unticipated sign s (silicon IC) in s declaration.	ne best of Micr / concentratio ain a test repo e packing slip nology Incorp Data Sheets j y subcontract lificant toxic m the finished p The exclusive,	ochip n of the rt at on the outer conductor porated provided by assemblers netals arts. limited	0.30	Coped Silicon (mg) Total Doped Gold	Chip (Die) 7440-21-3 Total Wire Bond 7440-57-5	% of Total Weight 100 100.00 % of Total Weight 100	
irective 2002/53/EC (End-of-Life Vehicles (ELV) Direct pliance with the above EU Directives has been verified hemical substance is absent from the list above, the of nology Incorporated's knowledge and belief as of the lical substance, if any, is not below the threshold of rr ing compounds used by Microchip meet the UL94 V0 //ul.com/global/eng/pages/offerings/industries/chemic orotective "tubes" in which the specific product is shi and certain "reels" may be made from PVC plastic. bochip Technology Incorporated believes the informati- ties in their original packing materials is true and corre- of guarantee the completeness and accuracy of data naterial suppliers. Supplier information is provided only as boonents. These estimates do not include trace levels of bochip Technology Incorporated does not provide any uct warranties provided by Microchip Technology Incorporated to the second provide any uct warranties provided by Microchip Technology Incorporated besence to the second provide any uct warranties provided by Microchip Technology Incorporated besence to the second provide any uct warranties provided by Microchip Technology Incorporated besence to the provide any uct warranties provided by Microchip Technology Incorporated besence to the provide any uct warranties provided by Microchip Technology Incorporated besence to the provide any uct warranties provided by Microchip Technology Incorporated besence to the provide any uct warranties provided by Microchip Technology Incorporated besence to the provide any uct warranties provided by Microchip Technology Incorporated besence to the provide any uct warranties provided by Microchip Technology Incorporated besence to the provide any uct warranties provide by Microchip Technology Incorporated besence to the provide to the provide any uct warranties provide by Microchip Technology Incorporated besence to the provide by Microchip Technology Incorporated besence to the provide to the prov	comply with EU Directive 20 tive). d via internal design controls chemical substance is NOT a date of this document, there egulatory concern for any re flammability standard for pla als/plastics/ ipped are made from polyvin on in this form concerning si ect to the best of its knowled in this form because it has bcted from disclosure as trade s estimates of the average we of dopants, metals, and non- warranty, express or implied orporated and its subsidiarie gement, and invoices.	002/95/EC (RoHS Directive), EU Directive 2011/6 s, supplier declarations, and /or analytical test d in intentional ingredient in the semiconductor de is no credible reason to believe that the unavo gulatory scheme world-wide. astics. You can access the UL iQTM family of da yl chloride (PVC) plastic. "Window envelopes" u ubstances restricted by RoHS in Microchip Tech ge and belief, as of the date listed in this form. I ween compiled based on the ranges provided in a secrets and some information may not have b eight of these parts and the average weight of a metal materials contained within silicon devices I, with respect to the information provided in this as are contained in Microchip's standard terms a t Declarations and shall not be liable for any dan	ata. evice and, to ti jidable impurity tabases to obt used to hold th hnology Incorp Microchip Tecl Material Safety een provided t inticipated sigr s (silicon IC) in s declaration and conditions mages, direct o	he best of Micr / concentratio ain a test repo e packing slip porated's semi- nology lncorp / Data Sheets jficant toxic m the finished p The exclusive, of sale. These prindirect, cor	ochip n of the rt at on the outer conductor yorated orovided by assemblers ietals arts. limited e are asequential	0.30	(mg) Total Doped Gold	Chip (Die) 7440-21-3 Total Wire Bond 7440-57-5 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for	% of Total Weight 100 100.00 % of Total Weight 100 100.00	0.02

AICROCHIP Semiconductor Device Typ	PDIP Wide Outline600" (J4 / JT)		nation Base A pper Alloy (C	-		JEDEC 97 Produc Marking and/or Pkg. Labeling e3					
Basic Substance	% Total Weight	mg/part	ppm	1267.01	(mg) Total	Mold Compound	% ot Total Weight	68.46			
Silica, vitreous	60676-86-0	Sub-Component Mold Compound	58.191	1076.958	581.910		Silica, vitreous 60676-86-0 85.00				
Epoxy Resin (No bromine, No diantimony trioxide)							Epoxy Resin	Trade Secret	6.13		
Phenolic Resin (No Br / CL SbO3, No diantimony trioxide)	Trade Secret	Mold Compound	4.193	77.604 77.604	41,932 41,932		Phenolic Resin	Trade Secret	6.13		
Epoxy, Cresol Novolac	29690-82-2	Mold Compound	1.677	31.042	16,773		Epoxy, Cresol Novolac	29690-82-2	2.45		
Carbon Black	1333-86-4	Mold Compound	0.205	3.801	2,054		Carbon Black	1333-86-4	0.30		
Copper	7440-50-8	Lead Frame	27.830	515.060	278,301			Total	100.00		
Iron	7439-89-6	Lead Frame	0.685	12.669	6,846	539.12	(mg) Total	Lead Frame	% of Total Weight	29.13	
Silver	7440-22-4	Lead Frame	0.555	10.270	5,549		Copper	7440-50-8	95.54		
Zinc	7440-66-6	Lead Frame	0.036	0.674	364		Iron	7439-89-6	2.35		
Phosphorous	7723-14-0	Lead Frame	0.024	0.445	240		Silver	7440-22-4	1.91		
Silver	7440-22-4	Die Attach	0.104	1.917	1,036		Zinc	7440-66-6	0.13		
Epoxy resin	Trade Secret	Die Attach	0.032	0.596	322		Phosphorous	7723-14-0	0.08		
Gamma-butyrolactone	96-48-0	Die Attach	0.004	0.078	42			Total	100.00		
Silicon	7440-21-3	Chip (Die)	0.750	13.880	7,500	2.59	(mg) Total	Die Attach	% of Total Weight	0.14	
Gold	7440-57-5	Wire Bond	0.030	0.555	300		Silver	7440-22-4	74		
Tin	7440-31-5	Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	1.490	27.576	14,900		Epoxy resin	Trade Secret	23		
		TOTALS:	100.000	1,850.730	1,000,000		Gamma-butyrolactone	96-48-0	3		
		g Total Mass 2/95/EC (RoHS Directive), EU Directive 2011/65/EU (F	RoHS Recast D	irective) and w	ith EU	13.88	Total (mg)	Total Chip (Die)	100.00 % of Total Weight	0.75	
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive).	with EU Directive 200 rnal design controls,	2/95/EC (RoHS Directive), EU Directive 2011/65/EU (F supplier declarations, and /or analytical test data.		,		13.88	Total (mg) Doped Silicon	Chip (Die) 7440-21-3	% of Total Weight	0.75	
semiconductor device and its homogenous materials comply ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). apliance with the above EU Directives has been verified via inte chemical substance is absent from the list above, the chemical rporated's knowledge and belief as of the date of this documer is not below the threshold of regulatory concern for any regula	with EU Directive 200 rnal design controls, substance is NOT an t, there is no credible	2/95/EC (RoHS Directive), EU Directive 2011/65/EU (F supplier declarations, and /or analytical test data. Intentional ingredient in the semiconductor device a e reason to believe that the unavoidable impurity con	and, to the best	of Microchip	Fechnology	13.88		Chip (Die)	% of Total Weight	0.75	
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). apliance with the above EU Directives has been verified via inte chemical substance is absent from the list above, the chemical rporated's knowledge and belief as of the date of this documer	with EU Directive 200 rnal design controls, substance is NOT an t, there is no credibla atory scheme world-v ility standard for plas	2/95/EC (RoHS Directive), EU Directive 2011/65/EU (F supplier declarations, and /or analytical test data. Intentional ingredient in the semiconductor device a Preason to believe that the unavoidable impurity convide.	and, to the best acentration of th	of Microchip he chemical su	Fechnology	13.88 0.56		Chip (Die) 7440-21-3	% of Total Weight	0.75	
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). upliance with the above EU Directives has been verified via inter chemical substance is absent from the list above, the chemical rporated's knowledge and belief as of the date of this documer is not below the threshold of regulatory concern for any regula- ding compounds used by Microchip meet the UL94 V0 flammab	with EU Directive 200 rnal design controls, substance is NOT an t, there is no credible tory scheme world-v ility standard for plas cs/	2/95/EC (RoHS Directive), EU Directive 2011/65/EU (F supplier declarations, and /or analytical test data. intentional ingredient in the semiconductor device a e reason to believe that the unavoidable impurity con vide. ttics. You can access the UL iQTM family of database	and, to the best icentration of the set to obtain a te	of Microchip he chemical su est report at	Fechnology bstance, if		Doped Silicon	Chip (Die) 7440-21-3 Total Wire Bond 7440-57-5	% of Total Weight 100 100.00 % of Total Weight 100		
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). apliance with the above EU Directives has been verified via inte- chemical substance is absent from the list above, the chemical rporated's knowledge and belief as of the date of this documer is not below the threshold of regulatory concern for any regul. ding compounds used by Microchip meet the UL94 V0 flammab J/ul.com/global/eng/pages/offerings/industries/chemicals/plast protective "tubes" in which the specific product is shipped are	with EU Directive 200 rnal design controls, substance is NOT an t, there is no credibla tory scheme world-v liity standard for plas cs/ made from polyviny/ form concerning sul its knowledge and be been compiled based crets and some infor- these parts and the a	2/95/EC (RoHS Directive), EU Directive 2011/65/EU (F supplier declarations, and /or analytical test data. Intentional ingredient in the semiconductor device a reason to believe that the unavoidable impurity convide. tics. You can access the UL iQTM family of database chloride (PVC) plastic. "Window envelopes" used to batances restricted by RoHS in Microchip Technolog elief, as of the date listed in this form. Microchip Tech aton access be provided by subcontract a warage weight of anticipated significant toxic metals	and, to the best iccentration of the est to obtain a to b hold the pack y Incorporated nnology Incorp ets provided by seemblers and	of Microchip i he chemical su est report at ing slip on the 's semiconduc orated cannot or raw material d raw material	Fechnology bstance, if outer box tor devices guarantee suppliers. suppliers.		(mg) Total	Chip (Die) 7440-21-3 Total Wire Bond	% of Total Weight 100 100.00 % of Total Weight		
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). apliance with the above EU Directives has been verified via inter chemical substance is absent from the list above, the chemical rporated's knowledge and belief as of the date of this documer is not below the threshold of regulatory concern for any regul- ding compounds used by Microchip meet the UL94 V0 flammab //ul.com/global/eng/pages/offerings/industries/chemicals/plast protective "tubes" in which the specific product is shipped are certain "reels" may be made from PVC plastic. Tochip Technology Incorporated believes the information in this heir original packing materials is true and correct to the best of completeness and accuracy of data in this form because it has piler information is often protected from disclosure as trade se piler information is provided only as estimates of the average weight of	with EU Directive 200 rnal design controls, substance is NOT an t, there is no credibla tory scheme world-v ility standard for plas cs/ made from polyvinyi form concerning sul its knowledge and be been compiled based crets and some infor these parts and the a ntained within silicor , express or implied, subsidiaries are con	2/95/EC (RoHS Directive), EU Directive 2011/65/EU (f supplier declarations, and /or analytical test data. intentional ingredient in the semiconductor device a reason to believe that the unavoidable impurity convide. titics. You can access the UL iQTM family of database chloride (PVC) plastic. "Window envelopes" used to bstances restricted by RoHS in Microchip Technolog lifef, as of the date listed in this form. Microchip Tech on the ranges provided in Material Safety Data She mation may not have been provided by subcontract a verage weight of anticipated significant toxic metals i devices (silicon IC) in the finished parts. with respect to the information provided in this decla	and, to the best acentration of the set to obtain a to be hold the pack y Incorporated phology Incorpo- tets provided by assemblers and components. The aration. The exc	of Microchip i he chemical su est report at ing slip on the 's semiconduc orated cannot r aw material fhese estimate clusive, limited	Fechnology ibstance, if outer box tor devices guarantee suppliers. s do not		(mg) Total	Chip (Die) 7440-21-3 Total Wire Bond 7440-57-5	% of Total Weight 100 100.00 % of Total Weight 100		
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). pliance with the above EU Directives has been verified via inte- themical substance is absent from the list above, the chemical rporated's knowledge and belief as of the date of this documer is not below the threshold of regulatory concern for any regul- ling compounds used by Microchip meet the UL94 V0 flammab //ul.com/global/eng/pages/offerings/industries/chemicals/plast protective "tubes" in which the specific product is shipped are certain "reels" may be made from PVC plastic. ochip Technology Incorporated believes the information in this eir original packing materials is true and correct to the best of completeness and accuracy of data in this form because it has plier information is often protected from disclosure as trade se mation is provided only as estimates of the average weight of ide trace levels of dopants, metals, and non-metal materials co ochip Technology Incorporated does not provide any warranty anties provided by Microchip Technology Incorporated and its	with EU Directive 200 rnal design controls, substance is NOT an t, there is no credible itory scheme world	2/95/EC (RoHS Directive), EU Directive 2011/65/EU (f supplier declarations, and /or analytical test data. intentional ingredient in the semiconductor device a e reason to believe that the unavoidable impurity con vide. ttics. You can access the UL iQTM family of database l chloride (PVC) plastic. "Window envelopes" used to obstances restricted by RoHS in Microchip Technolog shief, as of the date listed in this form. Microchip Technolog shief, as of the date listed in this form. Microchip Technolog werage weight of anticipated significant toxic metals a devices (silicon IC) in the finished parts. with respect to the information provided in this decir tained in Microchip's standard terms and conditions Declarations and shall not be liable for any damages	and, to the best accentration of the est to obtain a to b hold the pack y Incorporated nuology Incorp ets provided by assemblers and components. The aration. The exc of sale. These , direct or indir	of Microchip i he chemical su est report at ing slip on the y raw material f raw material f hese estimate clusive, limited are provided i	Fechnology bstance, if outer box tor devices guarantee suppliers. suppliers. s do not product n	0.56	(mg) Total	Chip (Die) 7440-21-3 Total Wire Bond 7440-57-5 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1	% of Total Weight 100 % of Total Weight 100 100.00	0.03	

ICROCHIP Semiconductor Device	DIP (Wide Outline600") (Q2 / QB)		nation Base pper Alloy (JEDEC 97 Product Marking and/or Pkg. Labeling e3				
Basic Substance	CAS Number	"Contained In" Sub-Component	% Total Weight	mg/part	maa	3245.23	(mg) Total	Mold Compound	% ot Total Weight	79.8
Fused Silica	60676-86-0	Mold Compound	57.456	2336.563	574,560		Fused Silica	60676-86-0	72.00	1
Metal Hydro Oxide	Trade Secret	Mold Compound Mold Compound	8.778	356.975	87,780		Metal Hydro Oxide	Trade Secret	11.00	
Epoxy Resin	Trade Secret	Mold Compound	5.586	227.166	55,860		Epoxy Resin	Trade Secret	7.00	
Phenol Resin	Trade Secret	Mold Compound	5.586	227.166	55,860		Phenol Resin	Trade Secret	7.00	
SiO2	14808-60-7	Mold Compound	1.995	81.131	19,950		SiO2	14808-60-7	2.50	
Carbon Black	1333-86-4	Mold Compound	0.399	16.226	3,990		Carbon Black	1333-86-4	0.50	
Copper	7440-50-8	Lead Frame	9.984	406.006	99,837			Total	100.00	
Iron	7439-89-6	Lead Frame	0.246	9.987	2,456	424.97	(mg) Total	Lead Frame	% of Total Weight	10.45
Silver	7440-22-4	Lead Frame	0.199	8.096	1,991		Copper	7440-50-8	95.54	
Zinc	7440-66-6	Lead Frame	0.013	0.531	131		Iron	7439-89-6	2.35	
Phosphorous	7723-14-0	Lead Frame	0.009	0.351	86		Silver	7440-22-4	1.91	
Polyimide	25038-81-7	Lead Frame	0.022	0.874	215		Zinc	7440-66-6	0.13	
Poly - ethylene – terephthalate	25038-59-9	Lead Frame	0.019	0.773	190	4	Phosphorous	7723-14-0	0.08	
NBR	9003-18-3	Lead Frame	0.004	0.142	35			Total	100.00	
Bismaleimide	79922-55-7	Lead Frame	0.003	0.122	30	2.03	(mg) Total	Lead Lock Tape		0.05
Phenol resin	28453-20-5 / 9016-83-5	Lead Frame	0.003	0.122	30	1 _	Polyimide	25038-81-7	43.00	
Silver	7440-22-4	Die Attach	0.550	22.375	5,502]	Poly - ethylene - terephthalate		38.00	
Epoxy Resin	9003-36-5	Die Attach	0.110	4.474	1,100	4	NBR	9003-18-3	7.00	
Diluent	3101-60-8	Die Attach	0.055	2.236	550		Bismaleimide	79922-55-7	6.00	
Phenolic hardener	Trade secret	Die Attach	0.022	0.894	220		Phenol resin	28453-20-5/9016-83-5	6.00	
Amine type hardener	827-43-0	Die Attach	0.011	0.448	110			Total	100.00	
Dicyandiamide	461-58-5	Die Attach	0.002	0.073	18	30.50	(mg) Total	Die Attach	% of Total Weight	0.75
Silicon	7440-21-3	Chip (Die)	7.500	305.003	75,000		Silver	7440-22-4	73	
Gold	7440-57-5	Wire Bond	0.200	8.133	2,000		Epoxy Resin	9003-36-5	15	
Tin	7440-31-5	Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	1.250	50.834	12,500		Diluent	3101-60-8	7	
		TOTALS:		4,066.700	4 000 000					
		TUTALS:	100.000	4,000.700	1,000,000		Phenolic hardener	Trade secret	3	
		g Total Mass					Amine type hardener	827-43-0	3	
		g Total Mass						1	3 1 0	
emiconductor device and its homogenous materials co ive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). Jliance with the above EU Directives has been verified v	omply with EU Directive 2002/95/	' g Total Mass EC (RoHS Directive), EU Directive 2011/65/EU (RoHS					Amine type hardener	827-43-0	1	
ve 2002/53/EC (End-of-Life Vehicles (ELV) Directive). iance with the above EU Directives has been verified v emical substance is absent from the list above, the che orated's knowledge and belief as of the date of this do	omply with EU Directive 2002/95/ via internal design controls, supp emical substance is NOT an inter cument, there is no credible reas	g Total Mass EC (RoHS Directive), EU Directive 2011/65/EU (RoHS lier declarations, and /or analytical test data. titonal ingredient in the semiconductor device and, t	Recast Direc	ctive) and wit	th EU echnology	305.00	Amine type hardener	827-43-0 461-58-5	0	7.5
ve 2002/53/EC (End-of-Life Vehicles (ELV) Directive). iance with the above EU Directives has been verified v imical substance is absent from the list above, the che orated's knowledge and belief as of the date of this do not below the threshold of regulatory concern for any g compounds used by Microchip meet the UL94 V0 fla	omply with EU Directive 2002/95/ via internal design controls, supp amical substance is NOT an inter cument, there is no credible reas regulatory scheme world-wide.	g Total Mass EC (RoHS Directive), EU Directive 2011/65/EU (RoHS lier declarations, and /or analytical test data. Itional ingredient in the semiconductor device and, t son to believe that the unavoidable impurity concent	Recast Direct	ctive) and wi Microchip T chemical sul	th EU echnology	305.00	Amine type hardener Dicyandiamide	827-43-0 461-58-5 Total	0 100.00	
ive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). liance with the above EU Directives has been verified v emical substance is absent from the list above, the che orated's knowledge and belief as of the date of this do s not below the threshold of regulatory concern for any ng compounds used by Microchip meet the UL94 V0 fla ul.com/global/eng/pages/offerings/industries/chemicals rotective "tubes" in which the specific product is shipp	omply with EU Directive 2002/95/ via internal design controls, supp amical substance is NOT an inter cument, there is no credible reas regulatory scheme world-wide. ammability standard for plastics. s/plastics/	'g Total Mass EC (RoHS Directive), EU Directive 2011/65/EU (RoHS lier declarations, and /or analytical test data. titonal ingredient in the semiconductor device and, t ion to believe that the unavoidable impurity concent You can access the UL iQTM family of databases to	Recast Direct	tive) and wi Microchip T chemical sul report at	ch EU echnology ostance, if	305.00	Amine type hardener Dicyandiamide Total (mg)	827-43-0 461-58-5 Total Chip (Die)	0 100.00 % of Total Weight	7.5
ive 2002/53/EC (End-of-Life Vehicles (ELV) Directive).	omply with EU Directive 2002/95/ via internal design controls, supp amical substance is NOT an inter curment, there is no credible reas regulatory scheme world-wide. immability standard for plastics. s/plastics/ eed are made from polyvinyl chlo in this form concerning substar est of its knowledge and belief, a as been compiled based on the r ade secrets and some informatio ght of these parts and the averag	g Total Mass EC (RoHS Directive), EU Directive 2011/65/EU (RoHS lier declarations, and /or analytical test data. titonal ingredient in the semiconductor device and, to no to believe that the unavoidable impurity concent You can access the UL iQTM family of databases to ride (PVC) plastic. "Window envelopes" used to hole ces restricted by RoHS in Microchip Technology Inc is of the date listed in this form. Microchip Technology Inc anges provided in Material Safety Data Sheets provi n may not have been provided by subcontract asset e weight of anticipated significant toxic metals com	Recast Direct o the best of ration of the obtain a test d the packing corporated's s gy Incorpora ded by raw m bibers and ra	Stive) and wi Microchip T chemical sul report at semiconduct ted cannot g aterial supp w material supp	ch EU echnology ostance, if outer box or devices uarantee the iers. uppliers.		Amine type hardener Dicyandiamide Total (mg)	827-43-0 461-58-5 Total Chip (Die) 7440-21-3	1 0 100.00 % of Total Weight 100	7.5
ve 2002/53/EC (End-of-Life Vehicles (ELV) Directive). iance with the above EU Directives has been verified v amical substance is absent from the list above, the che orated's knowledge and belief as of the date of this do not below the threshold of regulatory concern for any g compounds used by Microchip meet the UL94 V0 fla II.com/global/eng/pages/offerings/industries/chemicals otective "tubes" in which the specific product is shipp rtain "reels" may be made from PVC plastic. hip Technology Incorporated believes the information original packing materials is true and correct to the b tenness and accuracy of data in this form because it he er information is often protected from disclosure as tra ation is provided only as estimates of the average weig the trace levels of dopants, metals, and non-metal mater hip Technology Incorporated does not provide any was ties provided by Microchip Technology Incorporated a	omply with EU Directive 2002/95/ via internal design controls, supp emical substance is NOT an inter curment, there is no credible reas regulatory scheme world-wide. ammability standard for plastics. s/plastics/ ued are made from polyvinyl chlo in this form concerning substar as been compiled based on the r ade secrets and some informatio ght of these parts and the averag ials contained within silicon devi arranty, express or implied, with	g Total Mass EC (RoHS Directive), EU Directive 2011/65/EU (RoHS lier declarations, and /or analytical test data. titonal ingredient in the semiconductor device and, t son to believe that the unavoidable impurity concent You can access the UL iQTM family of databases to ride (PVC) plastic. "Window envelopes" used to hole uses restricted by RoHS in Microchip Technology Inc is of the date listed in this form. Microchip Technology Inc anges provided in Material Safety Data Sheets provid n may not have been provided by subcontract asser je weight of anticipated significant toxic metals com ces (silicon IC) in the finished parts.	Recast Direct o the best of ration of the obtain a test d the packing corporated's a gy Incorpora ded by raw m mblers and ra ponents. The	tive) and wi Microchip T chemical sul report at semiconduct ted cannot g taterial supp w material s se estimates sive, limited	th EU echnology sstance, if outer box or devices uarantee the iers. uppliers. is do not product		Amine type hardener Dicyandiamide Total (mg) Doped Silicon	827-43-0 461-58-5 Total Chip (Die) 7440-21-3 Total	1 0 100.00 % of Total Weight 100 100.00	7.5
ve 2002/53/EC (End-of-Life Vehicles (ELV) Directive). liance with the above EU Directives has been verified v amical substance is absent from the list above, the che orated's knowledge and belief as of the date of this do not below the threshold of regulatory concern for any ag compounds used by Microchip meet the UL94 V0 fla u.com/global/eng/pages/offerings/industries/chemicals otective "tubes" in which the specific product is shipp rtain "reels" may be made from PVC plastic. thip Technology Incorporated believes the information or original packing materials is true and correct to the b eteness and accuracy of data in this form because it hr ation is provided only as estimates of the average weig	omply with EU Directive 2002/95/ via internal design controls, supp emical substance is NOT an inter curment, there is no credible reas regulatory scheme world-wide. ammability standard for plastics. s/plastics/ ued are made from polyvinyl chlo is this form concerning substar as been compiled based on the r ade secrets and some informatio ght of these parts and the averag ials contained within silicon devi arranty, express or implied, with i and its subsidiaries are contained hanges to Material Content Decla e users' reliance on the informati	g Total Mass EC (RoHS Directive), EU Directive 2011/65/EU (RoHS lier declarations, and /or analytical test data. ttional ingredient in the semiconductor device and, t ison to believe that the unavoidable impurity concent You can access the UL iQTM family of databases to ride (PVC) plastic. "Window envelopes" used to hole us of the date listed in this form. Microchip Technology Inc is of the date listed in Material Safety Data Sheets provided provided by RoHS in Microchip Technology Inc is of the date listed in this form. Microchip Technology may not have been provided by subcontract asset ge weight of anticipated significant toxic metals com ces (silicon IC) in the finished parts. respect to the information provided in this declaratic d in Microchip's standard terms and conditions of sa rations and shall not be liable for any damages, dire	Recast Direct o the best of ration of the obtain a test d the packing corporated's s gy Incorpora ded by raw m mblers and ra ponents. The ponents. The ponents. The corporated are are all of the sector	tive) and wi Microchip T chemical sul report at semiconduct ted cannot g aterial supp vaterial supp see estimates see estimates sive, limited provided in , consequen	th EU echnology sstance, if outer box or devices uarantee the iers. uppliers. do not product Microchip's tial or		Amine type hardener Dicyandiamide Total (mg) Doped Silicon (mg) Total	827-43-0 461-58-5 Total Chip (Die) 7440-21-3 Total Wire Bond	1 0 100.00 % of Total Weight 100 100.00 % of Total Weight	0.2
ve 2002/53/EC (End-of-Life Vehicles (ELV) Directive). iance with the above EU Directives has been verified v amical substance is absent from the list above, the che orated's knowledge and belief as of the date of this do not below the threshold of regulatory concern for any g compounds used by Microchip meet the UL94 V0 fla ul.com/global/eng/pages/offerings/industries/chemicals otective "tubes" in which the specific product is shipp rtain "reels" may be made from PVC plastic. hip Technology Incorporated believes the information or original packing materials is true and correct to the b teness and accuracy of data in this form because it hir er information is often protected from disclosure as tri ation is provided only as estimates of the average weil trace levels of dopants, metals, and non-metal materi hip Technology Incorporated does not provide any was ties provided by Microchip Technology Incorporated a lons, sales order acknowledgement, and invoices. hip disclaims any duty to notify users of updates or chi se, suffered by users or third parties as a result of the	omply with EU Directive 2002/95/ via internal design controls, supp emical substance is NOT an inter curment, there is no credible reas regulatory scheme world-wide. ammability standard for plastics. s/plastics/ ued are made from polyvinyl chlo is this form concerning substar as been compiled based on the r ade secrets and some informatio ght of these parts and the averag ials contained within silicon devi arranty, express or implied, with i and its subsidiaries are contained hanges to Material Content Decla e users' reliance on the informati	g Total Mass EC (RoHS Directive), EU Directive 2011/65/EU (RoHS lier declarations, and /or analytical test data. ttional ingredient in the semiconductor device and, t ison to believe that the unavoidable impurity concent You can access the UL iQTM family of databases to ride (PVC) plastic. "Window envelopes" used to hole us of the date listed in this form. Microchip Technology Inc is of the date listed in Material Safety Data Sheets provided provided by RoHS in Microchip Technology Inc is of the date listed in this form. Microchip Technology may not have been provided by subcontract asset ge weight of anticipated significant toxic metals com ces (silicon IC) in the finished parts. respect to the information provided in this declaratic d in Microchip's standard terms and conditions of sa rations and shall not be liable for any damages, dire	Recast Direct o the best of ration of the obtain a test d the packing corporated's s gy Incorpora ded by raw m mblers and ra ponents. The ponents. The ponents. The corporated are are all of the sector	tive) and wi Microchip T chemical sul report at semiconduct ted cannot g aterial supp vaterial supp see estimates see estimates sive, limited provided in , consequen	th EU echnology sstance, if outer box or devices uarantee the iers. uppliers. do not product Microchip's tial or		Amine type hardener Dicyandiamide Total (mg) Doped Silicon (mg) Total	827-43-0 461-58-5 Total Chip (Die) 7440-21-3 Total Wire Bond 7440-57-5 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	1 0 100.00 % of Total Weight 100 % of Total Weight 100 100.00 % of Total Weight	0.2
ve 2002/53/EC (End-of-Life Vehicles (ELV) Directive). ance with the above EU Directives has been verified v mical substance is absent from the list above, the che orated's knowledge and belief as of the date of this do not below the threshold of regulatory concern for any g compounds used by Microchip meet the UL94 V0 fla Lcom/global/eng/pages/offerings/industries/chemicals tective "tubes" in which the specific product is shipp tain "reels" may be made from PVC plastic. hip Technology Incorporated believes the information original packing materials is true and correct to the b teness and accuracy of data in this form because it ha r information is often protected from disclosure as tr ation is provided only as estimates of the average wei trace levels of dopants, metals, and non-metal materi hip Technology Incorporated does not provide any was ties provided by Microchip Technology Incorporated a ons, sales order acknowledgement, and invoices. hip disclaims any duty to notify users of updates or chi se, suffered by users or third parties as a result of the	omply with EU Directive 2002/95/ via internal design controls, supp emical substance is NOT an inter curment, there is no credible reas regulatory scheme world-wide. ammability standard for plastics. s/plastics/ ued are made from polyvinyl chlo is this form concerning substar as been compiled based on the r ade secrets and some informatio ght of these parts and the averag ials contained within silicon devi arranty, express or implied, with i and its subsidiaries are contained hanges to Material Content Decla e users' reliance on the informati	g Total Mass EC (RoHS Directive), EU Directive 2011/65/EU (RoHS lier declarations, and /or analytical test data. ttional ingredient in the semiconductor device and, t ison to believe that the unavoidable impurity concent You can access the UL iQTM family of databases to ride (PVC) plastic. "Window envelopes" used to hole us of the date listed in this form. Microchip Technology Inc is of the date listed in Material Safety Data Sheets provided provided by RoHS in Microchip Technology Inc is of the date listed in this form. Microchip Technology may not have been provided by subcontract asset ge weight of anticipated significant toxic metals com ces (silicon IC) in the finished parts. respect to the information provided in this declaratic d in Microchip's standard terms and conditions of sa rations and shall not be liable for any damages, dire	Recast Direct o the best of ration of the obtain a test d the packing corporated's s gy Incorpora ded by raw m mblers and ra ponents. The ponents. The ponents. The corporated are are all of the sector	tive) and wi Microchip T chemical sul report at semiconduct ted cannot g aterial supp vaterial supp see estimates see estimates sive, limited provided in , consequen	th EU echnology sstance, if outer box or devices uarantee the iers. uppliers. do not product Microchip's tial or	8.13	Amine type hardener Dicyandiamide Total (mg) Doped Silicon (mg) Total	827-43-0 461-58-5 Total Chip (Die) 7440-21-3 Total Wire Bond 7440-57-5 Total Plating on external leads (pins) - Matte Tin / annealed at To'C for 1	1 0 100.00 % of Total Weight 100 % of Total Weight 100 100.00	0.2

MICROCHIP Semiconductor Device Type			ination Base opper Alloy (5)	JEDEC 97 Product Marking and/or Pkg. Labeling e3			
Semiconductor Device Type		"Contained In"	% Total	1				1		
Basic Substance	CAS Number	Sub-Component	Weight	mg/part		4478.48	(mg) Total	Mold Compound	% ot Total Weight	85.67
	60676-86-0	Mold Compound	<u> </u>	3806.712	ppm		011		-	1
Silica, vitreous Epoxy Resin	Trade Secret	Mold Compound	72.820 5.247	274.307	728,195 52,473		Silica, vitreous Epoxy Resin	60676-86-0 Trade Secret	85.00 6.13	
Phenolic Resin	Trade Secret	Mold Compound Mold Compound	5.247	274.307	52,473		Phenolic Resin	Trade Secret	6.13	
Epoxy, Cresol Novolac	29690-82-2	Mold Compound Mold Compound	2.099	109.723	20,989		Epoxy, Cresol Novolac	29690-82-2	2.45	
Carbon Black	1333-86-4	Mold Compound	0.257	13.435	2,570		Carbon Black	1333-86-4	0.30	
Copper	7440-50-8	Lead Frame	12,783	668,240	127.829		Calboll Black	Total	100.00	<u>1</u>
Iron	7439-89-6	Lead Frame	0.314	16.437	3,144	699.45	() =			
	7439-89-6		0.314	13.325	2,549	699.45	(mg) Total	Lead Frame	% of Total Weight	13.38
Silver		Lead Frame					Copper	7440-50-8	95.54	
Zinc	7440-66-6	Lead Frame	0.017	0.874	167		Iron	7439-89-6	2.35	
Phosphorous Oliver (Ap)	7723-14-0 7440-22-4	Lead Frame	0.011	0.577 6.691	110 1.280		Silver	7440-22-4	1.91 0.13	
Silver (Ag)	Trade Secret	Die Attach Die Attach	0.128	1.422	272		Zinc Phosphorous	7440-66-6 7723-14-0	0.13	
Epoxy Resin							Phosphorous			
Copper (Cu)	7440-50-8	Die Attach	0.005	0.251	48			Total	100.00	
Doped Silicon	7440-21-3	Chip (Die)	0.220	11.501	2,200	8.36	(mg) Total	Die Attach	% of Total Weight	0.16
Doped Gold	7440-57-5	Wire Bond	0.030	1.568	300		Silver (Ag)	7440-22-4	80.00	
Tin	7440-31-5	Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	0.540	28.229	5,400 1,000,000		Epoxy Resin	Trade Secret	17.00	
		TOTALS:	100.000	5,227.600	1,000,000		Copper (Cu)	7440-50-8	3.00	
	5.2276	g Total Mass						Total	100.00	
This semiconductor device and its homogenous materials comply wit Directive 2002/53/EC (End-of-Life Vehicles (ELV) Directive).	h EU Directive 200	2/95/EC (RoHS Directive), EU Directive 2011/65/EU (F	RoHS Recast	Directive) and	with EU	11.50	(mg) Total	Chip (Die)	% of Total Weight	0.22
Compliance with the above EU Directives has been verified via interna	l design controls	supplier declarations and /or analytical test data					Doped Silicon	7440-21-3	100	1
If a chemical substance is absent from the list above, the chemical su Incorporated's knowledge and belief as of the date of this document, any, is not below the threshold of regulatory concern for any regulator	here is no credible ry scheme world-v	e reason to believe that the unavoidable impurity con vide.	centration of	f the chemical	substance, if			Total	100.00	-
Molding compounds used by Microchip meet the UL94 V0 flammabilit http://ul.com/global/eng/pages/offerings/industries/chemicals/plastics		tics. You can access the UL iQTM family of database	es to obtain a	test report at		1.57	(mg) Total	Wire Bond	% of Total Weight	0.03
The protective "tubes" in which the specific product is shipped are m and certain "reels" may be made from PVC plastic.	ade from polyviny	I chloride (PVC) plastic. "Window envelopes" used to	hold the pa	cking slip on th	he outer box		Doped Gold	7440-57-5	100.00	
Microchip Technology Incorporated believes the information in this for in their original packing materials is true and correct to the best of its the completeness and accuracy of data in this form because it has be Supplier information is often protected from disclosure as trade secre Information is provided only as estimates of the average weight of the include trace levels of dopants, metals, and non-metal materials cont	knowledge and be en compiled based ts and some inform se parts and the a	Nief, as of the date listed in this form. Microchip Tech d on the ranges provided in Material Safety Data Shee mation may not have been provided by subcontract a verage weight of anticipated significant toxic metals	nology Inco ets provided assemblers a	rporated canno by raw materia Ind raw materia	ot guarantee al suppliers. al suppliers.			Total	100.00	"
Microchip Technology Incorporated does not provide any warranty, e warranties provided by Microchip Technology Incorporated and its su Microchip's quotations, sales order acknowledgement, and invoices.						28.23	(mg) Total	Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	% of Total Weight	0.54
Microchip disclaims any duty to notify users of updates or changes to otherwise, suffered by users or third parties as a result of the users' (SGS) or of this Certificate of Compliance for semiconductor products	eliance on the info						Tin	7440-31-5	100.00	
								Total	100.00	
						5.227.60	0			100.000

				nation Base A pper Alloy (C			•	geneous Materials: g. pc boards, displays)	JEDEC 97 Product Marking and/or Pkg. Labeling e3
Semiconductor Device		(Wide Outline600") (S2 / SL) "Contained In" Sub-Component	% Total			5187.00	(mg) Total	Mold Compound	% ot Total Weight	
Basic Substance Fused Silica	CAS Number 60676-86-0	Mold Compound	57.456	mg/part 3734.640	ppm 574.560		Fused Silica	60676-86-0	72.00	7
Metal Hydro Oxide	Trade Secret	Mold Compound	8.778	570.570	574,560 87,780	-	Metal Hvdro Oxide	Trade Secret	11.00	
Epoxy Resin	Trade Secret	Mold Compound	5.586	363.090	55.860	-	Epoxy Resin	Trade Secret	7.00	
Phenol Resin	Trade Secret	Mold Compound	5.586	363.090	55,860	-	Phenol Resin	Trade Secret	7.00	
SiO2	14808-60-7	Mold Compound	1.995	129.675	19,950		SiO2	14808-60-7	2.50	
Carbon Black	1333-86-4	Mold Compound	0.399	25.935	3,990	1	Carbon Black	1333-86-4	0.50	
Copper	7440-50-8	Lead Frame	9.984	648.938	99,837			Total	100.00	2
Iron	7439-89-6	Lead Frame	0.246	15.962	2,456	679.25	(mg) Total	Lead Frame	% of Total Weight	10.45
Silver	7440-22-4	Lead Frame	0.199	12.940	1,991		Copper	7440-50-8	95.54	
Zinc	7440-66-6	Lead Frame	0.013	0.849	131	4	Iron	7439-89-6	2.35	
Phosphorous	7723-14-0	Lead Frame	0.009	0.560	86	4	Silver	7440-22-4	1.91	
Polyimide	25038-81-7	Lead Frame	0.022	1.398	215		Zinc	7440-66-6	0.13	
Poly - ethylene – terephthalate	25038-59-9	Lead Frame	0.019	1.235	190	4	Phosphorous	7723-14-0	0.08	l
NBR	9003-18-3	Lead Frame	0.004	0.228	35			Total	100.00	
Bismaleimide	79922-55-7	Lead Frame	0.003	0.195	30	3.25	(mg) Total	Lead Lock Tape	% of Total Weight	0.05
Phenol resin	28453-20-5 / 9016-83-5	Lead Frame	0.003	0.195	30	4	Polyimide	25038-81-7	43.00	
Silver	7440-22-4	Die Attach	0.550	35.763	5,502		Poly - ethylene - terephthalate	25038-59-9	38.00	
Epoxy Resin	9003-36-5	Die Attach	0.110	7.152	1,100	-	NBR	9003-18-3	7.00	
Diluent	3101-60-8	Die Attach	0.055	3.573	550	4	Bismaleimide	79922-55-7	6.00	
Phenolic hardener	Trade secret 827-43-0	Die Attach Die Attach	0.022	1.428	220 110	-	Phenol resin	28453-20-5 / 9016-83-5	6.00	
Amine type hardener Dicyandiamide	461-58-5	Die Attach	0.001	0.117	18	48.75	() T - (1	i otal	100100	
Dicyandiamide	401-58-5	Die Allach	0.002	0.117	10	48.75	(mg) Total	Die Attach	% of Total Weight	0.75
Silicon	7440-21-3	Chip (Die)	7.500	487,500	75.000		Silver	7440-22-4	73	
Gold	7440-57-5	Wire Bond	0.200	13.000	2.000	1	Epoxy Resin	9003-36-5	15	
Tin		ng on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	1.250	81.250	12,500	1	Diluent	3101-60-8	7	
	1110 01 0	TOTALS:	100.000	6,500.000	1,000,000	1	Phenolic hardener	Trade secret	3	
	6 5000 g 1	Fotal Mass		-,	.,,					
comisenductor device and its homegener							Amine type hardener	007 40 0	1	
		2002/05/EC (DeLIC Directive) ELL Directive 2	044/65/EUL/Dal		ative) and		Amine type hardener	827-43-0	1	
		2002/95/EC (RoHS Directive), EU Directive 2	011/65/EU (Rol	HS Recast Dire	ective) and		Amine type hardener Dicyandiamide	461-58-5	0	
EU Directive 2002/53/EC (End-of-Life Vehic ppliance with the above EU Directives has b chemical substance is absent from the list a	cles (ELV) Directive). been verified via internal design contr above, the chemical substance is NO	ols, supplier declarations, and /or analytical F an intentional ingredient in the semicondu	test data. ctor device and	d, to the best o	f Microchip		Dicyandiamide	461-58-5 Total	0 100.00	
EU Directive 2002/53/EC (End-of-Life Vehic opliance with the above EU Directives has be chemical substance is absent from the list a nology Incorporated's knowledge and beli mical substance, if any, is not below the thr ting compounds used by Microchip meet th	cles (ELV) Directive). ween verified via internal design contr above, the chemical substance is NO ef as of the date of this document, th reshold of regulatory concern for any ne UL94 V0 flammability standard for	ols, supplier declarations, and /or analytical F an intentional ingredient in the semicondu ere is no credible reason to believe that the	test data. ctor device and unavoidable in	d, to the best o apurity concent	f Microchip tration of the	487.50	Dicyandiamide Total (mg)	461-58-5 Total Chip (Die)	0 100.00 % of Total Weight	
EU Directive 2002/53/EC (End-of-Life Vehic apliance with the above EU Directives has be chemical substance is absent from the list a nnology Incorporated's knowledge and beli mical substance, if any, is not below the thr ding compounds used by Microchip meet th ://ul.com/global/eng/pages/offerings/indust protective "tubes" in which the specific pr	cles (ELV) Directive). ween verified via internal design contr above, the chemical substance is NO ef as of the date of this document, th reshold of regulatory concern for any ne UL94 V0 flammability standard for ries/chemicals/plastics/ poduct is shipped are made from polyw	ols, supplier declarations, and /or analytical F an intentional ingredient in the semicondu ere is no credible reason to believe that the regulatory scheme world-wide.	test data. ctor device and unavoidable in of databases	d, to the best o npurity concent to obtain a test	f Microchip tration of the t report at	487.50	Dicyandiamide	461-58-5 Total	0 100.00	
EU Directive 2002/53/EC (End-of-Life Vehic apliance with the above EU Directives has be chemical substance is absent from the list a nnology Incorporated's knowledge and beli mical substance, if any, is not below the thr ding compounds used by Microchip meet th //ul.com/global/eng/pages/offerings/indust protective "tubes" in which the specific pr r box and certain "reels" may be made from ochip Technology Incorporated believes th iconductor devices in their original packing nnology Incorporated cannot guarantee the ty Data Sheets provided by raw material st ided by subcontract assemblers and raw n	cles (ELV) Directive). ween verified via internal design contra- above, the chemical substance is NO of as of the date of this document, the reshold of regulatory concern for any he UL94 V0 flammability standard for ries/chemicals/plastics/ boduct is shipped are made from polyn m PVC plastic. le information in this form concerning g materials is true and correct to the completeness and accuracy of data uppliers. Supplier information is often naterial suppliers. Information is prov	ols, supplier declarations, and /or analytical F an intentional ingredient in the semicondu ere is no credible reason to believe that the regulatory scheme world-wide. plastics. You can access the UL iQTM family	test data. ctor device and unavoidable in of databases pes" used to h p Technology te listed in this ased on the ra and some infoi t of these parts	d, to the best o npurity concent to obtain a test old the packing incorporated's s form. Microch nges provided rmation may no s and the avera	f Microchip tration of the t report at g slip on the in Material ot have been ge weight of	487.50	Dicyandiamide Total (mg)	461-58-5 Total Chip (Die) 7440-21-3	0 100.00 % of Total Weight 100	7.5
EU Directive 2002/53/EC (End-of-Life Vehic apliance with the above EU Directives has to chemical substance is absent from the list a honology Incorporated's knowledge and beli mical substance, if any, is not below the thr ding compounds used by Microchip meet th ://ul.com/global/eng/pages/offerings/indust protective "tubes" in which the specific pro- r box and certain "reels" may be made from ochip Technology Incorporated believes th icconductor devices in their original packing nology Incorporated cannot guarantee the ty Data Sheets provided by raw material su- ided by subcontract assemblers and raw n cipated significant toxic metals component oon IC) in the finished parts.	cles (ELV) Directive). ween verified via internal design contra- above, the chemical substance is NO ef as of the date of this document, the reshold of regulatory concern for any the UL94 V0 flammability standard for ries/chemicals/plastics/ oduct is shipped are made from polyon m PVC plastic. the information in this form concerning g materials is true and correct to the b o completeness and accuracy of data uppliers. Supplier information is often naterial suppliers. Information is provide. These estimates do not include tra- rovide any warranty, express or impli- nology Incorporated and its subsidia	ols, supplier declarations, and /or analytical r an intentional ingredient in the semicondu ere is no credible reason to believe that the regulatory scheme world-wide. plastics. You can access the UL iQTM family rinyl chloride (PVC) plastic. "Window envelo p substances restricted by RoHS in Microchi best of its knowledge and belief, as of the da in this form because it has been compiled b protected from disclosure as trade secrets ided only as estimates of the average weigh	test data. ctor device and unavoidable in of databases pes" used to h p Technology I te listed in this ased on the ra and some inford to f these parts materials conta- in this declara	d, to the best o apurity concent to obtain a test old the packing incorporated's a form. Microch nges provided rmation may no s and the avera ained within sil ution. The exclu	f Microchip tration of the t report at g slip on the in Material ot have been ige weight of licon devices usive, limited		Dicyandiamide Total (mg) Doped Silicon	461-58-5 Total Chip (Die) 7440-21-3 Total	0 100.00 % of Total Weight 100 100.00	7.5
EU Directive 2002/53/EC (End-of-Life Vehic apliance with the above EU Directives has be chemical substance is absent from the list a honology Incorporated's knowledge and beli mical substance, if any, is not below the thr ding compounds used by Microchip meet th //ul.com/global/eng/pages/offerings/indust protective "tubes" in which the specific pri- er box and certain "reels" may be made from oochip Technology Incorporated believes the iconductor devices in their original packing honology Incorporated cannot guarantee the sty Data Sheets provided by raw material vided by subcontract assemblers and raw in cipated significant toxic metals component ion IC in the finished parts. oochip Technology Incorporated does not p fuct warranties provided by Microchip Tech rided in Microchip's quotations, sales order oochip disclaims any duty to notify users of	cles (ELV) Directive). ween verified via internal design contra above, the chemical substance is NO ef as of the date of this document, the reshold of regulatory concern for any ne UL94 V0 flammability standard for ries/chemicals/plastics/ oduct is shipped are made from polyon m PVC plastic. we information in this form concerning g materials is true and correct to the la completeness and accuracy of data uppliers. Supplier information is often naterial suppliers. Information is often raterial suppliers. Information is often raterial suppliers. Information is prov s. These estimates do not include tra- rovide any warranty, express or impli- nology Incorporated and its subsidia- acknowledgement, and invoices. updates or changes to Material Conto- or third parties as a result of the user:	ols, supplier declarations, and /or analytical r an intentional ingredient in the semicondu- ere is no credible reason to believe that the regulatory scheme world-wide. plastics. You can access the UL iQTM family rinyl chloride (PVC) plastic. "Window envelo g substances restricted by RoHS in Microchi pest of its knowledge and belief, as of the da in this form because it has been compiled b protected from disclosure as trade secrets ided only as estimates of the average weigh cc levels of dopants, metals, and non-metal ed, with respect to the information provided ries are contained in Microchip's standard t ent Declarations and shall not be liable for a s' reliance on the information in Material Con	test data. ctor device and unavoidable in of databases pes" used to h p Technology I te listed in this ased on the ra and some infoi to of these parts materials conta- in this declara erms and cond ny damages, d	d, to the best o opurity concent to obtain a test old the packing incorporated's is form. Microch nges provided rmation may no s and the avera ained within sil atton. The exclu- litions of sale.	f Microchip tration of the t report at g slip on the in Material ot have been ge weight of licon devices usive, limited These are		Dicyandiamide Total (mg) Doped Silicon (mg) Total	461-58-5 Total Chip (Die) 7440-21-3 Total Wire Bond 7440-57-5 Total	0 100.00 % of Total Weight 100 100.00 % of Total Weight	0.2
EU Directive 2002/53/EC (End-of-Life Vehic spliance with the above EU Directives has be shemical substance is absent from the list a anology Incorporated's knowledge and beli mical substance, if any, is not below the thr ling compounds used by Microchip meet th //ul.com/global/eng/pages/offerings/indust protective "tubes" in which the specific pr r box and certain "reels" may be made froi ochip Technology Incorporated believes the iconductor devices in their original packing nology Incorporated cannot guarantee the ty Data Sheets provided by raw material st ided by subcontract assemblers and raw na ipated significant toxic metals component conlip Technology Incorporated does not p fuct warranties provided by Microchip Tect ided in Microchip's quotations, sales order ochip Technology Incorporated does not p fuct warranties grovided by to notify users of sequential or otherwise, suffered by users of	cles (ELV) Directive). ween verified via internal design contra above, the chemical substance is NO ef as of the date of this document, the reshold of regulatory concern for any ne UL94 V0 flammability standard for ries/chemicals/plastics/ oduct is shipped are made from polyon m PVC plastic. we information in this form concerning g materials is true and correct to the la completeness and accuracy of data uppliers. Supplier information is often naterial suppliers. Information is often raterial suppliers. Information is often raterial suppliers. Information is prov s. These estimates do not include tra- rovide any warranty, express or impli- nology Incorporated and its subsidia- acknowledgement, and invoices. updates or changes to Material Conto- or third parties as a result of the user:	ols, supplier declarations, and /or analytical r an intentional ingredient in the semicondu- ere is no credible reason to believe that the regulatory scheme world-wide. plastics. You can access the UL iQTM family rinyl chloride (PVC) plastic. "Window envelo g substances restricted by RoHS in Microchi pest of its knowledge and belief, as of the da in this form because it has been compiled b protected from disclosure as trade secrets ided only as estimates of the average weigh cc levels of dopants, metals, and non-metal ed, with respect to the information provided ries are contained in Microchip's standard t ent Declarations and shall not be liable for a s' reliance on the information in Material Con	test data. ctor device and unavoidable in of databases pes" used to h p Technology I te listed in this ased on the ra and some infoi to of these parts materials conta- in this declara erms and cond ny damages, d	d, to the best o opurity concent to obtain a test old the packing incorporated's is form. Microch nges provided rmation may no s and the avera ained within sil atton. The exclu- litions of sale.	f Microchip tration of the t report at g slip on the in Material ot have been ge weight of licon devices usive, limited These are		Dicyandiamide Total (mg) Doped Silicon (mg) Total	461-58-5 Total Chip (Die) 7440-21-3 Total Wire Bond 7440-57-5	0 100.00 % of Total Weight 100 % of Total Weight 100	0.2
EU Directive 2002/53/EC (End-of-Life Vehic apliance with the above EU Directives has be chemical substance is absent from the list a honology Incorporated's knowledge and beli mical substance, if any, is not below the thr ding compounds used by Microchip meet the //ul.com/global/eng/pages/offerings/indust protective "tubes" in which the specific pro- rr box and certain "reels" may be made frou ochip Technology Incorporated believes the iconductor devices in their original packing nology Incorporated cannot guarantee the ty Data Sheets provided by raw material st ided by subcontract assemblers and raw na- ipated significant toxic metals component con IC) in the finished parts. ochip Technology Incorporated does not p fuct warranties provided by Microchip Tect- rided in Microchip's quotations, sales order ochip disclaims any duty to notify users of sequential or otherwise, suffered by users of	cles (ELV) Directive). ween verified via internal design contra above, the chemical substance is NO ef as of the date of this document, the reshold of regulatory concern for any ne UL94 V0 flammability standard for ries/chemicals/plastics/ oduct is shipped are made from polyon m PVC plastic. we information in this form concerning g materials is true and correct to the la completeness and accuracy of data uppliers. Supplier information is often naterial suppliers. Information is often raterial suppliers. Information is often raterial suppliers. Information is prov s. These estimates do not include tra- rovide any warranty, express or impli- nology Incorporated and its subsidia- acknowledgement, and invoices. updates or changes to Material Conto- or third parties as a result of the user:	ols, supplier declarations, and /or analytical r an intentional ingredient in the semicondu- ere is no credible reason to believe that the regulatory scheme world-wide. plastics. You can access the UL iQTM family rinyl chloride (PVC) plastic. "Window envelo g substances restricted by RoHS in Microchi pest of its knowledge and belief, as of the da in this form because it has been compiled b protected from disclosure as trade secrets ided only as estimates of the average weigh cc levels of dopants, metals, and non-metal ed, with respect to the information provided ries are contained in Microchip's standard t ent Declarations and shall not be liable for a s' reliance on the information in Material Con	test data. ctor device and unavoidable in of databases pes" used to h p Technology I te listed in this ased on the ra and some infoi to of these parts materials conta- in this declara erms and cond ny damages, d	d, to the best o opurity concent to obtain a test old the packing incorporated's is form. Microch nges provided rmation may no s and the avera ained within sil atton. The exclu- liticons of sale.	f Microchip tration of the t report at g slip on the in Material ot have been ge weight of licon devices usive, limited These are	13.00	Dicyandiamide Total (mg) Doped Silicon (mg) Total Doped Gold	461-58-5 Total Chip (Die) 7440-21-3 Total Wire Bond 7440-57-5 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for	0 100.00 % of Total Weight 100 100.00 % of Total Weight 100	0.2

6,496.750

Semiconductor Device 1	Type: SP 28 (Lead) SPD	IP .300" (M3/MD)		nation Base A pper Alloy (C				geneous Materials: . pc boards, displays)	JEDEC 97 Product Markin and/or Pkg. Labeling e3
Basic Substance	CAS Number	"Contained In" Sub-Component	% Total Weight	mg/part	ppm	1665.83	(mg) Total	Mold Compound	% ot Total Weight	79.8
Fused Silica	60676-86-0	Mold Compound	57,456	1199.394	574,560		Eused Silica	60676-86-0	72.00	1
Metal Hydro Oxide	Trade Secret	Mold Compound	8.778	183.241	87.780		Metal Hydro Oxide	Trade Secret	11.00	
Epoxy Resin	Trade Secret	Mold Compound	5.586	116.608	55,860		Epoxy Resin	Trade Secret	7.00	
Phenol Resin	Trade Secret	Mold Compound	5.586	116.608	55,860		Phenol Resin	Trade Secret	7.00	
SiO2	14808-60-7	Mold Compound	1.995	41.646	19,950		SiO2	14808-60-7	2.50	
Carbon Black	1333-86-4	Mold Compound	0.399	8.329	3,990		Carbon Black	1333-86-4	0.50	
Copper	7440-50-8	Lead Frame	9.984	208.409	99,837			Total	100.00	
Iron	7439-89-6	Lead Frame	0.246	5.126	2,456	218.14	(mg) Total	Lead Frame	% of Total Weight	10.45
Silver	7440-22-4	Lead Frame	0.199	4.156	1,991		Copper	7440-50-8	95.54	
Zinc Phosphorous	7440-66-6 7723-14-0	Lead Frame Lead Frame	0.013	0.273	131 86		Iron Silver	7439-89-6 7440-22-4	2.35	
Pilospilotous Polvimide	25038-81-7	Lead Frame	0.009	0.180	215		Zinc	7440-22-4 7440-66-6	0.13	
Poly - ethylene – terephthalate	25038-59-9	Lead Frame	0.022	0.397	190		Phosphorous	7723-14-0	0.08	
NBR	9003-18-3	Lead Frame	0.004	0.073	35		Theophorodo	Total	100.00	1
Bismaleimide	79922-55-7	Lead Frame	0.003	0.063	30	1.04	(mg) Total	Lead Lock Tape	% of Total Weight	0.05
Phenol resin	28453-20-5 / 9016-83-5		0.003	0.063	30		Polyimide	25038-81-7	43.00	0.00
Silver	7440-22-4	Die Attach	0.550	11.485	5,502		Poly - ethylene - terephthalate	25038-59-9	38.00	
Epoxy Resin	9003-36-5	Die Attach	0.110	2.297	1,100		NBR	9003-18-3	7.00	
Diluent	3101-60-8	Die Attach	0.055	1.148	550		Bismaleimide	79922-55-7	6.00	
Phenolic hardener	Trade secret	Die Attach	0.022	0.459	220		Phenol resin	28453-20-5 / 9016-83-5	6.00	
Amine type hardener	827-43-0	Die Attach	0.011	0.230	110			Total	100.00	
Dicyandiamide	461-58-5	Die Attach	0.002	0.038	18	15.66	(mg) Total	Die Attach	% of Total Weight	0.75
Silicon	7440-21-3	Chip (Die)	7.500	156.563	75,000		Silver	7440-22-4	73	
Gold	7440-57-5	Wire Bond	0.200	4.175	2,000		Epoxy Resin	9003-36-5	15	
Tin	7440-31-5	Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	1.250	26.094	12,500		Diluent	3101-60-8	7	
Tin	2.0875	g Total Mass	100.000	2,087.500	1,000,000					
Tin semiconductor device and its homogenous materials co tive 2002/53/EC (End-of-Life Vehicles (ELV) Directive).	2.0875 mply with EU Directive 2002/95	TOTALS: g Total Mass /EC (RoHS Directive), EU Directive 2011/65/EU (R	100.000	2,087.500	1,000,000		Diluent Phenolic hardener	3101-60-8 Trade secret	7 3	
Tin emiconductor device and its homogenous materials co ive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). liance with the above EU Directives has been verified vi emical substance is absent from the list above, the che iorated's knowledge and belief as of the date of this doc	2.0875 mply with EU Directive 2002/95 a internal design controls, sup mical substance is NOT an inte ument, there is no credible rea	TOTALS: <u>g Total Mass</u> /EC (RoHS Directive), EU Directive 2011/65/EU (R plier declarations, and /or analytical test data. ntional ingredient in the semiconductor device a son to believe that the unavoidable impurity con	100.000 CoHS Recast Dir and, to the best	2,087.500 rective) and wi	1,000,000 th EU echnology	156.56	Diluent Phenolic hardener Amine type hardener	3101-60-8 Trade secret 827-43-0 461-58-5	7 3 1 0	7.5
Tin emiconductor device and its homogenous materials co ive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). liance with the above EU Directives has been verified vi emical substance is absent from the list above, the che is absent from the list above, the che norated's knowledge and belief as of the date of this doo not below the threshold of regulatory concern for any ng compounds used by Microchip meet the UL94 V0 flar	2.0875 mply with EU Directive 2002/95 a internal design controls, sup mical substance is NOT an inte ument, there is no credible rea regulatory scheme world-wide. mmability standard for plastics	TOTALS: <u>g Total Mass</u> /EC (RoHS Directive), EU Directive 2011/65/EU (R plier declarations, and /or analytical test data. ntional ingredient in the semiconductor device a son to believe that the unavoidable impurity con	100.000 toHS Recast Dir nd, to the best icentration of th	2,087.500 rective) and wi of Microchip T ne chemical sul	1,000,000 th EU echnology	156.56	Diluent Phenolic hardener Amine type hardener Dicyandiamide	3101-60-8 Trade secret 827-43-0 461-58-5 Total	7 3 1 0 100.00	7.5
Tin semiconductor device and its homogenous materials co tive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). Jliance with the above EU Directives has been verified vi nemical substance is absent from the list above, the che porated's knowledge and belief as of the date of this doc s not below the threshold of regulatory concern for any ing compounds used by Microchip meet the UL94 V0 flar /ul.com/global/eng/pages/offerings/industries/chemicals protective "tubes" in which the specific product is shippe	2.0875 mply with EU Directive 2002/95 a internal design controls, sup mical substance is NOT an inte ument, there is no credible rea regulatory scheme world-wide. nmability standard for plastics /plastics/	TOTALS: <u>g Total Mass</u> /EC (RoHS Directive), EU Directive 2011/65/EU (R plier declarations, and /or analytical test data. Intional ingredient in the semiconductor device a son to believe that the unavoidable impurity con . You can access the UL iQTM family of database	100.000 toHS Recast Dir and, to the best centration of th es to obtain a te	2,087.500 rective) and wi of Microchip T re chemical sul st report at	1,000,000 th EU echnology ostance, if	156.56	Diluent Phenolic hardener Amine type hardener Dicyandiamide Total (mg)	3101-60-8 Trade secret 827-43-0 461-58-5 Total Chip (Die)	7 3 1 0 100.00 % of Total Weight	7.5
Tin semiconductor device and its homogenous materials co tive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). oblance with the above EU Directives has been verified vi nemical substance is absent from the list above, the chel porated's knowledge and belief as of the date of this doc s not below the threshold of regulatory concern for any ng compounds used by Microchip meet the UL94 V0 flar (ul.com/global/eng/pages/offerings/industries/chemicals rotective "tubes" in which the specific product is shippe ertain "reels" may be made from PVC plastic. chip Technology Incorporated believes the information i i original packing materials is true and correct to the be leteness and accuracy of data in this form because it ha lier information is often protected from disclosure as tra nation is provided only as estimates of the average weig	2.0875 mply with EU Directive 2002/95 a internal design controls, sup mical substance is NOT an inte cument, there is no credible rea regulatory scheme world-wide. mmability standard for plastics /plastics/ ed are made from polyvinyl chlu in this form concerning substa to f its knowledge and belief, s been compiled based on the de secrets and some informatii ht of these parts and the avera	TOTALS: g Total Mass JEC (RoHS Directive), EU Directive 2011/65/EU (R plier declarations, and /or analytical test data. ntional ingredient in the semiconductor device a son to believe that the unavoidable impurity con . You can access the UL iQTM family of database bride (PVC) plastic. "Window envelopes" used to nces restricted by ROHS in Microchip Technolog as of the date listed in this form. Microchip Tech ranges provided in Material Safety Data Sheets p on may not have been provided by subcontract a ge weight of anticipated significant toxic metals	100.000 toHS Recast Dir centration of th es to obtain a te o hold the packi y Incorporated' nology Incorpo rovided by raw assemblers and	2,087.500 rective) and wi of Microchip T te chemical sul st report at ng slip on the 's semiconduc rated cannot g material supp raw material supp	1,000,000 th EU echnology ostance, if outer box cor devices uarantee the liers. uppliers.	4.18	Diluent Phenolic hardener Amine type hardener Dicyandiamide Total (mg)	3101-60-8 Trade secret 827-43-0 461-58-5 Total Chip (Die) 7440-21-3	7 3 1 0 100.00 % of Total Weight 100	7.5
Tin emiconductor device and its homogenous materials co ive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). Iliance with the above EU Directives has been verified vi emical substance is absent from the list above, the che orated's knowledge and belief as of the date of this doc s not below the threshold of regulatory concern for any ing compounds used by Microchip meet the UL94 V0 flar ul.com/global/eng/pages/offerings/industries/chemicals rotective "tubes" in which the specific product is shippe ertain "reels" may be made from PVC plastic. chip Technology Incorporated believes the information i ir original packing materials is true and correct to the be leteness and accuracy of data in this form because it ha ier information is often protected from disclosure as tra hation is provided only as estimates of the average weig le trace levels of dopants, metals, and non-metal materia chip Technology Incorporated does not provide any wain thes provided by Microchip Technology Incorporated a	2.0875 mply with EU Directive 2002/95 a internal design controls, sup mical substance is NOT an inte ument, there is no credible rea regulatory scheme world-wide. nmability standard for plastics /plastics/ ed are made from polyvinyl chlu- in this form concerning substa ist of its knowledge and belief, s been compiled based on the de secrets and some informati- ht of these parts and the avera als contained within silicon dev rranty, express or implied, with	TOTALS: g Total Mass JEC (RoHS Directive), EU Directive 2011/65/EU (R plier declarations, and /or analytical test data. ntional ingredient in the semiconductor device a son to believe that the unavoidable impurity con . You can access the UL iQTM family of database oride (PVC) plastic. "Window envelopes" used to nces restricted by ROHS in Microchip Technolog as of the date listed in this form. Microchip Technolog as of the date listed in Material Safety Data Sheets p on may not have been provided by subcontract a ge weight of anticipated significant toxic metals rices (silicon IC) in the finished parts. respect to the information provided in this decla	100.000 toHS Recast Dir ind, to the best iccentration of th es to obtain a te b hold the packi y Incorporated' inclogy Incorpo ircvided by raw assemblers and components. T	2,087.500 rective) and wi of Microchip T he chemical sul st report at ng slip on the s semiconduci rated cannot g material supp l raw material s hese estimates	1,000,000 th EU echnology ostance, if outer box tor devices uarantee the liers. uppliers. a do not product		Diluent Phenolic hardener Amine type hardener Dicyandiamide Total (mg) Doped Silicon	3101-60-8 Trade secret 827-43-0 461-58-5 Total Chip (Die) 7440-21-3 Total	7 3 1 0 100.00 % of Total Weight 100 100.00	
Tin semiconductor device and its homogenous materials co	2.0875 mply with EU Directive 2002/95 a internal design controls, sup mical substance is NOT an inte regulatory scheme world-wide. nmability standard for plastics /plastics/ ad are made from polyvinyl chlo in this form concerning substa ist of its knowledge and belief, s been compiled based on the de secrets and some informati- ht of these parts and the avera als contained within silicon dev rranty, express or implied, with nd its subsidiaries are containe anges to Material Content Decl users' reliance on the informati-	TOTALS: g Total Mass IEC (RoHS Directive), EU Directive 2011/65/EU (R plier declarations, and /or analytical test data. Intional ingredient in the semiconductor device a son to believe that the unavoidable impurity con . You can access the UL iQTM family of database bride (PVC) plastic. "Window envelopes" used to inces restricted by RoHS in Microchip Technolog as of the date listed in this form. Microchip Technolog as of the date listed in this form. Microchip Technolog as of the date listed in this form. Microchip Tech ranges provided in Material Safety Data Sheets p on may not have been provided by subcontract a ge weight of anticipated significant toxic metals rices (silicon IC) in the finished parts. respect to the information provided in this decla d in Microchip's standard terms and conditions arations and shall not be liable for any damages,	100.000 toHS Recast Dir centration of th es to obtain a te o hold the packi y Incorporated' nology Incorpo rovided by raw assemblers and components. T aration. The exc of sale. These a	2,087.500 rective) and wi of Microchip T e chemical sul ist report at ng slip on the 's semiconduc rated cannot g material supp raw material supp raw materi	1,000,000 th EU echnology ostance, if outer box sor devices uarantee the iers. uppliers. s do not product Microchip's tial or		Diluent Phenolic hardener Amine type hardener Dicyandiamide Total (mg) Doped Silicon (mg) Total	3101-60-8 Trade secret 827-43-0 461-58-5 Total Chip (Die) 7440-21-3 Total Wire Bond 7440-57-5 Total	7 3 1 0 100.00 % of Total Weight 100 100.00	
Tin emiconductor device and its homogenous materials co ive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). liance with the above EU Directives has been verified vi emical substance is absent from the list above, the chei orated's knowledge and belief as of the date of this doc s not below the threshold of regulatory concern for any ng compounds used by Microchip meet the UL94 V0 flar ul.com/global/eng/pages/offerings/industries/chemicals rotective "tubes" in which the specific product is shippe artain "reels" may be made from PVC plastic. chip Technology Incorporated believes the information is roriginal packing materials is true and correct to the be leteness and accuracy of data in this form because it ha hation is provided only as estimates of the average weig le trace levels of dopants, metals, and non-metal materia chip Technology Incorporated does not provide any wai nties, sales order acknowledgement, and invoices. chip disclaims any duty to notify users of updates or ch	2.0875 mply with EU Directive 2002/95 a internal design controls, sup mical substance is NOT an inte regulatory scheme world-wide. nmability standard for plastics /plastics/ ad are made from polyvinyl chlo in this form concerning substa ist of its knowledge and belief, s been compiled based on the de secrets and some informati- ht of these parts and the avera als contained within silicon dev rranty, express or implied, with nd its subsidiaries are containe anges to Material Content Decl users' reliance on the informati-	TOTALS: g Total Mass IEC (RoHS Directive), EU Directive 2011/65/EU (R plier declarations, and /or analytical test data. Intional ingredient in the semiconductor device a son to believe that the unavoidable impurity con . You can access the UL iQTM family of database bride (PVC) plastic. "Window envelopes" used to inces restricted by RoHS in Microchip Technolog as of the date listed in this form. Microchip Technolog as of the date listed in this form. Microchip Technolog as of the date listed in this form. Microchip Tech ranges provided in Material Safety Data Sheets p on may not have been provided by subcontract a ge weight of anticipated significant toxic metals rices (silicon IC) in the finished parts. respect to the information provided in this decla d in Microchip's standard terms and conditions arations and shall not be liable for any damages,	100.000 toHS Recast Dir centration of th es to obtain a te o hold the packi y Incorporated' nology Incorpo rovided by raw assemblers and components. T aration. The exc of sale. These a	2,087.500 rective) and wi of Microchip T e chemical sul ist report at ng slip on the 's semiconduc rated cannot g material supp raw material supp raw materi	1,000,000 th EU echnology ostance, if outer box sor devices uarantee the iers. uppliers. s do not product Microchip's tial or		Diluent Phenolic hardener Amine type hardener Dicyandiamide Total (mg) Doped Silicon (mg) Total	3101-60-8 Trade secret 827-43-0 461-58-5 Total Chip (Die) 7440-21-3 Total Wire Bond 7440-57-5	7 3 1 0 100.00 % of Total Weight 100 100.00	

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	e: L 28 (Lead) PLCC	(L4)		nation Base A pper Alloy (C				nogeneous Materials: (e.g. pc boards, displa		JEDEC 97 Product Markin and/or Pkg. Labeling e3
		"Contained In"	% Iotal			818.39	(mg) Total	Mold Compound	% ot Total Weight	71.63
Basic Substance	CAS Number	Sub-Component	Weight	mg/part	ppm	010100	(U)	• • • •		
Silica, vitreous	60676-86-0	Mold Compound	60.886	695.635	608,855		Silica, vitreous	60676-86-0	85.00	
Epoxy Resin (No bromine, No diantimony trioxide)	Trade Secret	Mold Compound	4.387	50.127	43,873		Epoxy Resin	Trade Secret	6.13	
Phenolic Resin (No Br / CL SbO3, No diantimony trioxide)	Trade Secret	Mold Compound	4.387	50.127	43,873		Phenolic Resin	Trade Secret	6.13	
Epoxy, Cresol Novolac	29690-82-2	Mold Compound	1.755	20.051	17,549		Epoxy, Cresol Novolac	29690-82-2	2.45	
Carbon Black	1333-86-4	Mold Compound	0.215	2.455	2,149		Carbon Black	1333-86-4	0.30	
Copper	7440-50-8	Lead Frame	25.115	286.945	251,148			Total	100.00	
Silver	7440-22-4	Lead Frame	0.488	5.578	4,883	292.83	(mg) Total	Lead Frame	% of Total Weight	25.63
Zirconium	7440-67-7	Lead Frame	0.026	0.293	256		Copper	7440-50-8	97.99	
Manganese	7439-96-5	Lead Frame	0.001	0.015	13		Silver	7440-22-4	1.91	
Silver	7440-22-4	Die Attach	0.163	1.860	1,628		Zirconium	7440-67-7	0.10	
Epoxy resin	Trade Secret	Die Attach	0.051	0.578	506		Manganese	7439-96-5	0.01	
Gamma-butyrolactone	96-48-0	Die Attach	0.007	0.075	66			Total	100.00	
Silicon	7440-21-3	Chip (Die)	1.210	13.825	12,100	2.51	(mg) Total	Die Attach	% of Total Weight	0.22
Gold	7440-57-5	Wire Bond	0.070	0.800	700		Silver	7440-22-4	74	
Tin	7440-31-5 Plating	on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	1.240	14.167	12,400		Epoxy resin	Trade Secret	23	
		TOTALS:	100.000	1,142.530	1,000,000		Gamma-butvrolactone	96-48-0	3	
	1.1425 g To	tal Mass						Total	100.00	u i
tive 2002/53/EC (End-of-Life Vehicles (ELV) Directive).										
chemical substance is absent from the list above, the chemic rporated's knowledge and belief as of the date of this docum	al substance is NOT an inte ent, there is no credible re	entional ingredient in the semiconductor device and ason to believe that the unavoidable impurity concer					Doped Silicon	7440-21-3 Total	100 100.00]
chemical substance is absent from the list above, the chemic rporated's knowledge and belief as of the date of this docum is not below the threshold of regulatory concern for any regu- ding compounds used by Microchip meet the UL94 V0 flamma //ul.com/global/eng/pages/offerings/industries/chemicals/pla	al substance is NOT an inte ent, there is no credible re- llatory scheme world-wide ability standard for plastics stics/	ntional ingredient in the semiconductor device and ason to believe that the unavoidable impurity concer . You can access the UL iQTM family of databases t	ntration of the o obtain a test	chemical subs	stance, if	0.80	Doped Silicon (mg) Total			0.07
npliance with the above EU Directives has been verified via in chemical substance is absent from the list above, the chemic. prorated's knowledge and belief as of the date of this docum , is not below the threshold of regulatory concern for any regulating compounds used by Microchip meet the UL94 V0 flamm. :/ul.com/global/eng/pages/offerings/industries/chemicals/pla protective "tubes" in which the specific product is shipped a ain "reels" may be made from PVC plastic.	al substance is NOT an inte ent, there is no credible re- llatory scheme world-wide ability standard for plastics stics/	ntional ingredient in the semiconductor device and ason to believe that the unavoidable impurity concer . You can access the UL iQTM family of databases t	ntration of the o obtain a test	chemical subs	stance, if	0.80		Total Wire Bond 7440-57-5	100.00 % of Total Weight 100	0.07
chemical substance is absent from the list above, the chemic prorated's knowledge and belief as of the date of this docum is not below the threshold of regulatory concern for any regu- ding compounds used by Microchip meet the UL94 V0 flamm. ://ul.com/global/eng/pages/offerings/industries/chemicals/pla protective "tubes" in which the specific product is shipped a ain "reels" may be made from PVC plastic. rrochip Technology Incorporated believes the information in th r original packing materials is true and correct to the best of i pleteness and accuracy of data in this form because it has be rmation is often protected from disclosure as trade secrets and vided only as estimates of the average weight of these parts as	al substance is NOT an inte ent, there is no credible re- llatory scheme world-wide ability standard for plastics stics/ re made from polyvinyl ch his form concerning substa ts knowledge and belief, ar en compiled based on the nd some information may i nd the average weight of a	entional ingredient in the semiconductor device and ason to believe that the unavoidable impurity concer- s. You can access the UL iQTM family of databases t loride (PVC) plastic. "Window envelopes" used to he ances restricted by RoHS in Microchip Technology In s of the date listed in this form. Microchip Technology for ranges provided in Material Safety Data Sheets pro- tot have been provided by subcontract assemblers a inicipated significant toxic metals components. The	ntration of the o obtain a test old the packing ncorporated's i yy Incorporate vided by raw m and raw materi	chemical subs report at g slip on the ou semiconducto d cannot guara aterial supplie al suppliers. Ir	stance, if uter box and r devices in antee the ers. Supplier nformation is	0.80	(mg) Total	Total Wire Bond	100.00 % of Total Weight	0.07
chemical substance is absent from the list above, the chemic orporated's knowledge and belief as of the date of this docum , is not below the threshold of regulatory concern for any regu ding compounds used by Microchip meet the UL94 V0 flamm: c://ul.com/global/eng/pages/offerings/industries/chemicals/pla protective "tubes" in which the specific product is shipped a	al substance is NOT an inte ent, there is no credible re- llatory scheme world-wide ability standard for plastics stics/ re made from polyvinyl ch his form concerning substa ts knowledge and belief, ar een compiled based on the d some information may in nd the average weight of a con devices (silicon IC) in ty, express or implied, with	entional ingredient in the semiconductor device and ason to believe that the unavoidable impurity concer- s. You can access the UL iQTM family of databases t loride (PVC) plastic. "Window envelopes" used to he ances restricted by RoHS in Microchip Technology In a of the date listed in this form. Microchip Technology ranges provided in Material Safety Data Sheets pro- tor have been provided by subcontract assemblers a micipated significant toxic metals components. The the finished parts.	ntration of the o obtain a test old the packing ncorporated's i yy Incorporate vided by raw m and raw materi ase estimates c	chemical subs report at g slip on the ou semiconducto d cannot guara aterial suppliers. Ir lo not include sive, limited pi	stance, if uter box and r devices in antee the ers. Supplier formation is trace levels roduct	0.80	(mg) Total	Total Wire Bond 7440-57-5	100.00 % of Total Weight 100	0.07
chemical substance is absent from the list above, the chemic rporated's knowledge and belief as of the date of this docum is not below the threshold of regulatory concern for any regu- ding compounds used by Microchip meet the UL94 V0 flamm: //ul.com/global/eng/pages/offerings/industries/chemicals/pla protective "tubes" in which the specific product is shipped a ain "reels" may be made from PVC plastic. ochip Technology Incorporated believes the information in th original packing materials is true and correct to the best of i pleteness and accuracy of data in this form because it has be rmation is often protected from disclosure as trade secrets and optimation is often protected from disclosure as trade secrets and optimation is often protected from disclosure as trade secrets and optimation is often protected from disclosure as trade secrets and optimation is often protected from the parties as a revisit of the separts optimation is often protected does not provide any warran ranties provided by Microchip Technology Incorporated and i tations, sales order acknowledgement, and invoices. ochip disclaims any duty to notify users of updates or chang rwise, suffered by users or third parties as a result of the use	al substance is NOT an inte ent, there is no credible re- ulatory scheme world-wide ability standard for plastics stics/ re made from polyvinyl ch his form concerning substa ts knowledge and belief, ar een compiled based on the ad some information may i nd the average weight of a con devices (silicon IC) in ty, express or implied, with ts subsidiaries are contain es to Material Content Dec	entional ingredient in the semiconductor device and ason to believe that the unavoidable impurity concer- s. You can access the UL iQTM family of databases t ioride (PVC) plastic. "Window envelopes" used to be ances restricted by RoHS in Microchip Technology In s of the date listed in this form. Microchip Technolog ranges provided in Material Safety Data Sheets pro- tot have been provided by subcontract assemblers a thicipated significant toxic metals components. The the finished parts. In respect to the information provided in this declarat ed in Microchip's standard terms and conditions of larations and shall not be liable for any damages, di	ntration of the o obtain a test old the packing ncorporated's gy Incorporated vided by raw m and raw materi ese estimates o tion. The exclu sale. These are rect or indirect	chemical subs report at g slip on the ou semiconducto d cannot guara taterial supplier al supplieral al suppliera not include sive, limited pu e provided in N c, consequentia	stance, if Iter box and r devices in antee the ers. Supplier formation is trace levels roduct licrochip's al or		(mg) Total	Total Wire Bond 7440-57-5 Total Plating on external leads (pins) - Matte Tin/ annealed at 150°C for 1 hour 7440-31-5	100.00 % of Total Weight 100 100.00 % of Total Weight	
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ЛІСКОСНІР				nation Base A pper Alloy (C				geneous Materials: g. pc boards, displays)	JEDEC 97 Produ Marking and/or Pkg. Labeling e3
Semiconductor Device Type	e: NHE 32 (Lead	d) PLCC (P3)								
Basic Substance	CAS Number	"Contained In" Sub-Component	% Total Weight	mg/part	ppm	677.40	(mg) Total	Mold Compound	% ot Total Weight	60
Silica, vitreous	60676-86-0	Mold Compound	51.000	575.790	510,000		Silica, vitreous	60676-86-0	85.00	
Epoxy Resin (No bromine, No diantimony trioxide)	Trade Secret	Mold Compound	3.675	41.491	36.750		Epoxy Resin	Trade Secret	6.13	
Phenolic Resin (No Br / CL SbO3, No diantimony trioxide)	Trade Secret	Mold Compound	3.675	41.491	36,750		Phenolic Resin	Trade Secret	6.13	
Epoxy, Cresol Novolac	29690-82-2	Mold Compound	1.470	16.596	14,700		Epoxy, Cresol Novolac	29690-82-2	2.45	
Carbon Black	1333-86-4	Mold Compound	0.180	2.032	1,800		Carbon Black	1333-86-4	0.30	
Copper (Cu)	7440-50-8	Lead Frame	29.760	335.990	297,600			Total	100.00	•
Nickle (Ni)	7440-02-0	Lead Frame	1.280	14.451	12,800	361.28	(mg) Total	Lead Frame	% of Total Weight	32
Silicon (Si)	7440-21-3	Lead Frame	0.320	3.613	3,200		Copper (Cu)	7440-50-8	93.00	
Magnesium (Mg)	7439-95-4	Lead Frame	0.064	0.723	640		Nickle (Ni)	7440-02-0	4.00	
Silver (Ag)	7440-22-4	Lead Frame	0.576	6.503	5,760		Silicon (Si)	7440-21-3	1.00	
Silver (Ag)	7440-22-4	Die Attach	0.064	0.723	640		Magnesium (Mg)	7439-95-4	0.20	
Epoxy Resin	Trade Secret	Die Attach	0.014	0.154	136		Silver (Ag)	7440-22-4	1.80	
Copper (Cu)	7440-50-8	Die Attach	0.002	0.027	24			Total	100.00	2
Silicon	7440-21-3	Chip (Die)	4.820	54.418	48.200	0.90	(mg) Total	Die Attach	% of Total Weight	0.08
Gold	7440-57-5	Wire Bond	0.100	1,129	1.000		Silver (Ag)	7440-22-4	80	
Tin	7440-31-5	Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	3.000	33.870	30.000		Epoxy Resin	Trade Secret	17	
	110010	TOTALS:	100.000	1,129.000	1.000.000		Copper (Cu)	7440-50-8	3	
	1 1 2 0 0	g Total Mass		,	,,			Total	100.00	J
			J (RoHS Recas	st Directive) an	d with EU	54.42	Total (mg)	Chip (Dia)	% of Total Weight	4 82
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). pliance with the above EU Directives has been verified via inte	with EU Directive 200 rnal design controls,	2/95/EC (RoHS Directive), EU Directive 2011/65/EU supplier declarations, and /or analytical test data.				54.42	Total (mg) Doped Silicon	Chip (Die) 7440-21-3 Total	% of Total Weight 100 100.00	4.82
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). pliance with the above EU Directives has been verified via inte themical substance is absent from the list above, the chemical mology Incorporated's knowledge and belief as of the date of th nical substance, if any, is not below the threshold of regulatory ling compounds used by Microchip meet the UL94 V0 flammab	with EU Directive 200 rnal design controls, substance is NOT ar his document, there r concern for any reg ility standard for plas	295/EC (RoHS Directive), EU Directive 2011/65/EU supplier declarations, and /or analytical test data. In intentional ingredient in the semiconductor devic is no credible reason to believe that the unavoidat ulatory scheme world-wide.	e and, to the b le impurity co	best of Microch	nip the	54.42	,	7440-21-3	100	0.1
s semiconductor device and its homogenous materials comply active 2002/53/EC (End-of-Life Vehicles (ELV) Directive). npliance with the above EU Directives has been verified via inter chemical substance is absent from the list above, the chemical shology Incorporated's knowledge and belief as of the date of the mical substance, if any, is not below the threshold of regulatory ding compounds used by Microchip meet the UL94 V0 flammab s://ul.com/global/eng/pages/offerings/industries/chemicals/plasti e protective "tubes" in which the specific product is shipped are and certain "reels" may be made from PVC plastic.	with EU Directive 200 rnal design controls, substance is NOT ar his document, there i r concern for any reg ility standard for plas ics/	295/EC (RoHS Directive), EU Directive 2011/65/EU supplier declarations, and /or analytical test data. In intentional ingredient in the semiconductor devic is no credible reason to believe that the unavoidat ulatory scheme world-wide. stics. You can access the UL iQTM family of datab	e and, to the b le impurity co ases to obtain	best of Microch ncentration of a test report a	nip 'the at		Doped Silicon	7440-21-3 Total	100 100.00 % of Total Weight	
active 2002/53/EC (End-of-Life Vehicles (ELV) Directive). mpliance with the above EU Directives has been verified via inter chemical substance is absent from the list above, the chemical shoology Incorporated's knowledge and belief as of the date of th mical substance, if any, is not below the threshold of regulatory ding compounds used by Microchip meet the UL94 V0 flammab s://ul.com/global/eng/pages/offerings/industries/chemicals/plasti protective "tubes" in which the specific product is shipped are	with EU Directive 200 rnal design controls, substance is NOT ar his document, there r concern for any reg ility standard for plas ics/ made from polyviny best of its knowledg use it has been com closure as trade secu f the average weight	2/95/EC (RoHS Directive), EU Directive 2011/65/EU supplier declarations, and /or analytical test data. In intentional ingredient in the semiconductor device is no credible reason to believe that the unavoidat ulatory scheme world-wide. Stics. You can access the UL iQTM family of datab I chloride (PVC) plastic. "Window envelopes" user bstances restricted by RoHS in Microchip Techno ge and belief, as of the date listed in this form. Mic piled based on the ranges provided in Material Sa rets and some information may not have been pro of these parts and the average weight of anticipat	e and, to the b le impurity co ases to obtain d to hold the p logy Incorpora rochip Techno fety Data Shee vided by subce de significant i	best of Microck ncentration of a test report a acking slip on ledy Incorpora ts provided by ontract assem toxic metals cr	hip the at the outer ductor ated cannot r aw blers and		Doped Silicon (mg) Total	7440-21-3 Total Wire Bond	100 100.00 % of Total Weight	
active 2002/53/EC (End-of-Life Vehicles (ELV) Directive). mpliance with the above EU Directives has been verified via inter chemical substance is absent from the list above, the chemical hnology Incorporated's knowledge and belief as of the date of the mical substance, if any, is not below the threshold of regulatory ding compounds used by Microchip meet the UL94 V0 flammab b://ul.com/global/eng/pages/offerings/industries/chemicals/plasti e protective "tubes" in which the specific product is shipped are and certain "reels" may be made from PVC plastic. rochip Technology Incorporated believes the information in this ices in their original packing materials is true and correct to the rantee the completeness and accuracy of data in this form becz terial suppliers. Information is provided only as estimates of material suppliers.	with EU Directive 200 rnal design controls, substance is NOT ar his document, there i c concern for any reg ility standard for plas ics/ made from polyviny to best of its knowledg buse it has been com closure as trade seci f the average weight d non-metal materials , express or implied, subsidiaries are con	2/95/EC (RoHS Directive), EU Directive 2011/65/EU supplier declarations, and /or analytical test data. In intentional ingredient in the semiconductor device is no credible reason to believe that the unavoidat ulatory scheme world-wide. Stics. You can access the UL iQTM family of datab I chloride (PVC) plastic. "Window envelopes" used bstances restricted by RoHS in Microchip Techno je and belief, as of the date listed in this form. Mic piled based on the ranges provided in Material Sa ets and some information may not have been pro of these parts and the average weight of anticipat is contained within silicon devices (silicon IC) in the with respect to the information provided in this de	e and, to the b ole impurity co ases to obtain d to hold the p rochip Techno fety Data Shee ed significant t e finished part:	best of Microco ncentration of a test report a acking slip on logy Incorpora ts provided by ontract assem toxic metals co s.	hip the at the outer ductor ated cannot r raw blers and omponents.		(mg) Total (mg) Total	7440-21-3 Total Wire Bond 7440-57-5	100 100.00 % of Total Weight	
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). apliance with the above EU Directives has been verified via inter- chemical substance is absent from the list above, the chemical hnology Incorporated's knowledge and belief as of the date of the mical substance, if any, is not below the threshold of regulatory ding compounds used by Microchip meet the UL94 V0 flammabi- ://ul.com/global/eng/pages/offerings/industries/chemicals/plasti- protective "tubes" in which the specific product is shipped are and certain "reels" may be made from PVC plastic. Tochip Technology Incorporated believes the information in this ces in their original packing materials is true and correct to the rantee the completeness and accuracy of data in this form becce erial suppliers. Supplier information is often protected from dis- material suppliers. Information is provided only as estimates of se estimates do not include trace levels of dopants, metals, and cochip Technology Incorporated does not provide any warranty ranties provided by Microchip Technology Incorporated and its	with EU Directive 200 rnal design controls, substance is NOT ar his document, there i concern for any reg ility standard for plas ics/ made from polyviny form concerning su best of its knowledg use it has been com closure as trade sect f the average weight d non-metal materials , express or implied, subsidiaries are con s.	2/95/EC (RoHS Directive), EU Directive 2011/65/EU supplier declarations, and /or analytical test data. In intentional ingredient in the semiconductor device is no credible reason to believe that the unavoidat ulatory scheme world-wide. stics. You can access the UL iQTM family of datab chloride (PVC) plastic. "Window envelopes" used betances restricted by RoHS in Microchip Techno pied based on the ranges provided in Material Sa rets and some information may not have been pro of these parts and the average weight of anticipat is contained within silicon devices (silicon IC) in thi with respect to the information provided in this de tained in Microchip's standard terms and conditio Declarations and shall not be liable for any damage	e and, to the b ble impurity co ases to obtain d to hold the p logy Incorpora d significant i e finished part inclaration. The ns of sale. The	best of Microch ncentration of a test report a acking slip on logy Incorpora ted's semicon logy Incorpora ts provided by ontract assem toxic metals cr s. exclusive, lim ese are provide ndirect, conser	hip the the ductor ated cannot r raw blers and omponents. hited product ed in quential or	1.13	(mg) Total (mg) Total	7440-21-3 Total Wire Bond 7440-57-5 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1	100 100.00 % of Total Weight 100 100.00	0.1

Міскоснір				nation Base A pper Alloy (C			-	nogeneous Materials: e.g. pc boards, displa		JEDEC 97 Product Marking and/or Pkg. Labeling
Semiconductor Device Typ	e:L&NJE 44	(Lead) PLCC (T2/TC)								e3
Basic Substance	CAS Number	"Contained In" Sub-Component	% Total Weight	mg/part	ppm	1807.79	(mg) Total	Mold Compound	% ot Total Weight	76.1
Silica, vitreous	60676-86-0	Mold Compound	64.685	1536.618	646.850		Silica, vitreous	60676-86-0	85.00	
Epoxy Resin (No bromine, No diantimony trioxide)	Trade Secret	Mold Compound	4.661	110.727	46,611		Epoxy Resin	Trade Secret	6.13	
Phenolic Resin (No Br / CL SbO3, No diantimony trioxide)	Trade Secret	Mold Compound	4.661	110.727	46,611		Phenolic Resin	Trade Secret	6.13	
Epoxy, Cresol Novolac	29690-82-2	Mold Compound	1.864	44.291	18,645		Epoxy, Cresol Novolac	29690-82-2	2.45	
Carbon Black	1333-86-4	Mold Compound	0.228	5.423	2,283		Carbon Black	1333-86-4	0.30	
Copper	7440-50-8	Lead Frame	21.460	509.786	214,598			Total		
Silver	7440-22-4	Lead Frame	0.417	9.911	4,172	520.24	(mg) Total	Lead Frame	% of Total Weight	21.9
Zirconium	7440-67-7	Lead Frame	0.022	0.520	219		Copper	7440-50-8	97.99	
Manganese	7439-96-5	Lead Frame	0.001	0.026	11		Silver	7440-22-4	1.91	
Silver	7440-22-4	Die Attach	0.104	2.461	1,036		Zirconium	7440-67-7	0.10	
Epoxy resin	Trade Secret	Die Attach	0.032	0.765	322		Manganese	7439-96-5	0.01	
Gamma-butyrolactone	96-48-0	Die Attach	0.004	0.100	42			Total		
Silicon	7440-21-3	Chip (Die)	0.870	20.667	8,700	3.33	(mg) Total	Die Attach	% of Total Weight	0.14
Gold	7440-57-5	Wire Bond	0.050	1.188	500		Silver	7440-22-4	74	
Tin	7440-31-5	Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	0.940	22.330	9,400		Epoxy resin	Trade Secret	23	
		TOTALS:	100.000	2,375.540	1,000,000		Gamma-butyrolactone	96-48-0	3	
	2.3755	g Total Mass						Total	100.00	
					and with EU	20.67	Total (mg)	Chip (Die)	% of Total Weight	0.87
npliance with the above EU Directives has been verified via in chemical substance is absent from the list above, the chemica	al substance is NOT	an intentional ingredient in the semiconductor dev	vice and, to the		ochip	20.67	Total (mg) Doped Silicon	Chip (Die) 7440-21-3 Total	100	0.87
npliance with the above EU Directives has been verified via in chemical substance is absent from the list above, the chemica hnology Incorporated's knowledge and belief as of the date o mical substance, if any, is not below the threshold of regulato ding compounds used by Microchip meet the UL94 V0 flamma	al substance is NOT f this document, the ry concern for any r ıbility standard for p	an intentional ingredient in the semiconductor dev re is no credible reason to believe that the unavoic egulatory scheme world-wide.	vice and, to the dable impurity o	concentration	ochip of the	1.19		7440-21-3	100	0.87
ective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). mpliance with the above EU Directives has been verified via in chemical substance is absent from the list above, the chemica chnology Incorporated's knowledge and belief as of the date of emical substance, if any, is not below the threshold of regulato liding compounds used by Microchip meet the UL94 V0 flamma p://ul.com/global/eng/pages/offerings/industries/chemicals/plate e protective "tubes" in which the specific product is shipped a x and certain "reels" may be made from PVC plastic.	al substance is NOT f this document, the ry concern for any r ibility standard for p stics/	an intrentional ingredient in the semiconductor dev re is no credible reason to believe that the unavoic egulatory scheme world-wide. lastics. You can access the UL iQTM family of data	vice and, to the dable impurity o abases to obtai	concentration in a test repor	ochip of the t at		Doped Silicon	7440-21-3 Total Wire Bond 7440-57-5	100 100.00 % of Total Weight 100	
mpliance with the above EU Directives has been verified via in chemical substance is absent from the list above, the chemica chonology incorporated's knowledge and belief as of the date of emical substance, if any, is not below the threshold of regulato liding compounds used by Microchip meet the UL94 V0 flamma p://ul.com/global/eng/pages/offerings/industries/chemicals/plate e protective "tubes" in which the specific product is shipped a	al substance is NOT if this document, the ry concern for any r ibility standard for p stics/ re made from polyvi is form concerning ne best of its knowle form because it has m disclosure as trac ates of the average v	an intentional ingredient in the semiconductor dev re is no credible reason to believe that the unavoid egulatory scheme world-wide. lastics. You can access the UL iQTM family of data nyl chloride (PVC) plastic. "Window envelopes" us substances restricted by RoHS in Microchip Techr dge and belief, as of the date listed in this form. M been compiled based on the ranges provided in M de secrets and some information may not have bee weight of these parts and the average weight of an	vice and, to the lable impurity of abases to obtain sed to hold the nology Incorpo icrochip Techr laterial Safety I en provided by ticipated signif	concentration in a test repor packing slip o rated's semic nology Incorpo Data Sheets p subcontract a ricant toxic me	ochip of the t at on the outer onductor orated oravided by assemblers otals		Doped Silicon (mg) Total	7440-21-3 Total Wire Bond	100 100.00 % of Total Weight 100	
mpliance with the above EU Directives has been verified via in chemical substance is absent from the list above, the chemica chonology Incorporated's knowledge and belief as of the date of amical substance, if any, is not below the threshold of regulato lding compounds used by Microchip meet the UL94 V0 flamma p://ul.com/global/eng/pages/offerings/industries/chemicals/plate e protective "tubes" in which the specific product is shipped a x and certain "reels" may be made from PVC plastic. crochip Technology Incorporated believes the information in the vices in their original packing materials is true and correct to the not guarantee the completeness and accuracy of data in this w material suppliers. Suppliers information is often protected fro d raw material suppliers. Information is provided only as estima	al substance is NOT if this document, the ry concern for any r ibility standard for p stics/ re made from polyvi his form concerning he best of its knowle form because it has m disclosure as tract ates of the average v nts, metals, and nor ty, express or implie ed and its subsidiar	an intentional ingredient in the semiconductor devi- re is no credible reason to believe that the unavoid egulatory scheme world-wide. lastics. You can access the UL iQTM family of data nyl chloride (PVC) plastic. "Window envelopes" us substances restricted by RoHS in Microchip Techr dge and belief, as of the date listed in this form. M been compiled based on the ranges provided in M e secrets and some information may not have bee weight of these parts and the average weight of an i-metal materials contained within silicon devices (d, with respect to the information provided in this	vice and, to the dable impurity of abases to obtain sed to hold the nology Incorpo icrochip Techri laterial Safety [an provided by ticipated signif (silicon IC) in the declaration. The	concentration in a test repor packing slip o rated's semic nology Incorp Data Sheets p subcontract a ricant toxic me ne finished pa ne exclusive, l	ochip of the t at on the outer onductor orated rovided by assemblers etals rts. imited		(mg) Total	7440-21-3 Total Wire Bond 7440-57-5	100 100.00 % of Total Weight 100	
npliance with the above EU Directives has been verified via int chemical substance is absent from the list above, the chemical hnology incorporated's knowledge and belief as of the date of mical substance, if any, is not below the threshold of regulato ding compounds used by Microchip meet the UL94 V0 flamma ://ul.com/global/eng/pages/offerings/industries/chemicals/plat protective "tubes" in which the specific product is shipped a and certain "reels" may be made from PVC plastic. rochip Technology Incorporated believes the information in thi cos in their original packing materials is true and correct to the material suppliers. Supplier information is often protected for raw material suppliers. Information is provided only as estima ponents. These estimates do not include trace levels of dopa rochip Technology Incorporated does not provide any warrant duct warranties provided by Microchip Technology Incorporated due tarranties provided by Microchip Technology Incorporated motorip disclaims any duty to notify users of updates or change provise, suffered by users or third parties as a result of the use	al substance is NOT if this document, the ry concern for any r ibility standard for p stics/ re made from polyvi is form concerning re best of its knowle form because it has m disclosure as tran ates of the average v nts, metals, and nor ty, express or implie ed and its subsidiar oices. ses to Material Conte rs' reliance on the li	an intentional ingredient in the semiconductor dev re is no credible reason to believe that the unavoid egulatory scheme world-wide. lastics. You can access the UL iQTM family of data nyl chloride (PVC) plastic. "Window envelopes" us substances restricted by RoHS in Microchip Techr dge and belief, as of the date listed in this form. M been compiled based on the ranges provided in M de secrets and some information may not have bee weight of these parts and the average weight of an t-metal materials contained within silicon devices (d, with respect to the information provided in this les are contained in Microchip's standard terms ar nt Declarations and shall not be liable for any dam	vice and, to the dable impurity of abases to obtain and to hold the nology Incorpo icrochip Techn laterial Safety I en provided by (silicon IC) in the declaration. The d conditions of ages, direct or	concentration in a test repor packing slip o rated's semic hology Incorpo Data Sheets p subcontract a is subcontract a re finished pa ne exclusive, I of sale. These indirect, cons	ochip of the t at on the outer oroted orovided by assemblers otals trts. imited are provided sequential or	1.19	(mg) Total	7440-21-3 Total Wire Bond 7440-57-5 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour 7440-31-5	100 100.00 % of Total Weight 100 100.00	0.05
mpliance with the above EU Directives has been verified via in chemical substance is absent from the list above, the chemical chology incorporated's knowledge and belief as of the date of amical substance, if any, is not below the threshold of regulato lding compounds used by Microchip meet the UL94 V0 flamma p://ul.com/global/eng/pages/offerings/industries/chemicals/plate p://ul.com/global/eng/pages/offerings/industries/chemicals/plate a protective "tubes" in which the specific product is shipped a a and certain "reels" may be made from PVC plastic. crochip Technology Incorporated believes the information in the vices in their original packing materials is true and correct to the not guarantee the completeness and accuracy of data in this vice material suppliers. Suppliers information is often protected fro d raw material suppliers. Information is provided only as estima mponents. These estimates do not include trace levels of dopa erochip Technology Incorporated does not provide any warran educt warranties provided by Microchip Technology Incorporation	al substance is NOT if this document, the ry concern for any r ibility standard for p stics/ re made from polyvi is form concerning re best of its knowle form because it has m disclosure as tran ates of the average v nts, metals, and nor ty, express or implie ed and its subsidiar oices. ses to Material Conte rs' reliance on the li	an intentional ingredient in the semiconductor dev re is no credible reason to believe that the unavoid egulatory scheme world-wide. lastics. You can access the UL iQTM family of data nyl chloride (PVC) plastic. "Window envelopes" us substances restricted by RoHS in Microchip Techr dge and belief, as of the date listed in this form. M been compiled based on the ranges provided in M de secrets and some information may not have bee weight of these parts and the average weight of an t-metal materials contained within silicon devices (d, with respect to the information provided in this les are contained in Microchip's standard terms ar nt Declarations and shall not be liable for any dam	vice and, to the dable impurity of abases to obtain and to hold the nology Incorpo icrochip Techn laterial Safety I en provided by (silicon IC) in the declaration. The d conditions of ages, direct or	concentration in a test repor packing slip o rated's semic hology Incorpo Data Sheets p subcontract a is subcontract a re finished pa ne exclusive, I of sale. These indirect, cons	ochip of the t at on the outer oroted orovided by assemblers otals trts. imited are provided sequential or	1.19	(mg) Total (mg) Total (mg) Total	7440-21-3 Total Wire Bond 7440-57-5 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	100 100.00 % of Total Weight 100 100.00	0.05

Semiconductor Device Type: Basic Substance Silica, vitreous Epoxy Resin (No bromine, No diantimony trioxide) Phenolic Resin (No Br / CL Sb03, No diantimony trioxide) Epoxy, Cresol Novolac Carbon Black Copper Silver Zirconium Manganese Silver Diester Resin	CAS Number 60676-86-0 Trade Secret 29690-82-2 1333-86-4 7440-50-8 7440-22-4 7440-67-7	"Contained In" Sub-Component Mold Compound Mold Compound Mold Compound Mold Compound Mold Compound	% Total Weight 24.038 1.732 1.732	mg/part 1173.054 84.529	ppm 240,380	1380.06	(mg) Total Silica, vitreous	Mold Compound 60676-86-0	% ot Total Weight 85.00	28.28
Silica, vitreous Epoxy Resin (No bromine, No diantimony trioxide) Phenolic Resin (No Br / CL SbO3, No diantimony trioxide) Epoxy, Cresol Novolac Carbon Black Copper Silver Zirconium Manganese Silver	60676-86-0 Trade Secret 29690-82-2 1333-86-4 7440-50-8 7440-22-4 7440-67-7	Mold Compound Mold Compound Mold Compound Mold Compound	24.038 1.732	1173.054	240,380		Silica, vitreous	60676-86-0	05.00	
Epoxy Resin (No bromine, No diantimony trioxide) Phenolic Resin (No Br / CL SbO3, No diantimony trioxide) Epoxy, Cresol Novolac Carbon Black Copper Silver Zirconium Manganese Silver	Trade Secret Trade Secret 29690-82-2 1333-86-4 7440-50-8 7440-22-4 7440-67-7	Mold Compound Mold Compound Mold Compound	1.732							
Phenolic Resin (No Br / CL SbO3, No diantimony trioxide) Epoxy, Cresol Novolac Carbon Black Copper Silver Zirconium Manganese Silver	Trade Secret 29690-82-2 1333-86-4 7440-50-8 7440-22-4 7440-67-7	Mold Compound Mold Compound			17.322		Epoxy Resin	Trade Secret	6.13	
Carbon Black Copper Silver Zirconium Manganese Silver	1333-86-4 7440-50-8 7440-22-4 7440-67-7			84.529	17,322		Phenolic Resin	Trade Secret	6.13	
Copper Silver Zirconium Manganese Silver	7440-50-8 7440-22-4 7440-67-7	Mold Compound	0.693	33.812	6,929		Epoxy, Cresol Novolac	29690-82-2	2.45	
Silver Zirconium Manganese Silver	7440-22-4 7440-67-7	word compound	0.085	4.140	848		Carbon Black	1333-86-4	0.30	
Zirconium Manganese Silver	7440-67-7	Lead Frame	22.087	1077.843	220,869			Total	100.00	
Manganese Silver		Lead Frame	0.429	20.954	4,294	1099.95	(mg) Total	Lead Frame	% of Total Weight	22.54
Silver		Lead Frame	0.023	1.100	225		Copper	7440-50-8	97.99	
	7439-96-5	Lead Frame	0.001	0.055	11		Silver	7440-22-4	1.91	
Diester Resin	7440-22-4	Die Attach	9.983	487.146	99,825		Zirconium	7440-67-7	0.10	
	94-80-4	Die Attach	1.997	97.429	19,965		Manganese	7439-96-5	0.01	
Functionalized Urethane Resin	72869-86-4	Die Attach	0.666	32.476	6,655			Total	100.00	
Epoxy Resin	9003-36-5	Die Attach	0.333	16.238	3,328	649.53	(mg) Total	Die Attach	% of Total Weight	13.31
Epoxy Resin	13561-08-5	Die Attach	0.333	16.238	3,328		Silver	7440-22-4	75	
Silicon	7440-21-3	Chip (Die)	12.310	600.728	123,100		Diester Resin	94-80-4	15	
Gold	7440-57-5	Wire Bond	5.120	249.856	51,200	Fun	ctionalized Urethane Resin	72869-86-4	5	
Tin	7440-31-5	Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	18.440	899.872	184,400		Epoxy Resin	9003-36-5	3	
		TOTALS:	100.000	4,880.000	1,000,000		Epoxy Resin	13561-08-5	3	
	4.8800 g	g Total Mass						Total	100.00	
semiconductor device and its homogenous materials comply with tive 2002/53/EC (End-of-Life Vehicles (ELV) Directive).	h EU Directive 2002	//95/EC (RoHS Directive), EU Directive 2011/65/EU	(RoHS Recast I	Directive) and	with EU	600.73	Total (mg)	Chip (Die)	% of Total Weight	12.31
pliance with the above EU Directives has been verified via internal	I design controls,	supplier declarations, and /or analytical test data.					Doped Silicon	7440-21-3	100	
hemical substance is absent from the list above, the chemical sub- nology Incorporated's knowledge and belief as of the date of this of tance, if any, is not below the threshold of regulatory concern for a ing compounds used by Microchip meet the UL94 V0 flammability //ul.com/global/eng/pages/offerings/industries/chemicals/plastics/	document, there is any regulatory scl standard for plas	s no credible reason to believe that the unavoidabl heme world-wide.	le impurity conc	centration of th		249.86	(mg) Total	Wire Bond	% of Total Weight	5.12
protective "tubes" in which the specific product is shipped are mage sertain "reels" may be made from PVC plastic.	ade from polyvinyl	chloride (PVC) plastic. "Window envelopes" used	to hold the pac	king slip on th	e outer box		Doped Gold	7440-57-5	100	
ochip Technology Incorporated believes the information in this forr ces in their original packing materials is true and correct to the bes rantee the completeness and accuracy of data in this form because pliers. Supplier information is often protected from disclosure as tra- liers. Information is often protected from disclosure as tra-	est of its knowledge e it has been comp rade secrets and s eight of these parts	e and belief, as of the date listed in this form. Micro illed based on the ranges provided in Material Safe some information may not have been provided by a and the average weight of anticipated significant	ochip Technolo ety Data Sheets subcontract ass toxic metals co	gy Incorporate provided by ra emblers and ra	ed cannot aw material aw material			Total	100.00	
mates do not include trace levels of dopants, metals, and non-metal			aloration The -	volucivo limito	ed product			lating on external leads		
						899.87	(mg) I otal	pins) - Matte Tin / nnealed at 150°C for 1 our	% of Total Weight	18.44
lates do not include trace levels of dopants, metals, and non-metal chip Technology Incorporated does not provide any warranty, exp inities provided by Microchip Technology Incorporated and its sub	bsidiaries are cont Material Content I eliance on the info	ained in Microchip's standard terms and condition Declarations and shall not be liable for any damage	ns of sale. These es, direct or ind	e are provided irect, consequ	in ential or	899.87	(mg) I otal	nnealed at 150°C for 1	% of Total Weight 100.00 100.00	18.44

ICROCHIP Semiconductor Device T	(De: AI2 10 OEN 4 %)	-1 8v0.55 - 2V		ination Base opper Alloy				ogeneous Materials: g. pc boards, display	rs)	JEDEC 97 Product Markin and/or Pkg. Labeling e4
Semiconductor Device 1	/pe. Alz 10 QFN 1.38	"Contained In"	% Total			4.04	(mg) Total	Mold Compound	% ot Total Weight	36.7
Basic Substance	CAS Number	Sub-Component	Weight	mg/part	ppm	4.04	(ing) rotai	word compound	/8 OL TOLAI Weight	50.7
Silica, fused	60676-86-0	Mold Compound	33.030	3.633	330,300		Silica, fused	60676-86-0	90.00	
Epoxy Resin (NLP # 500-033-5)	Trade Secret	Mold Compound	1.780	0.196	17,800		Epoxy Resin	Trade Secret	4.85	
Phenolic Resin	Trade Secret	Mold Compound	1.780	0.196	17,800		Phenolic Resin	Trade Secret	4.85	
Carbon Black	1333-86-4	Mold Compound	0.110	0.012	1,101		Carbon Black	1333-86-4	0.30	
Copper	7440-50-8	Lead Frame	39.239	4.316	392,393			Total		
Nickel	7440-02-0	Lead Frame	1.046	0.115	10,465	4.53	(mg) Total	Lead Frame	% of Total Weight	41.2
Silicon	7440-21-3	Lead Frame	0.185	0.020	1,854		Copper	7440-50-8	95.24	
Magnesium	7439-95-4	Lead Frame	0.041	0.005	412		Nickel	7440-02-0	2.54	
Šilver	7440-22-4	Lead Frame	0.688	0.076	6,876		Silicon	7440-21-3	0.45	
Aluminum oxide	1344-28-1	Die Attach	0.068	0.008	683	1	Magnesium	7439-95-4	0.10	
Diethylene glycol monoethyl ether acetate	112-15-2	Die Attach	0.068	0.008	683	1	Silver	7440-22-4	1.67	
Epoxy resin (Trade Secret - 10114)	Trade Secret	Die Attach	0.037	0.004	373	1	0	Total	100.00	
Epoxy resin (Trade Secret - 10105)	Trade Secret	Die Attach	0.019	0.002	186	0.02	(mg) Total	Die Attach	% of Total Weight	0.2
Amine (Trade Secret - 10039)	Trade Secret	Die Attach	0.007	0.001	75	0.02	Aluminum oxide	1344-28-1	34.16	0.2
Silicon	7440-21-3	Chip (Die)	14.000	1.540	140,000	Diathylana alva	ol monoethyl ether acetate	112-15-2	34.16	
Doped Gold	7440-21-3	Wire Bond	6.000	0.660	60.000	Dietrivierie givo	Epoxy resin (Trade Secret		18.63	
Tin	7440-31-5	Plating on external leads (pins)	1.815	0.200	18,145	-	Epoxy resin (Trade Secret		9.32	
Silver	7440-31-5	Plating on external leads (pins)	0.076	0.200	760	-	Amine (Trade Secret - 100		9.32	
	7440-50-8	Plating on external leads (pins)	0.010	0.000	95	-	Amine (made Secret - 100			
Copper	7440-50-8							Total		
	0.0110 g T ly with EU Directive 2002/9		-	11.000 st Directive) a	1,000,000 and with EU	1.54	(mg) Total Doped Silicon	Chip (Die) 7440-21-3 Total	% of Total Weight 100 100.00	14
semiconductor device and its homogenous materials comp tive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). pliance with the above EU Directives has been verified via i	ly with EU Directive 2002/9	Total Mass 5/EC (RoHS Directive), EU Directive 2011/65/	EU (RoHS Reca			0.66		7440-21-3	100	
tive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). Diance with the above EU Directives has been verified via i nemical substance is absent from the list above, the chemi nology Incorporated's knowledge and belief as of the date	ly with EU Directive 2002/9 nternal design controls, suj cal substance is NOT an int of this document, there is n	Total Mass 5/EC (RoHS Directive), EU Directive 2011/65/ pplier declarations, and /or analytical test dat tentional ingredient in the semiconductor dev to credible reason to believe that the unavoic	EU (RoHS Reca a. rice and, to the	st Directive) a	and with EU		Doped Silicon	7440-21-3 Total	100 100.00	
tive 2002/53/EC (End-of-Life Vehicles (ELV) Directive).	ly with EU Directive 2002/9 nternal design controls, sup cal substance is NOT an int of this document, there is n ory concern for any regula nability standard for plastic:	Total Mass 5/EC (RoHS Directive), EU Directive 2011/65/ pplier declarations, and /or analytical test dat tentional ingredient in the semiconductor dev to credible reason to believe that the unavoid tory scheme world-wide.	EU (RoHS Reca a. rice and, to the able impurity c	st Directive) a best of Micro oncentration	and with EU schip of the		Doped Silicon (mg) Total	7440-21-3 Total Wire Bond	100 100.00 % of Total Weight 100.00	
tive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). pliance with the above EU Directives has been verified via i hemical substance is absent from the list above, the chemi nology Incorporated's knowledge and belief as of the date nical substance, if any, is not below the threshold of regular ing compounds used by Microchip meet the UL94 V0 flamn	ly with EU Directive 2002/9 nternal design controls, sup cal substance is NOT an int of this document, there is n ory concern for any regula hability standard for plastics	Total Mass 5/EC (RoHS Directive), EU Directive 2011/65/ pplier declarations, and /or analytical test dat tentional ingredient in the semiconductor dev to credible reason to believe that the unavoid tory scheme world-wide. s. You can access the UL iQTM family of data	EU (RoHS Reca a. rice and, to the able impurity c bases to obtain	st Directive) a best of Micro oncentration n a test report	and with EU Inchip of the		Doped Silicon (mg) Total	7440-21-3 Total Wire Bond 7440-57-5	100 100.00 % of Total Weight 100.00	
tive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). pliance with the above EU Directives has been verified via i hemical substance is absent from the list above, the chemi nology Incorporated's knowledge and belief as of the date nical substance, if any, is not below the threshold of regular ing compounds used by Microchip meet the UL94 V0 flamm //ul.com/global/eng/pages/offerings/industries/chemicals/pl protective "tubes" in which the specific product is shipped	ily with EU Directive 2002/9 Internal design controls, sup cal substance is NOT an int of this document, there is n ory concern for any regula hability standard for plastics astics/ are made from polyvinyl ch this form concerning subst the best of its knowledge a ecause it has been compile disclosure as trade secrets o of the average weight of th	Total Mass 5/EC (RoHS Directive), EU Directive 2011/65/ pplier declarations, and /or analytical test dat tentional ingredient in the semiconductor dev to credible reason to believe that the unavoid tory scheme world-wide. s. You can access the UL iQTM family of data loride (PVC) plastic. "Window envelopes" us ances restricted by RoHS in Microchip Techr nd belief, as of the date listed in this form. M dbased on the ranges provided in Material S and some information may not have been pr hese parts and the average weight of anticipy	EU (RoHS Reca a. ice and, to the able impurity c bases to obtain ed to hold the p ology Incorpor crochip Techn iafety Data She ovided by subd ted significant	st Directive) a best of Micro oncentration n a test report packing slip o ated's semicc ology Incorpo ets provided contract asseei	and with EU of the at at onductor orated cannot by raw mblers and	0.66	(mg) Total Doped Gold	7440-21-3 Total Wire Bond 7440-57-5 Total Plating on external	100 100.00 % of Total Weight 100.00 100.00	6
tive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). bliance with the above EU Directives has been verified via i hemical substance is absent from the list above, the chemi nology Incorporated's knowledge and belief as of the date ical substance, if any, is not below the threshold of regular ng compounds used by Microchip meet the UL94 V0 flamm /ul.com/global/eng/pages/offerings/industries/chemicals/pl protective "tubes" in which the specific product is shipped and certain "reels" may be made from PVC plastic. whip Technology Incorporated believes the information in es in their original packing materials is true and correct to intee the completeness and accuracy of data in this form brian trial suppliers. Supplier information is provided only as estimate	ly with EU Directive 2002/9 Internal design controls, sup cal substance is NOT an int of this document, there is n ory concern for any regula hability standard for plastic astics/ are made from polyvinyl ch this form concerning subst the best of its knowledge a ecause it has been compile disclosure as trade secrets o of the average weight of ti and non-metal materials co nty, express or implied, witi its subsidiaries are contain	Total Mass 5/EC (RoHS Directive), EU Directive 2011/65/ pplier declarations, and /or analytical test dat tentional ingredient in the semiconductor dev to credible reason to believe that the unavoid tory scheme world-wide. s. You can access the UL iQTM family of data loride (PVC) plastic. "Window envelopes" us ances restricted by RoHS in Microchip Techr nd belief, as of the date listed in this form. M dbased on the ranges provided in Material S and some information may not have been pp hese parts and the average weight of anticip- ntained within silicon devices (silicon IC) in t h respect to the information provided in this	EU (RoHS Reca a. ice and, to the able impurity c bases to obtain ed to hold the p ology Incorpor crochip Techn safety Data She ovided by subd ated significant he finished par declaration. Th	ist Directive) a best of Micro oncentration n a test report packing slip o ated's semicc ology Incorpo rets provided ontract asse- toxic metals ts. e exclusive, li	and with EU ochip of the t at on the outer orated cannot by raw mblers and components.	0.66	(mg) Total (mg) Total (mg) Total	7440-21-3 Total Wire Bond 7440-57-5 Total Plating on external leads (pins)	100 100.00 % of Total Weight 100.00 100.00 % of Total Weight	6
ive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). liance with the above EU Directives has been verified via i emical substance is absent from the list above, the chemi ology Incorporated's knowledge and belief as of the date cal substance, if any, is not below the threshold of regular ng compounds used by Microchip meet the UL94 V0 flamn ul.com/global/eng/pages/offerings/industries/chemicals/pl rotective "tubes" in which the specific product is shipped d certain "reels" may be made from PVC plastic. thip Technology Incorporated believes the information in is in their original packing materials is true and correct to nate the completeness and accuracy of data in this form ba al suppliers. Supplier information is often protected from aterial suppliers. Information is provided only as estimate estimates do not include trace levels of dopants, metals, chip Technology Incorporated does not provide any warra ties provided by Microchip Technology Incorporated and	ly with EU Directive 2002/9 Internal design controls, sup cal substance is NOT an int of this document, there is n ory concern for any regula hability standard for plastic: astics/ are made from polyvinyl ch this form concerning subst the best of its knowledge a ecause it has been compile disclosure as trade secrets a of the average weight of th and non-metal materials co nty, express or implied, with its subsidiaries are contair ices. ges to Material Content Dec ters' reliance on the inform	Total Mass 5/EC (RoHS Directive), EU Directive 2011/65/ pplier declarations, and /or analytical test data tentional ingredient in the semiconductor dev to credible reason to believe that the unavoid tory scheme world-wide. s. You can access the UL iQTM family of data loride (PVC) plastic. "Window envelopes" us ances restricted by RoHS in Microchip Techr nd belief, as of the date listed in this form. M el based on the ranges provided in Material S and some information may not have been pr hese parts and the average weight of anticip- intained within silicon devices (silicon IC) in t h respect to the information provided in this red in Microchip's standard terms and condit clarations and shall not be liable for any dam	EU (RoHS Reca a. ince and, to the able impurity of bases to obtain ed to hold the p ology Incorpor crochip Techn safety Data She ovided by subo taed significant he finished par declaration. Th ions of sale. Th ages, direct or	ist Directive) a best of Micro oncentration n a test report backing slip o ated's semica ology Incorpo- rets provided contract asset toxic metals ts. e exclusive, li ese are provi	and with EU ochip of the t at on the outer orated cannot by raw mblers and components. imited product ided in	0.66	(mg) Total Doped Gold (mg) Total Tin	7440-21-3 Total Wire Bond 7440-57-5 Total Plating on external leads (pins) 7440-31-5	100 100.00 % of Total Weight 100.00 % of Total Weight 95.50	6

				nation Base opper Alloy ((ogeneous Materials: .g. pc boards, display	s)	JEDEC 97 Produ Marking and/or Pkg. Labeling e3
Semiconductor Devic	e Type: KP QFN 12									
Basic Substance	CAS Number	"Contained In" Sub-Component	% Total Weight	mg/part	ppm	2.58	(mg) Total	Mold Compound	% ot Total Weight	10.14
Silica, fused	60676-86-0	Mold Compound	9.126	2.320	91,260		Silica, fused	60676-86-0	90.00	
Epoxy Resin	Trade Secret	Mold Compound	0.492	0.125	4,918		Epoxy Resin	Trade Secret	4.85	
Phenolic Resin	Trade Secret	Mold Compound	0.492	0.125	4,918		Phenolic Resin	Trade Secret	4.85	
Carbon Black	1333-86-4	Mold Compound	0.030	0.008	304		Carbon Black	1333-86-4	0.30	
Copper	7440-50-8	Lead Frame	74.777	19.008	747,772			Total		
Iron	7439-89-6	Lead Frame	1.839	0.468	18,393	19.90	(mg) Total	Lead Frame	% of Total Weight	78.27
Silver	7440-22-4	Lead Frame	1.491	0.379	14,910		Copper	7440-50-8	95.54	
Zinc	7440-66-6	Lead Frame	0.098	0.025	978		Iron	7439-89-6	2.35	
Phosphorous	7723-14-0	Lead Frame	0.065	0.016	646		Silver	7440-22-4	1.91	
Silver	7440-22-4	Die Attach	0.518	0.132	5,180		Zinc	7440-66-6	0.13	
Epoxy resin	68475-94-5	Die Attach	0.140	0.036	1,400		Phosphorous	7723-14-0	0.08	
Copper(II) oxide	1317-38-0	Die Attach	0.021	0.005	210			Total		
Gamma-butyrolactone	96-48-0	Die Attach	0.021	0.005	210	0.18	(mg) Total	Die Attach	% of Total Weight	0.7
Silicon	7440-21-3	Chip (Die)	6.710	1.706	67,100		Silver	7440-22-4	74.00	
Copper	7440-50-8	Wire Bond	0.206	0.052	2,063		Epoxy resin	68475-94-5	20.00	
Palladium	7440-05-3	Wire Bond	0.004	0.001	37		Copper(II) oxide	1317-38-0	3.00	
Tin	7440-31-5	Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	3.970	1.009	39,700		Gamma-butyrolactone	96-48-0	3.00	
		TOTALS:	100.000	25.420	1,000,000			Total	100.00	
		g Total Mass			,,	1.71	(mg) Total Doped Silicon	Total Chip (Die) 7440-21-3	100.00 % of Total Weight 100	6.71
rective 2002/53/EC (End-of-Life Vehicles (ELV) Directive).	omply with EU Directive 2002	g Total Mass 2/95/EC (RoHS Directive), EU Directive 2011/65/EU (F			,,	1.71		Chip (Die)	% of Total Weight	
ective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). mpliance with the above EU Directives has been verified v n chemical substance is absent from the list above, the che chnology Incorporated's knowledge and belief as of the da	omply with EU Directive 2002 ia internal design controls, s emical substance is NOT an ite of this document, there is	g Total Mass 2/95/EC (RoHS Directive), EU Directive 2011/65/EU (R supplier declarations, and /or analytical test data. intentional ingredient in the semiconductor device a s no credible reason to believe that the unavoidable	RoHS Recast and, to the be	Directive) and st of Microchi	with EU	0.05		Chip (Die) 7440-21-3	% of Total Weight 100	
ective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). mpliance with the above EU Directives has been verified v chemical substance is absent from the list above, the che chnology incorporated's knowledge and belief as of the da bstance, if any, is not below the threshold of regulatory co iding compounds used by Microchip meet the UL94 V0 fla p://ul.com/global/eng/pages/offerings/industries/chemicals	mply with EU Directive 2002 ia internal design controls, s amical substance is NOT an ite of this document, there is nocern for any regulatory scl mmability standard for plast s/plastics/	g Total Mass 2/95/EC (RoHS Directive), EU Directive 2011/65/EU (R supplier declarations, and /or analytical test data. intentional ingredient in the semiconductor device a s no credible reason to believe that the unavoidable neme world-wide. itcs. You can access the UL iQTM family of database	RoHS Recast and, to the be impurity cond as to obtain a	Directive) and st of Microchi centration of t test report at	with EU p he chemical		Doped Silicon	Chip (Die) 7440-21-3 Total	% of Total Weight 100 100.00	
rective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). wppliance with the above EU Directives has been verified v a chemical substance is absent from the list above, the che chnology Incorporated's knowledge and belief as of the da bstance, if any, is not below the threshold of regulatory co olding compounds used by Microchip meet the UL94 V0 fla p://ul.com/global/eng/pages/offerings/industries/chemicals e protective "tubes" in which the specific product is shipp	mply with EU Directive 2002 ia internal design controls, s amical substance is NOT an ite of this document, there is nocern for any regulatory scl mmability standard for plast s/plastics/	g Total Mass 2/95/EC (RoHS Directive), EU Directive 2011/65/EU (R supplier declarations, and /or analytical test data. intentional ingredient in the semiconductor device a s no credible reason to believe that the unavoidable neme world-wide. itcs. You can access the UL iQTM family of database	RoHS Recast and, to the be impurity cond as to obtain a	Directive) and st of Microchi centration of t test report at	with EU p he chemical		Doped Silicon	Chip (Die) 7440-21-3 Total Wire Bond 7440-50-8 7440-05-3	% of Total Weight 100 100.00 % of Total Weight 98.25 1.75 1.75	0.21
rective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). wmpliance with the above EU Directives has been verified v a chemical substance is absent from the list above, the che chnology Incorporated's knowledge and belief as of the da bstance, if any, is not below the threshold of regulatory co blding compounds used by Microchip meet the UL94 V0 fla p://ul.com/global/eng/pages/offerings/industries/chemicals the protective "tubes" in which the specific product is shipp d certain "reels" may be made from PVC plastic. crochip Technology Incorporated believes the information vices in their original packing materials is true and correct arantee the completeness and accuracy of data in this forr	mply with EU Directive 2002 ia internal design controls, : emical substance is NOT an ite of this document, there is nocern for any regulatory sci mmability standard for plast s/plastics/ ed are made from polyvinyl in this form concerning sub to the best of its knowledgor m because it has been comp	g Total Mass 295/EC (RoHS Directive), EU Directive 2011/65/EU (R supplier declarations, and /or analytical test data. intentional ingredient in the semiconductor device a s no credible reason to believe that the unavoidable neme world-wide. tics. You can access the UL iQTM family of database chloride (PVC) plastic. "Window envelopes" used to stances restricted by RoHS in Microchip Technolog a and belief, as of the date listed in this form. Microc iled based on the ranges provided in Material Safety	RoHS Recast and, to the be impurity con- es to obtain a b hold the pac y Incorporate hip Technolo / Data Sheets	Directive) and st of Microchi centration of t test report at cking slip on tl cking slip on tl cking slip corporati provided by n	with EU p he chemical ne outer box uctor ed cannot aw material		mg) Total	Chip (Die) 7440-21-3 Total Wire Bond 7440-50-8	% of Total Weight 100 100.00 % of Total Weight 98.25 1.75 1.75	0.21
rective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). ompliance with the above EU Directives has been verified v a chemical substance is absent from the list above, the che schnology Incorporated's knowledge and belief as of the da bistance, if any, is not below the threshold of regulatory co- biding compounds used by Microchip meet the UL94 V0 fla tp://ul.com/global/eng/pages/offerings/industries/chemicals are protective "tubes" in which the specific product is shipp d certain "reels" may be made from PVC plastic. crochip Technology Incorporated believes the information vices in their original packing materials is true and correct arrantee the completeness and accuracy of data in this forr ppliers. Supplier information is often protected from discle ppliers. Information is provided only as estimates of the av	mply with EU Directive 2002 ia internal design controls, i emical substance is NOT an te of this document, there is ncern for any regulatory scl mmability standard for plasi s/plastics/ ied are made from polyvinyl in this form concerning sub to the best of its knowledgr m because it has been comp source as trade secrets and s rerage weight of these parts	g Total Mass 295/EC (RoHS Directive), EU Directive 2011/65/EU (R supplier declarations, and /or analytical test data. intentional ingredient in the semiconductor device a s no credible reason to believe that the unavoidable heme world-wide. tics. You can access the UL iQTM family of database chloride (PVC) plastic. "Window envelopes" used to stances restricted by RoHS in Microchip Technolog and belief, as of the date listed in this form. Microc illed based on the ranges provided in Material Safety ome information may not have been provided by sul and the average weight of anticipated significant to	RoHS Recast and, to the be impurity cond es to obtain a b hold the pac y Incorporate hip Technolo / Data Sheets bcontract asse xic metals co	Directive) and st of Microchi centration of ti test report at cking slip on th cking slip on th cy norporat provided by the semblers and i	with EU p he chemical he outer box uctor ed cannot raw material raw material		mg) Total	Chip (Die) 7440-21-3 Total Wire Bond 7440-50-8 7440-05-3 Total	% of Total Weight 100 100.00 % of Total Weight 98.25 1.75 100.00	0.21
his semiconductor device and its homogenous materials co rective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). Impliance with the above EU Directives has been verified v a chemical substance is absent from the list above, the che ischnology Incorporated's knowledge and belief as of the da bistance, if any, is not below the threshold of regulatory co olding compounds used by Microchip meet the UL94 V0 flat tp://ul.com/global/eng/pages/offerings/industries/chemicals the protective "tubes" in which the specific product is shipp id certain "reels" may be made from PVC plastic. Icrochip Technology Incorporated believes the information tvices in their original packing materials is true and correct ingrantee the completeness and accuracy of data in this forr uppliers. Supplier information is often protected from discle uppliers. Information is provided only as estimates of the av timates do not include trace levels of dopants, metals, and acrochip Technology Incorporated does not provide any wa arranties provided by Microchip Technology Incorporated crochip's quotations, sales order acknowledgement, and in	mply with EU Directive 2002 ia internal design controls, s emical substance is NOT an ite of this document, there is nocern for any regulatory sci mmability standard for plasi s/plastics/ ed are made from polyvinyl in this form concerning sub to the best of its knowledgo m because it has been comp sure as trade secrets and s verage weight of these parts non-metal materials contain urranty, express or implied, v and its subsidiaries are cont	g Total Mass 295/EC (RoHS Directive), EU Directive 2011/65/EU (R supplier declarations, and /or analytical test data. intentional ingredient in the semiconductor device a s no credible reason to believe that the unavoidable heme world-wide. tics. You can access the UL iQTM family of database chloride (PVC) plastic. "Window envelopes" used to stances restricted by RoHS in Microchip Technolog and belief, as of the date listed in this form. Microc illed based on the ranges provided in Material Safety ome information may not have been provided by sui and the average weight of anticipated significant to ned within silicon devices (silicon IC) in the finished with respect to the information provided in this decla	RoHS Recast and, to the be impurity cond es to obtain a o hold the pac y Incorporate hip Technolo / Data Sheets becontract asse xic metals co parts.	Directive) and st of Microchi centration of ti test report at cking slip on th cking slip o	with EU p he chemical he outer box uctor ed cannot raw material rese ed product		mg) Total	Chip (Die) 7440-21-3 Total Wire Bond 7440-50-8 7440-05-3	% of Total Weight 100 100.00 % of Total Weight 98.25 1.75 100.00	0.21
ective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). mpliance with the above EU Directives has been verified v a chemical substance is absent from the list above, the che chnology incorporated's knowledge and belief as of the da bestance, if any, is not below the threshold of regulatory co iding compounds used by Microchip meet the UL94 V0 fla p://ul.com/global/eng/pages/offerings/industries/chemicals e protective "tubes" in which the specific product is shipp d certain "reels" may be made from PVC plastic. crochip Technology Incorporated believes the information vices in their original packing materials is true and correct arantee the completeness and accuracy of data in this forr ppliers. Supplier information is often protected from discle pipilers. Information is provided only as estimates of the ax timates do not include trace levels of dopants, metals, and crochip Technology Incorporated does not provide any wa rranties provided by Microchip Technology Incorporated	mply with EU Directive 2002 ia internal design controls, i emical substance is NOT an ite of this document, there is neern for any regulatory sci mmability standard for plasi /plastics/ ied are made from polyvinyl in this form concerning sub it to the best of its knowledgy in because it has been comp osure as trade secrets and s errage weight of these parts i non-metal materials contain irranty, express or implied, v and its subsidiaries are cont nvoices.	g Total Mass 295/EC (RoHS Directive), EU Directive 2011/65/EU (R supplier declarations, and /or analytical test data. intentional ingredient in the semiconductor device as so credible reason to believe that the unavoidable heme world-wide. tics. You can access the UL iQTM family of database chloride (PVC) plastic. "Window envelopes" used to stances restricted by RoHS in Microchip Technolog e and belief, as of the date listed in this form. Microc illed based on the ranges provided in Material Safety one information may not have been provided by sul and the average weight of anticipated significant to ned within silicon devices (silicon IC) in the finished with respect to the information provided in this decla alned in Microchip's standard terms and conditions Declarations and shall not be liable for any damages,	RoHS Recast and, to the be impurity cond as to obtain a b hold the pace y Incorporate hip Technolo / Data Sheets bcontract ass xic metals co parts. aration. The e of sale. Thes , direct or ind	Directive) and st of Microchi centration of ti test report at cking slip on th cy Incorporat provided by I components. Th xclusive, limit e are provided lirect, consequ	with EU p he chemical he outer box uctor ed cannot aw material aw material iese ed product l in uential or	0.05	Copper Palladium	Chip (Die) 7440-21-3 Total Wire Bond 7440-50-8 7440-05-3 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1	% of Total Weight 100 100.00 % of Total Weight 98.25 1.75 100.00	0.21

	Tumor MC 46.4			ation Base A oper Alloy (C	.,			ogeneous Materials: a.g. pc boards, display	ys)	JEDEC 97 Produ Marking and/o Pkg. Labeling e3
Semiconductor Device	Type: MG 16 (Lead)			-						
Basic Substance	CAS Number	"Contained In" Sub-Component	% Total Weight	mg/part	ppm	13.79	(mg) Total	Mold Compound	% ot Total Weight	63.82
Silica, fused	60676-86-0	Mold Compound	57.438	12.407	574,380		Silica, fused	60676-86-0	90.00	
Epoxy Resin (NLP # 500-033-5)	Trade Secret	Mold Compound	3.095	0.669	30,953	Epox	y Resin (NLP # 500-033-5)	Trade Secret	4.85	
Phenolic Resin	Trade Secret	Mold Compound	3.095	0.669	30,953		Phenolic Resin	Trade Secret	4.85	
Carbon Black	1333-86-4	Mold Compound	0.191	0.041	1,915		Carbon Black	1333-86-4	0.30	
Copper	7440-50-8 7439-89-6	Lead Frame	22.289 0.548	4.814	222,889		/ . .	Total	100.00	
Iron		Lead Frame		0.118	5,483	5.04	(mg) Total	Lead Frame	% of Total Weight	23.33
Silver Zinc	7440-22-4 7440-66-6	Lead Frame Lead Frame	0.444	0.096	4,444 292		Copper	7440-50-8	95.54	
Phosphorous	7440-66-6	Lead Frame	0.029	0.006	192		Iron Silver	7439-89-6 7440-22-4	2.35 1.91	
Silver	7440-22-4	Die Attach	0.273	0.059	2,730		Zinc	7440-22-4	0.13	
Acrylate resins Proprietary	Trade Secret	Die Attach	0.063	0.014	630		Phosphorous	7723-14-0	0.08	
Treated silica	Trade Secret	Die Attach	0.007	0.002	70		1 nosphorous	Total	100.00	
Heterocyclic organic compound	Trade Secret	Die Attach	0.007	0.002	70	0.08	(mg) Total	Die Attach	% of Total Weight	0.35
Silicon	7440-21-3	Chip (Die)	5,350	1.156	53,500	0.00	Silver	7440-22-4	78	0.00
Gold	7440-57-5	Wire Bond	1.840	0.397	18,400		Acrylate resins Proprietary	Trade Secret	18	
Tin		Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	5.310	1.147	53,100		Treated silica	Trade Secret	2	
		TOTALS:	100.000	21.600	1,000,000	Hete	rocyclic organic compound	Trade Secret	2	
	0.0216 c	Total Mass						Total	100.00	
s semiconductor device and its homogenous materials co ective 2002/53/EC (End-of-Life Vehicles (ELV) Directive).			oHS Recast Dire	ective) and wi	th EU	1.16	Total (mg)	Chip (Die)	% of Total Weight	5.35
mpliance with the above EU Directives has been verified v	ia internal design controls, e	upplier declarations, and /or analytical test data.					Doped Silicon	7440-21-3	100	
chemical substance is absent from the list above, the che orporated's knowledge and belief as of the date of this door, r, is not below the threshold of regulatory concern for any Iding compounds used by Microchip meet the UL94 V0 flat	cument, there is no credible regulatory scheme world-wi	reason to believe that the unavoidable impurity conce ide.	entration of the	chemical sul			<i></i>	Total	100.00	
p://ul.com/global/eng/pages/offerings/industries/chemicals						0.40	(mg) Total	Wire Bond	% of Total Weight	1.84
	ed are made from polyvinyl									
e protective "tubes" in which the specific product is shipp d certain "reels" may be made from PVC plastic.		chloride (PVC) plastic. "Window envelopes" used to l	hold the packin	g slip on the o	outer box		Doped Gold	7440-57-5	100	
	in this form concerning sub- t of its knowledge and belief as been compiled based on t ade secrets and some inform ght of these parts and the av	stances restricted by RoHS in Microchip Technology , as of the date listed in this form. Microchip Technol the ranges provided in Material Safety Data Sheets pr nation may not have been provided by subcontract as rerage weight of anticipated significant toxic metals c	Incorporated's ogy Incorporate ovided by raw ssemblers and	semiconduct ed cannot gua material supp raw material s	tor devices in arantee the iliers. suppliers.		Doped Gold	7440-57-5 Total	100 100.00	
d certain "reels" may be made from PVC plastic. crochip Technology Incorporated believes the information eir original packing materials is true and correct to the best mpleteness and accuracy of data in this form because it he pplier information is often protected from disclosure as tra ormation is provided only as estimates of the average welg	in this form concerning sub t of its knowledge and belief as been compiled based on 1 ade secrets and some inform ght of these parts and the av ials contained within silicon urranty, express or implied, v	stances restricted by RoHS in Microchip Technology , as of the date listed in this form. Microchip Technolo the ranges provided in Material Safety Data Sheets pr nation may not have been provided by subcontract as rerage weight of anticipated significant toxic metals co devices (silicon IC) in the finished parts.	Incorporated's ogy Incorporate ovided by raw ssemblers and omponents. Th ation. The excl	semiconduct ed cannot gua material supp raw material s ese estimates usive, limited	for devices in arantee the iliers. suppliers. s do not product	1.15	(mg) Total			5.31
d certain "reels" may be made from PVC plastic. crochip Technology Incorporated believes the information ir original packing materials is true and correct to the best mpleteness and accuracy of data in this form because it ha pplier information is often protected from disclosure as tra ormation is provided only as estimates of the average weig- clude trace levels of dopants, metals, and non-metal materi crochip Technology Incorporated does not provide any wa irranties provided by Microchip Technology Incorporated a	in this form concerning sub t of its knowledge and belief as been compiled based on 1 adde secrets and some inform ght of these parts and the av ials contained within silicon urranty, express or implied, w and its subsidiaries are conta hanges to Material Content D e users' reliance on the infor	stances restricted by RoHS in Microchip Technology , as of the date listed in this form. Microchip Technol the ranges provided in Material Safety Data Sheets pr nation may not have been provided by subcontract as rerage weight of anticipated significant toxic metals c devices (silicon IC) in the finished parts. with respect to the information provided in this declara ained in Microchip's standard terms and conditions of Declarations and shall not be liable for any damages, c	Incorporated's ogy Incorporat ovided by raw semblers and omponents. Th ation. The excl f sale. These a direct or indirect	semiconduct ed cannot gua material supp aw material s ese estimates usive, limited re provided in	tor devices in arantee the liers. suppliers. s do not product Microchip's ttial or	1.15	(mg) Total	Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1	100.00	5.31

ICROCHIP Semiconductor Device	Type: ML 16 (Lead) QFN	(vdmm (DE / DS)		nation Base A pper Alloy (C			•	ogeneous Materials: a.g. pc boards, displa		JEDEC 97 Product Marking and/or Pkg. Labeling e3
Semiconductor Device	Type. WE TO (Lead) with	"Contained In"	0/ Total	1	1			1		
Basic Substance	CAS Number	Sub-Component	% Total Weight	mg/part	ppm	19.49	(mg) Total	Mold Compound	% ot Total Weight	46.75
Silica, fused	60676-86-0	Mold Compound	42.075	17.545	420,750		Silica, fused	60676-86-0	90.00	
Epoxy Resin (NLP # 500-033-5)	Trade Secret	Mold Compound	2.267	0.945	22,674		Epoxy Resin	Trade Secret	4.85	
Phenolic Resin	Trade Secret	Mold Compound	2.267	0.945	22,674		Phenolic Resin	Trade Secret	4.85	
Carbon Black	1333-86-4	Mold Compound	0.140	0.058	1,403		Carbon Black	1333-86-4	0.30	
Copper	7440-50-8	Lead Frame	38.511	16.059	385,112			Total	100.00	
Iron	7439-89-6	Lead Frame	0.947	0.395	9,473	16.81	(mg) Total	Lead Frame	% of Total Weight	40.31
Silver	7440-22-4	Lead Frame	0.768	0.320	7,679		Copper	7440-50-8	95.54	
Zinc	7440-66-6	Lead Frame	0.050	0.021	504		Iron	7439-89-6	2.35	
Phosphorous	7723-14-0	Lead Frame	0.033	0.014	333		Silver	7440-22-4	1.91	
Silver	7440-22-4	Die Attach	1.022	0.426	10.218		Zinc	7440-66-6	0.13	
Acrylate resins Proprietary	Trade Secret	Die Attach	0.236	0.098	2,358		Phosphorous	7723-14-0	0.08	
Treated silica	Trade Secret	Die Attach	0.026	0.011	262		Theophorede	Total	100.00	
Heterocyclic organic compound	Trade Secret	Die Attach	0.020	0.011	262	0.55	(mg) Total	Die Attach	% of Total Weight	1.31
	7440-21-3	Chip (Die)	7.890	3.290	78,900	0.55				1.31
Silicon	7440-21-3 7440-57-5	Wire Bond	0.790	0.329	78,900		Silver	7440-22-4	78	
Gold							Acrylate resins Proprietary	Trade Secret	18	
Tin	7440-31-5 Plating of	on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	2.950 100.000	1.230 41.700	29,500 1.000.000		Treated silica	Trade Secret Trade Secret	2	
		TOTALS:	100.000	41.700	1,000,000	Hete	rocyclic organic compound	Trade Secret	∠ 100.00	
		al Mass		······				10101	100.00	
semiconductor device and its homogenous materials c tive 2002/53/EC (End-of-Life Vehicles (ELV) Directive).	omply with EU Directive 2002/95/	EC (RoHS Directive), EU Directive 2011/65/EU (RoHS Recast D	virective) and v	with EU	3.29	Total (mg)	Chip (Die)	% of Total Weight	7.89
tive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). Diance with the above EU Directives has been verified v	omply with EU Directive 2002/95/ via internal design controls, supp	EC (RoHS Directive), EU Directive 2011/65/EU (·		3.29	Total (mg) Doped Silicon	Chip (Die) 7440-21-3	% of Total Weight	7.89
tive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). Diance with the above EU Directives has been verified of nemical substance is absent from the list above, the ch porated's knowledge and belief as of the date of this do s not below the threshold of regulatory concern for an	omply with EU Directive 2002/95/ via internal design controls, supp emical substance is NOT an inter ocument, there is no credible rea y regulatory scheme world-wide.	EC (RoHS Directive), EU Directive 2011/65/EU (plier declarations, and /or analytical test data. ntional ingredient in the semiconductor device son to believe that the unavoidable impurity co	and, to the bes ncentration of t	t of Microchip the chemical s	Technology	3.29		Chip (Die)	% of Total Weight	7.89
tive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). Diance with the above EU Directives has been verified v nemical substance is absent from the list above, the ch porated's knowledge and belief as of the date of this do	omply with EU Directive 2002/95/ via internal design controls, supp emical substance is NOT an inter ccument, there is no credible rea y regulatory scheme world-wide. ammability standard for plastics.	EC (RoHS Directive), EU Directive 2011/65/EU (plier declarations, and /or analytical test data. ntional ingredient in the semiconductor device son to believe that the unavoidable impurity co	and, to the bes ncentration of t	t of Microchip the chemical s	Technology	3.29 0.33		Chip (Die) 7440-21-3	% of Total Weight	7.89
tive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). Diance with the above EU Directives has been verified v nemical substance is absent from the list above, the ch porated's knowledge and belief as of the date of this do s not below the threshold of regulatory concern for any ng compounds used by Microchip meet the UL94 V0 fla	omply with EU Directive 2002/95/ via internal design controls, supp emical substance is NOT an inter ocument, there is no credible rea y regulatory scheme world-wide. ammability standard for plastics. Is/plastics/	EC (RoHS Directive), EU Directive 2011/65/EU (blier declarations, and /or analytical test data. ntional ingredient in the semiconductor device son to believe that the unavoidable impurity co You can access the UL iQTM family of databas	and, to the bes ncentration of t es to obtain a to	t of Microchip the chemical s est report at	r Technology substance, if		Doped Silicon	Chip (Die) 7440-21-3 Total Wire Bond 7440-57-5	% of Total Weight 100 100.00 % of Total Weight 100	
tive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). Diance with the above EU Directives has been verified unemical substance is absent from the list above, the choporated's knowledge and belief as of the date of this dds is not below the threshold of regulatory concern for any ng compounds used by Microchip meet the UL94 V0 fla /ul.com/global/eng/pages/offerings/industries/chemical vortective "tubes" in which the specific product is shipp vertain "reels" may be made from PVC plastic. Inchip Technology Incorporated believes the information is original packing materials is true and correct to the bompleteness and accuracy of data in this form because lier information is often protected from disclosure as tration is provided only as estimates of the average weil de trace levels of dopants, metals, and non-metal material	omply with EU Directive 2002/95/ via internal design controls, supp emical substance is NOT an inter ocument, there is no credible rea y regulatory scheme world-wide. ammability standard for plastics. (s/plastics/ ped are made from polyvinyl chlo n in this form concerning substar best of its knowledge and belief, a is it has been compiled based on i rade secrets and some informatio gight of these parts and the averag- rials contained within silicon devi	EC (RoHS Directive), EU Directive 2011/65/EU (blier declarations, and /or analytical test data. Intional ingredient in the semiconductor device son to believe that the unavoidable impurity co You can access the UL iQTM family of databas oride (PVC) plastic. "Window envelopes" used t the canges provided in Microchip Technolo as of the date listed in this form. Microchip Tec the ranges provided in Material Safety Data Sho on may not have been provided by subcontract ge weight of anticipated significant toxic metals ices (silicon IC) in the finished parts.	and, to the bes ncentration of f es to obtain a tr o hold the pack gy Incorporatec hnology Incorp sets provided b assemblers an s components.	t of Microchip the chemical s est report at ting slip on the d's semicondu orated canno y raw material d raw material These estimat	e outer box ictor devices t guarantee I suppliers. I suppliers. les do not		(mg) Total	Chip (Die) 7440-21-3 Total Wire Bond 7440-57-5 Total	% of Total Weight 100 100.00 % of Total Weight	
tive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). Diance with the above EU Directives has been verified v nemical substance is absent from the list above, the ch porated's knowledge and belief as of the date of this do s not below the threshold of regulatory concern for any ng compounds used by Microchip meet the UL94 V0 fit /ul.com/global/eng/pages/offerings/industries/chemical protective "tubes" in which the specific product is shipp tertain "reels" may be made from PVC plastic. The provided on the accuracy of data in this form because lier information is often protected from disclosure as tr mation is provided only as estimates of the average wei de trace levels of dopants, metals, and non-metal mater whites provided by Microchip Technology Incorporated chip's quotations, sales order acknowledgement, and i	omply with EU Directive 2002/95/ via internal design controls, supp emical substance is NOT an inter occument, there is no credible rea y regulatory scheme world-wide. ammability standard for plastics. Is/plastics/ ped are made from polyvinyl chlo n in this form concerning substar best of its knowledge and belief, a it has been compiled based on i "ade secrets and some informatio ight of these parts and the averag rials contained within silicon devi arranty, express or implied, with and its subsidiaries are containe invoices.	EC (RoHS Directive), EU Directive 2011/65/EU (blier declarations, and /or analytical test data. ntional ingredient in the semiconductor device son to believe that the unavoidable impurity co You can access the UL iQTM family of databas vide (PVC) plastic. "Window envelopes" used t the expression of the date listed in this form. Microchip Technolo as of the date listed in this form. Microchip Technolo as of the date listed in this form. Microchip Technolo on may not have been provided by subcontract ge weight of anticipated significant toxic metals ices (silicon IC) in the finished parts. respect to the information provided in this deci d in Microchip's standard terms and conditions	and, to the bes ncentration of t es to obtain a tr o hold the pack gy Incorporatec hnology Incorp ests provided b assemblers an s components." laration. The ex s of sale. These	t of Microchip the chemical s est report at ting slip on the orated canno y raw materia d raw materia These estimat clusive, limite are provided	e outer box e outer box ictor devices t guarantee I suppliers. I suppliers. les do not in		(mg) Total (mg) Total	Chip (Die) 7440-21-3 Total Wire Bond 7440-57-5	% of Total Weight 100 100.00 % of Total Weight 100	
tive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). Diance with the above EU Directives has been verified v nemical substance is absent from the list above, the ch porated's knowledge and belief as of the date of this do s not below the threshold of regulatory concern for any ng compounds used by Microchip meet the UL94 V0 fik /ul.com/global/eng/pages/offerings/industries/chemical protective "tubes" in which the specific product is shipp tertain "reels" may be made from PVC plastic. The provided only as estimates of the average weil de trace levels of dopants, metals, and non-metal mater chip Technology Incorporated does not provide any w inties provided by Microchip Technology Incorporated does not provide any w	omply with EU Directive 2002/95/ via internal design controls, supp emical substance is NOT an inter ocument, there is no credible rea y regulatory scheme world-wide. ammability standard for plastics. Is/plastics/ ped are made from polyvinyl chlo n in this form concerning substar oest of its knowledge and belief, a it has been compiled based on to ade secrets and some informatic ight of these parts and the average rials contained within silicon devi arranty, express or implied, with and its subsidiaries are contained invoices. hanges to Material Content Declate e users' reliance on the informatic	EC (RoHS Directive), EU Directive 2011/65/EU (blier declarations, and /or analytical test data. Intional ingredient in the semiconductor device son to believe that the unavoidable impurity co You can access the UL iQTM family of databas oride (PVC) plastic. "Window envelopes" used t the ranges provided in Material Safety Data Sh on may not have been provided by subcontract ge weight of anticipated significant toxic metals ices (silicon IC) in the finished parts. respect to the information provided in this deci d in Microchip's standard terms and conditions arations and shall not be liable for any damage:	and, to the bes ncentration of f es to obtain a tr o hold the pack gy Incorporated hnology Incorp ests provided b assemblers an s components." laration. The ex s of sale. These s, direct or indir	t of Microchip the chemical s est report at ting slip on the d's semicondu orated canno orated canno these estimat d raw material These estimat clusive, limite are provided rect, conseque	e outer box e outer box t guarantee I suppliers. I suppliers. les do not d product in ential or	0.33	(mg) Total (mg) Total	Chip (Die) 7440-21-3 Total Wire Bond 7440-57-5 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for	% of Total Weight 100 100.00 % of Total Weight 100 100.00	0.79

Semiconductor Device		N 4x4mm (G4 / GM)		nation Base A pper Alloy (C			•	ogeneous Materials: .g. pc boards, display	rs)	JEDEC 97 Produc Marking and/or Pkg. Labeling e3
Schliebilddetor Beviet	Type: Inc 20 (Lead) &	"Contained In"	% Total	1	1					
Basic Substance	CAS Number	Sub-Component	Weight	mg/part	ppm	22.31	(mg) Total	Mold Compound	% ot Total Weight	51.79
Silica, fused	60676-86-0	Mold Compound	46.611	20.080	466,110		Silica, fused	60676-86-0	90.00	
Epoxy Resin (NLP # 500-033-5)	Trade Secret	Mold Compound	2.512	1.082	25,118	Epox	y Resin (NLP # 500-033-5)	Trade Secret	4.85	
Phenolic Resin	Trade Secret	Mold Compound	2.512	1.082	25,118	-	Phenolic Resin	Trade Secret	4.85	
Carbon Black	1333-86-4	Mold Compound	0.155	0.067	1,554		Carbon Black	1333-86-4	0.30	
Copper	7440-50-8	Lead Frame	36.404	15.683	364,040			Total	100.00	•
Tin	7440-31-5	Lead Frame	0.093	0.040	934	16.10	(mg) Total	Lead Frame	% of Total Weight	37.37
Silver	7440-22-4	Lead Frame	0.712	0.307	7,119		Copper	7440-50-8	97.42	
Zinc	7440-66-6	Lead Frame	0.067	0.029	673		Tin	7440-31-5	0.25	
Chromium	7440-47-3	Lead Frame	0.093	0.040	934		Silver	7440-22-4	1.91	
Silver	7440-22-4	Die Attach	1.053	0.454	10,530		Zinc	7440-66-6	0.18	
Acrylate resins Proprietary	Trade Secret	Die Attach	0.243	0.105	2,430		Chromium	7440-47-3	0.25	
Treated silica	Trade Secret	Die Attach	0.027	0.012	270			Total	100.00	
Heterocyclic organic compound	Trade Secret	Die Attach	0.027	0.012	270	0.58	(mg) Total	Die Attach	% of Total Weight	1.35
Silicon	7440-21-3	Chip (Die)	4.410	1.900	44.100		Silver	7440-22-4	78	
Gold	7440-57-5	Wire Bond	0.640	0.276	6,400		Acrylate resins Proprietary	Trade Secret	18	
Tin	7440-31-5 Platir	ng on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	4.440	1.913	44,400		Treated silica	Trade Secret	2	
		TOTALS:	100.000	43.080	1,000,000	Hete	rocyclic organic compound	Trade Secret	2	
	0.04308 g T	otal Mass						Total	100.00	
ective 2002/53/EC (End-of-Life Vehicles (ELV) Directive).		· " · · ·	RoHS Recast D	irective) and v	vith EU	1.90	Total (mg)	Chip (Die)	% of Total Weight	4.41
is semiconductor device and its homogenous materials con rective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). Impliance with the above EU Directives has been verified via a chemical substance is absent from the list above, the cher	a internal design controls, sup mical substance is NOT an inte	plier declarations, and /or analytical test data.	and, to the best	t of Microchip	Technology	1.90	Total (mg) Doped Silicon	Chip (Die) 7440-21-3 Total	% of Total Weight 100 100.00	4.41
ective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). empliance with the above EU Directives has been verified via a chemical substance is absent from the list above, the cher corporated's knowledge and belief as of the date of this doc y, is not below the threshold of regulatory concern for any r	a internal design controls, sup nical substance is NOT an inte ument, there is no credible rea regulatory scheme world-wide.	plier declarations, and /or analytical test data. entional ingredient in the semiconductor device a ison to believe that the unavoidable impurity cor	and, to the best ncentration of t	t of Microchip he chemical s	Technology	1.90		7440-21-3	100	4.41
rective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). Impliance with the above EU Directives has been verified via	a internal design controls, sup mical substance is NOT an inte ument, there is no credible rea regulatory scheme world-wide. nmability standard for plastics.	plier declarations, and /or analytical test data. entional ingredient in the semiconductor device a ison to believe that the unavoidable impurity cor	and, to the best ncentration of t	t of Microchip he chemical s	Technology	1.90 0.28		7440-21-3	100	
rective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). ompliance with the above EU Directives has been verified via a chemical substance is absent from the list above, the cher corporated's knowledge and belief as of the date of this doc y, is not below the threshold of regulatory concern for any r olding compounds used by Microchip meet the UL94 V0 flam	a internal design controls, sup, nical substance is NOT an inte ument, there is no credible rea regulatory scheme world-wide. nmability standard for plastics. plastics/	plier declarations, and /or analytical test data. Intional ingredient in the semiconductor device a son to believe that the unavoidable impurity cor You can access the UL iQTM family of database	and, to the besi ncentration of t es to obtain a t	t of Microchip he chemical s est report at	Technology ubstance, if		Doped Silicon	7440-21-3 Total	100 100.00	
rective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). empliance with the above EU Directives has been verified via a chemical substance is absent from the list above, the cher corporated's knowledge and belief as of the date of this door y, is not below the threshold of regulatory concern for any r blding compounds used by Microchip meet the UL94 V0 flam cp://ul.com/global/eng/pages/offerings/industries/chemicals/ e protective "tubes" in which the specific product is shippe	a internal design controls, sup mical substance is NOT an inte ument, there is no credible rea regulatory scheme world-wide. mability standard for plastics. plastics/ wd are made from polyvinyl chluent n this form concerning substant st of its knowledge and belief, t has been compiled based on de secrets and some informatin th of these parts and the avera	plier declarations, and /or analytical test data. entional ingredient in the semiconductor device a ison to believe that the unavoidable impurity cor You can access the UL iQTM family of database oride (PVC) plastic. "Window envelopes" used to neces restricted by RoHS in Microchip Technolog as of the date listed in this form. Microchip Tech the ranges provided in Material Safety Data She on may not have been provided by subcontract a ge weight of anticipated significant toxic metals	and, to the besi ccentration of t es to obtain a t o hold the pack y Incorporated nnology Incorp ets provided by ets provided by	t of Microchip he chemical si est report at ing slip on the 's semiconduc orated cannot y raw material d raw material	Technology ubstance, if e outer box ctor devices guarantee suppliers.		Doped Silicon (mg) Total	7440-21-3 Total Wire Bond	100 100.00 % of Total Weight	
rective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). ampliance with the above EU Directives has been verified via a chemical substance is absent from the list above, the cher corporated's knowledge and belief as of the date of this doc y, is not below the threshold of regulatory concern for any r blding compounds used by Microchip meet the UL94 V0 flan (p://ul.com/global/eng/pages/offerings/industries/chemicals/ le protective "tubes" in which the specific product is shipped d certain "reels" may be made from PVC plastic. crochip Technology Incorporated believes the information in their original packing materials is true and correct to the be a completeness and accuracy of data in this form because in pplier information is often protected from disclosure as trac ormation is provided only as estimates of the average weigi	a internal design controls, sup mical substance is NOT an inte ument, there is no credible rea regulatory scheme world-wide. mability standard for plastics. plastics/ ad are made from polyvinyl chl- n this form concerning substan ist of its knowledge and belief, t has been compiled based on de secrets and some informati- ht of these parts and the avera las contained within silicon dev ranty, express or implied, with d its subsidiaries are contained	plier declarations, and /or analytical test data. entional ingredient in the semiconductor device a ison to believe that the unavoidable impurity cor You can access the UL iQTM family of database oride (PVC) plastic. "Window envelopes" used to neces restricted by RoHS in Microchip Technolog as of the date listed in this form. Microchip Tech the ranges provided in Material Safety Data She on may not have been provided by subcontrat a ge weight of anticipated significant toxic metals rices (silicon IC) in the finished parts. respect to the information provided in this decla	and, to the besi ncentration of t es to obtain a t o hold the pack hnology incorp ets provided by assemblers an components.	t of Microchip he chemical si est report at ing slip on the orated cannot y raw material d raw material These estimate	Technology ubstance, if e outer box ctor devices guarantee suppliers. suppliers. es do not d product		Doped Silicon (mg) Total	7440-21-3 Total Wire Bond 7440-57-5	100 100.00 % of Total Weight 100	
active 2002/53/EC (End-of-Life Vehicles (ELV) Directive). mpliance with the above EU Directives has been verified via chemical substance is absent from the list above, the cher orporated's knowledge and belief as of the date of this doc i, is not below the threshold of regulatory concern for any r iding compounds used by Microchip meet the UL94 V0 flan bc/ul.com/global/eng/pages/offerings/industries/chemicals/ e protective "tubes" in which the specific product is shippe I certain "reels" may be made from PVC plastic. rochip Technology Incorporated believes the information in heir original packing materials is true and correct to the be completeness and accuracy of data in this form because in polier information is often protected from disclosure as trao promation is provided only as estimates of the average weigil ude trace levels of dopants, metals, and non-metal materia rochip Technology Incorporated does not provide any warr ranties provided by Microchip Technology Incorporated an	a internal design controls, sup mical substance is NOT an inte ument, there is no credible rea regulatory scheme world-wide. mability standard for plastics. plastics/ wd are made from polyvinyl chl- n this form concerning substant st of its knowledge and belief, t has been compiled based on de secrets and some informati- th of these parts and the avera als contained within silicon dev ranty, express or implied, with nd its subsidiaries are containe voices. anges to Material Content Decl users' reliance on the informati-	plier declarations, and /or analytical test data. entional ingredient in the semiconductor device a uson to believe that the unavoidable impurity cor You can access the UL iQTM family of database oride (PVC) plastic. "Window envelopes" used to nees restricted by RoHS in Microchip Technolog as of the date listed in this form. Microchip Tech the ranges provided in Material Safety Data She on may not have been provided by subcontract : ge weight of anticipated significant toxic metals rices (silicon IC) in the finished parts. respect to the information provided in this decla id in Microchip's standard terms and conditions arations and shall not be liable for any damages	and, to the besi ncentration of t es to obtain a t o hold the pack hnology Incorp ets provided by assemblers ann components. " aration. The ex of sale. These , direct or indir	t of Microchip he chemical si est report at ing slip on the semicondur orated cannot y raw material These estimat clusive, limite are provided i rect, conseque	Technology ubstance, if e outer box ctor devices guarantee suppliers. suppliers. suppliers. suppliers. d product n	0.28	Ooped Silicon (mg) Total Doped Gold	7440-21-3 Total Wire Bond 7440-57-5 Total Plating on external leads (pins) - Matte Tin /	100 100.00 % of Total Weight 100 100.00	0.64

Semiconductor Device	a Type: MO 20 //	1) OFN 54540 0mm (08)		nation Base A pper Alloy (C				ogeneous Materials: .g. pc boards, displa	ys)	JEDEC 97 Product Markin and/or Pkg. Labeling e3
		"Contained In"	% Total			35.52	(mg) Total	Mold Compound	% ot Total Weight	52.91
Basic Substance	CAS Number	Sub-Component	Weight	mg/part	ppm		,	•		
Silica, fused	60676-86-0	Mold Compound	47.619	31.967	476,190	-	Silica, fused	60676-86-0	90.00	
Epoxy Resin (NLP # 500-033-5)	Trade Secret	Mold Compound	2.566	1.723	25,661	Epox	y Resin (NLP # 500-033-5)	Trade Secret	4.85	
Phenolic Resin Carbon Black	Trade Secret	Mold Compound	2.566 0.159	1.723 0.107	25,661 1,587		Phenolic Resin	Trade Secret	4.85	
	1333-86-4	Mold Compound					Carbon Black	1333-86-4	0.30	
Copper	7440-50-8	Lead Frame	35.362	23.738	353,616			Total	100.00	
Tin	7440-31-5	Lead Frame	0.091	0.061	908	24.37	(mg) Total	Lead Frame	% of Total Weight	36.3
Silver	7440-22-4	Lead Frame	0.692	0.464	6,915		Copper	7440-50-8	97.42	
Zinc	7440-66-6	Lead Frame	0.065	0.044	653		Tin	7440-31-5	0.25	
Chromium	7440-47-3	Lead Frame	0.091	0.061	908		Silver	7440-22-4	1.91	
Silver	7440-22-4	Die Attach	1.412	0.948	14,118		Zinc	7440-66-6	0.18	
Acrylate resins Proprietary	Trade Secret	Die Attach	0.326	0.219	3,258		Chromium	7440-47-3	0.25	
Treated silica	Trade Secret	Die Attach	0.036	0.024	362		•	Total	100.00	
Heterocyclic organic compound	Trade Secret	Die Attach	0.036	0.024	362	1.22	(mg) Total	Die Attach	% of Total Weight	1.81
Silicon	7440-21-3	Chip (Die)	4.160	2.793	41.600		Silver	7440-22-4	78	
Gold	7440-57-5	Wire Bond	0.540	0.363	5.400		Acrvlate resins Proprietary	Trade Secret	18	
Tin	7440-31-5	Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	4.280	2.873	42.800		Treated silica	Trade Secret	2	
IIII	7440-51-5	Flating on external leads (pins) - waite fin/ annealed at 150 C for Floor TOTALS:	100.000	67.130	1,000,000	Linte	rocyclic organic compound	Trade Secret	2	
			100.000	07.150	1,000,000	Helei	ocyclic organic compound		_	
	0.06713	g Total Mass						Total	100.00	
ive 2002/53/EC (End-of-Life Vehicles (ELV) Directive).			EU (RoHS Rec	ast Directive) a	and with EU	2.79	Total (mg)	Chip (Die)	% of Total Weight	4.16
tive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). Diance with the above EU Directives has been verified	via internal design contro	ls, supplier declarations, and /or analytical test dat	ta.			2.79	Total (mg) Doped Silicon	7440-21-3	100	4.16
	via internal design contro hemical substance is NOT date of this document, the	Is, supplier declarations, and /or analytical test dat an intentional ingredient in the semiconductor dev re is no credible reason to believe that the unavoid	ta. vice and, to the	e best of Micro	chip	2.79				4.16
bliance with the above EU Directives has been verified nemical substance is absent from the list above, the cl nology Incorporated's knowledge and belief as of the ical substance, if any, is not below the threshold of re ng compounds used by Microchip meet the UL94 V0 fl	via internal design contro hemical substance is NOT date of this document, the gulatory concern for any r lammability standard for p	Is, supplier declarations, and /or analytical test dat an intentional ingredient in the semiconductor dev re is no credible reason to believe that the unavoid egulatory scheme world-wide.	ta. vice and, to the dable impurity o	e best of Micro concentration	chip of the	2.79 0.36		7440-21-3	100	4.16 0.54
bliance with the above EU Directives has been verified hemical substance is absent from the list above, the cl nology Incorporated's knowledge and belief as of the e	via internal design contro hemical substance is NOT date of this document, the gulatory concern for any r lammability standard for p als/plastics/	Is, supplier declarations, and /or analytical test dat an intentional ingredient in the semiconductor dev re is no credible reason to believe that the unavoid egulatory scheme world-wide. lastics. You can access the UL iQTM family of data	ta. vice and, to the dable impurity abases to obtai	e best of Micro concentration in a test report	chip of the at		Doped Silicon	7440-21-3 Total Wire Bond 7440-57-5	100 100.00 % of Total Weight 100	
bliance with the above EU Directives has been verified hemical substance is absent from the list above, the cl nology Incorporated's knowledge and belief as of the sical substance, if any, is not below the threshold of re ing compounds used by Microchip meet the UL94 V0 ff /ul.com/global/eng/pages/offerings/industries/chemica protective "tubes" in which the specific product is ship	via internal design contro hemical substance is NOT date of this document, the gulatory concern for any r lammability standard for p als/plastics/ oped are made from polyvi on in this form concerning ct to the best of its knowle n this form because it has ted from disclosure as trac estimates of the average v	Is, supplier declarations, and /or analytical test dat an intentional ingredient in the semiconductor dev re is no credible reason to believe that the unavoid egulatory scheme world-wide. lastics. You can access the UL iQTM family of data nyl chloride (PVC) plastic. "Window envelopes" us substances restricted by RoHS in Microchip Techr dge and belief, as of the date listed in this form. M been compiled based on the ranges provided in M de secrets and some information may not have bee weight of these parts and the average weight of an	ta. vice and, to the dable impurity abases to obtai sed to hold the nology Incorpo licrochip Techr laterial Safety I en provided by ticipated signif	e best of Micro concentration in a test report packing slip o prated's semicc nology Incorpc Data Sheets p subcontract a ficant toxic me	chip of the at n the outer onductor rrated ovided by issemblers tals		Doped Silicon (mg) Total	7440-21-3 Total Wire Bond	100 100.00 % of Total Weight	
bliance with the above EU Directives has been verified hemical substance is absent from the list above, the cl nology Incorporated's knowledge and belief as of the e iscal substance, if any, is not below the threshold of re ing compounds used by Microchip meet the UL94 V0 ff /ul.com/global/eng/pages/offerings/industries/chemica protective "tubes" in which the specific product is ship and certain "reels" may be made from PVC plastic. hechip Technology Incorporated believes the information es in their original packing materials is true and corrae of guarantee the completeness and accuracy of data in naterial suppliers. Supplier information is often protect aw material suppliers. Information is provided only as	via internal design contro hemical substance is NOT date of this document, the gulatory concern for any r lammability standard for p als/plastics/ oped are made from polyvi in in this form concerning ct to the best of its knowle n this form because it has ted from disclosure as trat estimates of the average v f dopants, metals, and nor varranty, express or implie rporated and its subsidiar	Is, supplier declarations, and /or analytical test dat an intentional ingredient in the semiconductor dev re is no credible reason to believe that the unavoid egulatory scheme world-wide. lastics. You can access the UL iQTM family of data nyl chloride (PVC) plastic. "Window envelopes" us substances restricted by RoHS in Microchip Techr dge and belief, as of the date listed in this form. M been compiled based on the ranges provided in M de secrets and some information may not have bee weight of these parts and the average weight of an in-metal materials contained within silicon devices (ta. vice and, to the dable impurity abases to obtai sed to hold the nology Incorpo licrochip Techr laterial Safety I en provided by ticipated signif (silicon IC) in ti declaration. Th	e best of Micro concentration in a test report packing slip o prated's semico nology Incorpo Data Sheets p subcontract a ficant toxic me ne finished par ne exclusive, li	chip of the at n the outer onductor ovided by issemblers tals ts. mited	0.36	(mg) Total	7440-21-3 Total Wire Bond 7440-57-5	100 100.00 % of Total Weight 100	
bliance with the above EU Directives has been verified nemical substance is absent from the list above, the cl nology Incorporated's knowledge and belief as of the e ical substance, if any, is not below the threshold of re ng compounds used by Microchip meet the UL94 V0 fl /ul.com/global/eng/pages/offerings/industries/chemica protective "tubes" in which the specific product is ship nd certain "reels" may be made from PVC plastic. Their Technology Incorporated believes the informatio es in their original packing materials is true and corre- to guarantee the completeness and accuracy of data in aterial suppliers. Supplier information is often protect ow material suppliers. Information is provided only as ionents. These estimates do not include trace levels of chip Technology Incorporated does not provide any w uct warranties provided by Microchip Technology Inco	via internal design contro hemical substance is NOT date of this document, the gulatory concern for any r lammability standard for p als/plastics/ oped are made from polyvi on in this form concerning ct to the best of its knowle n this form because it has ted from disclosure as trat estimates of the average of f dopants, metals, and nor varranty, express or implie ryporated and its subsidiar nd invoices.	Is, supplier declarations, and /or analytical test dat an intentional ingredient in the semiconductor dev re is no credible reason to believe that the unavoid egulatory scheme world-wide. lastics. You can access the UL iQTM family of data nyl chloride (PVC) plastic. "Window envelopes" us substances restricted by RoHS in Microchip Techr idge and belief, as of the date listed in this form. M been compiled based on the ranges provided in M de secrets and some information may not have beer weight of these parts and the average weight of an in-metal materials contained within silicon devices (ed, with respect to the information provided in this ies are contained in Microchip's standard terms ar nt Declarations and shall not be liable for any dam	ta. vice and, to the dable impurity abases to obtain sed to hold the nology Incorpo licrochip Techn laterial Safety J en provided by ticipated signif (silicon IC) in the declaration. The nd conditions con ages, direct or	e best of Micro concentration in a test report packing slip o rated's semice ology Incorpo Data Sheets pi subcontract a ficant toxic me he finished pai ne exclusive, li of sale. These indirect, cons	chip of the at n the outer onductor rated ovided by issemblers tals ts. mited are provided equential or	0.36	(mg) Total	7440-21-3 Total Wire Bond 7440-57-5 Total Plating on external leads (pins) - Matte Tin f annealed at 150°C for	100 100.00 % of Total Weight 100 100.00	0.54
iance with the above EU Directives has been verified emical substance is absent from the list above, the cl ology Incorporated's knowledge and belief as of the e cal substance, if any, is not below the threshold of re g compounds used by Microchip meet the UL94 V0 fi II.com/global/eng/pages/offerings/industries/chemica otective "tubes" in which the specific product is ship id certain "reels" may be made from PVC plastic. thip Technology Incorporated believes the information s in their original packing materials is true and correct g guarantee the completeness and accuracy of data li terial suppliers. Supplier information is often protect w material suppliers. Information is provided only as onents. These estimates do not include trace levels of thip Technology Incorporated does not provide any w t waranties provided by Microchip Technology Inco occhip's quotations, sales order acknowledgement, a hip disclaims any duty to notify users of updates or of ise, suffered by users or third parties as a result of th	via internal design contro hemical substance is NOT date of this document, the gulatory concern for any r lammability standard for p als/plastics/ oped are made from polyvi on in this form concerning ct to the best of its knowle n this form because it has ted from disclosure as trat estimates of the average of f dopants, metals, and nor varranty, express or implie ryporated and its subsidiar nd invoices.	Is, supplier declarations, and /or analytical test dat an intentional ingredient in the semiconductor dev re is no credible reason to believe that the unavoid egulatory scheme world-wide. lastics. You can access the UL iQTM family of data nyl chloride (PVC) plastic. "Window envelopes" us substances restricted by RoHS in Microchip Techr idge and belief, as of the date listed in this form. M been compiled based on the ranges provided in M de secrets and some information may not have beer weight of these parts and the average weight of an in-metal materials contained within silicon devices (ed, with respect to the information provided in this ies are contained in Microchip's standard terms ar nt Declarations and shall not be liable for any dam	ta. vice and, to the dable impurity abases to obtain sed to hold the nology Incorpo licrochip Techn laterial Safety J en provided by ticipated signif (silicon IC) in the declaration. The nd conditions con ages, direct or	e best of Micro concentration in a test report packing slip o rated's semice ology Incorpo Data Sheets pi subcontract a ficant toxic me he finished pai ne exclusive, li of sale. These indirect, cons	chip of the at n the outer onductor rated ovided by issemblers tals ts. mited are provided equential or	0.36	Coped Silicon (mg) Total Doped Gold (mg) Total	7440-21-3 Total Wire Bond 7440-57-5 Total Plating on external leads (pins) - Matte Tin annealed at 150°C for 1 bour	100 100.00 % of Total Weight 100 100.00	0.54

rochip Technology Incorporated believes the information in this form concerning substances restricted by RoHS in Microchip Technology Incorporated's semiconductor devices in roriginal packing materialis is true and correct to the best of its knowledge and belief, as of the date listed in this form. Microchip Technology Incorporated cannot guarantee the pleteness and accuracy of data in this form because it has been compiled based on the ranges provided in Material Safety Data Sheets provided by raw material suppliers. plier information is often protected from disclosure as trade secrets and some information may not have been provided by subcontract assemblers and raw material suppliers. Tradies of the average weight of these parts and the average weight of anticipated significant toxic metals components. These estimates do not ude trace levels of dopants, metals, and non-metal materials contained within silicon devices (silicon IC) in the finished parts.					nation Base A pper Alloy (C	-		•	ogeneous Materials: a.g. pc boards, display	ys)	JEDEC 97 Produc Marking and/or Pkg. Labeling e3
Basic SubstanceCAS lumberSub-ComponentWeighmg/partppm21.5(mg) TotalMold ComponedNot Creat Weight41.72Siles, haveSUBC 50.65Trade SectorNot Creat WeightA 23.0211.04420.05111.04420.05111.04420.05111.04420.05111.04420.05111.04420.05111.04420.05111.04420.05111.04420.05111.04420.05111.04420.05111.04420.05111.04420.05111.04420.05111.04420.05111.04420.05111.04420.05111.04420.05111.04420.05111.045 <th>Semiconductor Device</th> <th>I ype: MJ 24 (Lead) QFN</th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th>	Semiconductor Device	I ype: MJ 24 (Lead) QFN									
Siles land 0007 98:0 Mole Compound 2392 12374 435/20 Siles land Siles land 0007 Book RNLUP # SOUSS) Thate Secret Mole Compound 2.386 1.044 23.08 1.042 1.042 1.042 1.042	Basic Substance	CAS Number			mg/part	ppm	21.53	(mg) Total	Mold Compound	% ot Total Weight	48.78
$ \frac{1}{10000000000000000000000000000000000$			Mold Compound	43 902				Silica fused	60676-86-0	90.00	
Image: Preside Trade Secret Modi Compound 2.366 1.044 2.365 Cattor Black 1733-86-4 Modi Compound 0.146 0.056 1.044 2.365 Cattor Black 1733-86-4 Modi Compound 0.716 10.055 1.04 2.365 Cattor Black 1733-86-4 Modi Compound 0.716 10.055 1.04 2.365 Cattor Black 1.333-86-4 Lead Fame 0.716 10.03 677 1.06 0.331 7.217 1.645 Cattor Black 1.06 0.331 7.217 1.645 1.00 0.25 0.01 1.00 0.25 0.01 1.00 0.25 0.01 1.00 0.02 0							Enox				
$ \frac{1}{10000000000000000000000000000000000$							- Lbox				
Coper 7440-35-1 Lead Finne 97.1930 10.413 271.390 10.42 <td></td>											
1n 7440 31:5 Lead Frame 0.026 90.82 985 16.85 (mg) Total Lead Frame %, of Total Weight 38.18 200 7440 224 Laud Frame 0.030 0.031 0.97 0.27 7.273 0.021 7.273 0.021 0.022 0.023 0.97 7.273 0.021 0.023 0.97 7.273 0.021 0.023 0.97 7.273 0.021 0.022 0.021 <t< td=""><td></td><td>7440-50-8</td><td>Lead Frame</td><td>37,193</td><td>16.413</td><td>371,930</td><td></td><td></td><td></td><td>100.00</td><td></td></t<>		7440-50-8	Lead Frame	37,193	16.413	371,930				100.00	
Sker 7440224 Lead Frame 0.727 0.321 7273 0.321 0.321 0.321 0.321							16.85	(mg) Total	Lead Frame	% of Total Weight	38 18
$ \frac{2 \text{ In } 1 \text{ Here 0} He$							10.00				50.10
$\frac{ c }{ c } \frac{ c }{ c }$											
Silver7440-224De Attach0.9870.4279.672 2.672 2.760 $7440-27.5$ 1.80 1.24 Arrybar resis PopietaryTradis ScrittDe Attach0.2230.0112.48 1.24 </td <td></td>											
Acytain remain Proprietary Trade Storer Die Attach 0.223 0.088 2.232 Chronikum 7440-47-3 0.23 Hettoorpotic organic compound Trade Secret Die Attach 0.025 0.011 248 0.55 (m) Test Mode											
Trade State Die Attach 0.025 0.011 246 Total Total 100.00 Heteropcic organic compound Tada Storet Die Attach 0.025 0.011 246 0.55 (mg) Total Not Release 50.67 0.011 246 0.55 (mg) Total Not Release 71 0.025 0.011 246 0.55 (mg) Total Site 7440-224 78 Not Release 71 20.66 67.700 Site 7440-224 78 Not Release 20 10.66 7400-224 78 Not Release 20 20 Not Release <t< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>											
Heterocyclic organic companie Tride Secret Wire Bond 0.025 0.011 248 0.05 (mg) Total Die Attach % of Total Weight 1.24 Gloid 7440-67-5 Wire Bond 0.750 0.331 7.500 Skeet 7440-224 78 Codid 7440-57-5 Wire Bond 0.750 0.331 7.500 Skeet 7440-224 78 Codid 7440-57-5 Wire Bond 0.750 0.331 7.500 Trade Secret 180 42.800 Trade Secret 2 180 42.800 Trade Secret 2 180 42.800 Trade Secret 2 180.00 43.130 1,000,000 % of Total Weight 6.77 view 2002/SEC (RoHS Directive). EU Directives has been verified via internal design controls, supplier declarations, and for analytical test data. Silcon 7440-21-3 100 100.00 100.00 100.00 100.00 100.00 100.00 100.00 100.00 100.00 100.00 100.00 100.00 100.00 100.00 100.00 100.00 </td <td></td>											
Silion 7440-21-3 Chip (Die) 6.770 2.988 67,700 Silion 7440-22-4 76 Gold 7440-57-5 Wile Bond 0.750 0.331 7,500 Treaded allow 76 2.988 67,700 2.988 67,700 2.988 67,700 2.988 67,700 2.988 67,700 2.988 67,700 2.988 67,700 2.988 67,700 2.988 67,700 2.988 67,700 2.988 67,700 2.988 67,700 2.988 67,700 2.988 67,700 2.988 67,700 2.988 67,700 2.988 67,700 2.988 67,700 2.988 67,700 2.98 67,700 2.98 76,80,700 76,90,	Heterocyclic organic compound	Trade Secret	Die Attach	0.025	0.011	248	0.55	(mg) Total	Die Attach	% of Total Weight	1.24
Tin 7440-31-5 Puttig on elevent leads (pro) - Mate Ton's arreade at 1970; for now 4.280 4.280 4.280 Control Contro Contre Contro <td>Silicon</td> <td>7440-21-3</td> <td>Chip (Die)</td> <td>6.770</td> <td>2,988</td> <td>67,700</td> <td></td> <td></td> <td>7440-22-4</td> <td>78</td> <td></td>	Silicon	7440-21-3	Chip (Die)	6.770	2,988	67,700			7440-22-4	78	
Output: Control of the state of the sta	Gold	7440-57-5	Wire Bond	0.750	0.331	7,500		Acrylate resins Proprietary	Trade Secret	18	
0.0411 g Total Mass Total Semiconductor device and its homogenous materials substance is absent from the list above, the chemical substance is not chemical substance is not chemical substance is not chemical substance is no creditor eason to believe that the unavoidable impurity concentration of the chemical substance, if Silicon Total Total<	Tin	7440-31-5 Plating	on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	4.280	1.889						
semiconductor device and its homogenous materials comply with EU Directive 2002/SSEC (End-of-Life Vehicles (ELV) Directive). Euclive 2002/SSEC (End-of-Life Vehicles (ELV) Directive). Papiance with the above EU Directive 2002/SSEC (End-of-Life Vehicles (ELV) Directive). papiance with the above EU Directive shas been verified via internal design controls, supplier declarations, and /or analytical test data. Chemical substance is absent from the list above, the chemical substance is NOT an intentional ingredient in the semiconductor device and, to the best of Microchip Technology proproted's knowledge and belief as of the date of this document, there is no credible reason to believe that the unavoidable impurity concentration of the chemical substance, is is not below the threshold of repay (Fuldavor) scheme or/H-wide. Total 100.00 Total 00.00 Total 00.00 T		i	TOTALS:	100.000	44.130	1,000,000	Hete	rocyclic organic compound	Trade Secret	2	
citive 2002/SMEC (End-of-Life Vehicles (ELV) Directive). Chip (Die) % of Total Weight 6.77 upliance with the above EU Directives has been verified via internal design controls, supplier declarations, and /or analytical test data. Silicon 7440-21-3 100 representation is obsent from the list above, the chemical substance is NOT an intentional ingredient in the semiconductor device and, to the best of Microchip Technology proceeds have been world-wide. Silicon 7440-21-3 100 100.00 uing compounds used by Microchip meet the UL94 V0 flammability standard for plastics. You can access the UL iQTM family of databases to obtain a test report at ///uincomglobality incorporated believes the information in this form concerning substances restricted by RoHS in Microchip Technology Incorporated believes the information in this form concerning substances restricted by RoHS in Microchip Technology Incorporated believes the information in this form because it has been compiled based on the ranges provided by subcontract assemblers and restrait somether plate. 0.33 (mg) Total Wire Bond % of Total Weight 0.75 uice trace is ready as estimates of the average weight of intercentip Technology Incorporated believes the information my oth ave been provided by subcontract assemblers and remarkel asuppliers. 0.33 (mg) Total Wire Bond % of Total Weight 0.75 uice trace is ready as a difficant tota materials contrained within silic read correct to the best of its knowledge and belief, as of the date lightificant tota material sompliers. <t< th=""><th></th><th>0.0441 g Toʻ</th><th>tal Mass</th><th></th><th></th><th></th><th></th><th></th><th>Total</th><th>100.00</th><th></th></t<>		0.0441 g Toʻ	tal Mass						Total	100.00	
ing compounds used by Microchip meet the UL94 V0 flammability standard for plastics. You can access the UL iQTM family of databases to obtain a test report at 0.33 (mg) Total Wire Bond % of Total Weight 0.75 //ul.com/global/eng/pages/offerings/industries/chemicals/plastics/ 0.33 (mg) Total Wire Bond % of Total Weight 0.75 protective "tubes" in which the specific product is shipped are made from polyvinyl chloride (PVC) plastic. "Window envelopes" used to hold the packing slip on the outer box certain "reels" may be made from PVC plastic. Total 0.33 (mg) Total Wire Bond % of Total Weight 0.75 rochip Technology Incorporated believes the information in this form concerning substances restricted by ROHS in Microchip Technology Incorporated cannot guarantee the pleteness and accuracy of data in this form because it has been compiled based on the ranges provided in Material Safety Data Sheets provided by raw material suppliers. Final to average weight of these parts and the average weight of anticipated significant toxic metals components. These estimates do not use trace levels of dopants, metals, and non-metal materials contained within silicon devices (silicon IC) in the finished parts. 1.89 (mg) Total Plating on external leads (pins). Mater Tin / montel analed at 150°C for 1 hour on the users' reliance on the information in Material Content Declarations of sale. These are provided in Microchip's tandard terms and conditions of sale. These are provided in Microchip's tandard terms and controp's of the parts as a result of the users' reliance on the information in Material Content Declarations and datal t		c , 11	lier declarations, and /or analytical test data.					Silicon	7440-21-3	100	
Certain "reels" may be made from PVC plastic. Gold 7440-57-5 100 Total Total 100.00	orporated's knowledge and belief as of the date of this de	ocument, there is no credible reas									
rochip Technology Incorporated believes the information in this form concerning substances restricted by RoHS in Microchip Technology Incorporated's semiconductor devices in or original packing materials is true and correct to the best of its knowledge and belief, as of the date listed in this form. Microchip Technology Incorporated cannot guarantee the piler information is often protected from disclosure as trade secrets and some information may not have been provided by subcontract assemblers and raw material suppliers. prive trace levels of dopants, metals, and non-metal materials contained within silicon devices (silicon IC) in the finished parts. rochip Technology Incorporated does not provide any warranty, express or implied, with respect to the information provided in Material. The exclusive, limited product ranties provided by Microchip Technology Incorporated and its subsidiaries are contained in Microchip's standard terms and conditions of sale. These are provided in Material Soft 1 .89 (mg) Total (mg) Total (mg) Total (mg) Total (mg)	orporated's knowledge and belief as of the date of this de r, is not below the threshold of regulatory concern for an Iding compounds used by Microchip meet the UL94 V0 fl	ocument, there is no credible reas y regulatory scheme world-wide. ammability standard for plastics.	son to believe that the unavoidable impurity con-	centration of the	e chemical sul		0.33	(mg) Total	Total	100.00	0.75
Ochip Technology Incorporated does not ported any warranty, express of inipited, with respect to the information provide in this declaration. The exclusive, initial product 1.89 (mg) Total (pins) - Matte Tin / annealed at 150°C for 1 % of Total Weight 4.28 tations, sales order acknowledgement, and invoices. 1.89 (mg) Total (pins) - Matte Tin / annealed at 150°C for 1 % of Total Weight 4.28 cochip disclaims any duty to notify users of updates or changes to Material Content Declarations and shall not be liable for any damages, direct or indirect, consequential or erwise, suffered by users or third parties as a result of the users' reliance on the information in Material Content Declarations (MCD) or independent third party test reports (SGS) Tin 7440-31-5 100.00	orporated's knowledge and belief as of the date of this de r, is not below the threshold of regulatory concern for an Iding compounds used by Microchip meet the UL94 V0 fli c://ul.com/global/eng/pages/offerings/industries/chemical	ocument, there is no credible reas y regulatory scheme world-wide. ammability standard for plastics. Is/plastics/	son to believe that the unavoidable impurity con You can access the UL iQTM family of database	centration of the	e chemical sul	bstance, if	0.33		Total Wire Bond 7440-57-5	100.00 % of Total Weight 100	0.75
erwise, suffered by users or third parties as a result of the users' reliance on the information in Material Content Declarations (MCD) or independent third party test reports (SGS)	orporated's knowledge and belief as of the date of this de r, is not below the threshold of regulatory concern for an Iding compounds used by Microchip meet the UL94 V0 fl p//ul.com/global/eng/pages/offerings/industries/chemical a protective "tubes" in which the specific product is ship d certain "reels" may be made from PVC plastic. strochip Technology Incorporated believes the information ir original packing materials is true and correct to the be mpleteness and accuracy of data in this form because it I opplier information is often protected from disclosure as the protect race levels of dopants, metals, and non-metal mate	ocument, there is no credible reas y regulatory scheme world-wide. ammability standard for plastics. Is/plastics/ ped are made from polyvinyl chlo n in this form concerning substan st of its knowledge and belief, as has been compiled based on the r rade secrets and some informatio ight of these parts and the averag rials contained within silicon devi	son to believe that the unavoidable impurity con You can access the UL iQTM family of database ride (PVC) plastic. "Window envelopes" used to ces restricted by ROHS in Microchip Technology of the date listed in this form. Microchip Techno anges provided in Material Safety Data Sheets p n may not have been provided by subcontract a ge weight of anticipated significant toxic metals ces (silicon IC) in the finished parts.	centration of the s to obtain a test hold the packir / Incorporated's logy Incorporated's logy Incorporated semblers and components. Th	e chemical sul st report at ng slip on the o s semiconduct ed cannot gua material supp raw material s rese estimates	ostance, if outer box or devices in irrantee the liers. suppliers. s do not	0.33	Gold	Total Wire Bond 7440-57-5 Total	100.00 % of Total Weight 100	0.75
	orporated's knowledge and belief as of the date of this de r, is not below the threshold of regulatory concern for an Iding compounds used by Microchip meet the UL94 V0 fl s//ul.com/global/eng/pages/offerings/industries/chemical e protective "tubes" in which the specific product is ship d certain "reels" may be made from PVC plastic. crochip Technology Incorporated believes the information ir original packing materials is true and correct to the be mpleteness and accuracy of data in this form because it I polier information is often protected from disclosure as to promation is provided only as estimates of the average we lude trace levels of dopants, metals, and non-metal mate crochip Technology Incorporated does not provide any w	ocument, there is no credible reas y regulatory scheme world-wide. ammability standard for plastics. Is/plastics/ ped are made from polyvinyl chlo n in this form concerning substan st of its knowledge and belief, as has been compiled based on the r rade secrets and some informatio sight of these parts and the average rials contained within silicon devi rarranty, express or implied, with r	son to believe that the unavoidable impurity con You can access the UL iQTM family of database ride (PVC) plastic. "Window envelopes" used to ces restricted by RoHS in Microchip Technology of the date listed in this form. Microchip Techno anges provided in Material Safety Data Sheets p n may not have been provided by subcontract a ge weight of anticipated significant toxic metals ces (silicon IC) in the finished parts.	centration of the s to obtain a test hold the packir / Incorporated's logy Incorporat rovided by raw semblers and components. The ration. The excl	e chemical sul st report at ng slip on the d s semiconduct ed cannot gup material supp raw material s nese estimates usive, limited	ostance, if outer box or devices in irantee the liers. suppliers. s do not product		Gold	Total Wire Bond 7440-57-5 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1	100.00 % of Total Weight 100 100.00	
	orporated's knowledge and belief as of the date of this de r, is not below the threshold of regulatory concern for an Iding compounds used by Microchip meet the UL94 V0 fl D//ul.com/global/eng/pages/offerings/industries/chemical a protective "tubes" in which the specific product is ship d certain "reels" may be made from PVC plastic. erochip Technology Incorporated believes the information ir original packing materials is true and correct to the be mpleteness and accuracy of data in this form because it I opplier information is often protected from disclosure as the arrantion is provided only as estimates of the average we lude trace levels of dopants, metals, and non-metal mate erochip Technology Incorporated does not provide any w rranties provided by Microchip Technology Incorporated stations, sales order acknowledgement, and invoices. erochip disclaims any duty to notify users of updates or c erwise, suffered by users or third parties as a result of the suffered by users or third parties as a result of the suffered by users or third parties as a result of the suffered by users or third parties as a result of the suffered by users or third parties as a result of the suffered by users or third parties as a result of the suffered by users or third parties as a result of the suffered by users or third parties as a result of the suffered by users or third parties as a result of the suffered by users or third parties as a result of the suffered by users or third parties as a result of the suffered by users or third parties as a result of the suffered by users of third parties as a result of the suffered by users of third parties as a result of the suffered by users of third parties as a result of the suffered by users of third parties as a result of the suffered by users of the suffered by users of the suffere	ocument, there is no credible reas y regulatory scheme world-wide. ammability standard for plastics. Is/plastics/ ped are made from polyvinyl chlo n in this form concerning substan st of its knowledge and belief, as has been compiled based on the r rade secrets and some informatio light of these parts and the averag rials contained within silicon devi arranty, express or implied, with r and its subsidiaries are contained changes to Material Content Decla he users' reliance on the informati	son to believe that the unavoidable impurity con You can access the UL iQTM family of database ride (PVC) plastic. "Window envelopes" used to ces restricted by RoHS in Microchip Technology of the date listed in this form. Microchip Technol anges provided in Material Safety Data Sheets p n may not have been provided by subcontract a ge weight of anticipated significant toxic metals ces (silicon IC) in the finished parts. respect to the information provided in this decla d in Microchip's standard terms and conditions of rations and shall not be liable for any damages,	centration of the s to obtain a test hold the packir y Incorporated's logy Incorporat rovided by raw ssemblers and components. Th ration. The excl of sale. These a direct or indire	e chemical sul st report at semiconduct ed cannot gua material supp raw material s nese estimates usive, limited re provided in ct, consequen	bostance, if outer box or devices in irrantee the liers. suppliers. s do not product Microchip's tial or		Gold (mg) Total	Total Wire Bond 7440-57-5 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	100.00 % of Total Weight 100 100.00 % of Total Weight	

	ce Type: 28 QFN 5x5x0.9mm	1 (P7)		ination Base opper Alloy (-			nogeneous Materials: e.g. pc boards, display	rs)	JEDEC 97 Product Markin and/or Pkg. Labeling e3
		"Contained In"	% Total			00.40	() T . ()			10.75
Basic Substance	CAS Number	Sub-Component	Weight	mg/part	ppm	28.43	(mg) Total	Mold Compound	% ot Total Weight	42.75
Silica, fused	60676-86-0	Mold Compound	38.475	25.586	384,750		Silica, fused	60676-86-0	90.00	
Epoxy Resin	Trade Secret	Mold Compound	2.073	1.379	20,734		Epoxy Resin	500-033-5	4.85	
Phenolic Resin	Trade Secret	Mold Compound	2.073	1.379	20,734		Phenolic Resin	Trade Secret	4.85	
Carbon Black	1333-86-4	Mold Compound	0.128	0.085	1,283		Carbon Black	1333-86-4	0.30	
Copper	7440-50-8	Lead Frame	42.249	28.096	422,489			Total	100.00	
Tin	7440-31-5	Lead Frame	0.108	0.072	1.084	28.84	(mg) Total	Lead Frame	% of Total Weight	43.37
Silver	7440-22-4	Lead Frame	0.826	0.549	8.262		Copper	7440-50-8	97.42	
Zinc	7440-66-6	Lead Frame	0.078	0.052	781		Tin	7440-31-5	0.25	
Chromium	7440-47-3	Lead Frame	0.108	0.072	1.084		Silver	7440-22-4	1.91	
Silver	7440-22-4	Die Attach	1.076	0.716	10.764		Zinc	7440-66-6	0.18	
Epoxy Resin	Trade Secret	Die Attach	0.304	0.202	3,036		Chromium	7440-47-3	0.25	
Silicon	7440-21-3	Chip (Die)	8.950	5.952	89,500		Ghiointain	Total		
Gold	7440-21-5	Wire Bond	1.380	0.918	13,800	0.92	(mg) Total	Die Attach	% of Total Weight	1.38
						0.92				1.30
Tin	7440-31-5 Plating	g on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	2.170	1.443 66.500	21,700 1.000.000		Silver	7440-22-4	78.00 22.00	
		TOTALS:	100.000	66.500	1,000,000		Epoxy Resin	Trade Secret		
	0.0665 g Te	otal Mass						Total	100.00	
semiconductor device and its homogenous materials tive 2002/53/EC (End-of-Life Vehicles (ELV) Directive).	comply with EU Directive 2002/95	otal Mass	U (RoHS Reca	ast Directive) a	and with EU	5.95	(mg) Total	Total Chip (Die)	100.00 % of Total Weight	8.95
tive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). pliance with the above EU Directives has been verified	comply with EU Directive 2002/95 I via internal design controls, sup	otal Mass //EC (RoHS Directive), EU Directive 2011/65/E pplier declarations, and /or analytical test data				5.95	(mg) Total Doped Silicon		% of Total Weight	8.95
etive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). pliance with the above EU Directives has been verified hemical substance is absent from the list above, the ci nology Incorporated's knowledge and belief as of the nical substance, if any, is not below the threshold of re ing compounds used by Microchip meet the UL94 V0 f //ul.com/global/eng/pages/offerings/industries/chemica	comply with EU Directive 2002/95 I via internal design controls, sup hemical substance is NOT an inte date of this document, there is no gulatory concern for any regulato flammability standard for plastics als/plastics/	otal Mass 5/EC (RoHS Directive), EU Directive 2011/65/E oplier declarations, and /or analytical test data entional ingredient in the semiconductor devi o credible reason to believe that the unavoida ory scheme world-wide. . You can access the UL iQTM family of datab	ce and, to the ble impurity o bases to obtai	best of Micro concentration n a test report	chip of the at	0.92	-	Chip (Die) 7440-21-3	% of Total Weight	8.95
etive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). pliance with the above EU Directives has been verified hemical substance is absent from the list above, the c inology Incorporated's knowledge and belief as of the nical substance, if any, is not below the threshold of re ing compounds used by Microchip meet the UL94 V0 f	comply with EU Directive 2002/95 I via internal design controls, sup hemical substance is NOT an inte date of this document, there is no gulatory concern for any regulato flammability standard for plastics als/plastics/	otal Mass 5/EC (RoHS Directive), EU Directive 2011/65/E oplier declarations, and /or analytical test data entional ingredient in the semiconductor devi o credible reason to believe that the unavoida ory scheme world-wide. . You can access the UL iQTM family of datab	ce and, to the ble impurity o bases to obtai	best of Micro concentration n a test report	chip of the at		Doped Silicon	Chip (Die) 7440-21-3 Total Wire Bond 7440-57-5	% of Total Weight 100 100.00 % of Total Weight 100.00	
ettive 2002/53/EC (End-of-Life Vehicle's (ELV) Directive). pliance with the above EU Directives has been verified hemical substance is absent from the list above, the c inology Incorporated's knowledge and belief as of the nical substance, if any, is not below the threshold of re ing compounds used by Microchip meet the UL94 V0 f //ul.com/global/eng/pages/offerings/industries/chemica protective "tubes" in which the specific product is ship	comply with EU Directive 2002/95 i via internal design controls, sup hemical substance is NOT an inte date of this document, there is no egulatory concern for any regulate 'lammability standard for plastics als/plastics/ oped are made from polyvinyl chl- on in this form concerning substa ict to the best of its knowledge an orm because it has been compiled from disclosure as trade secrets is mates of the average weight of the	otal Mass JEC (RoHS Directive), EU Directive 2011/65/El pplier declarations, and /or analytical test data entional ingredient in the semiconductor devic o credible reason to believe that the unavoida ory scheme world-wide. . You can access the UL iQTM family of datab loride (PVC) plastic. "Window envelopes" use ances restricted by RoHS in Microchip Techno nd belief, as of the date listed in this form. Mic d based on the ranges provided in Material Sc and some information may not have been pro uses parts and the average weight of anticipat	ce and, to the ble impurity o asses to obtai d to hold the blogy Incorpo rochip Techn afety Data Sh vided by sub ted significan	best of Micro concentration n a test report packing slip o rated's semico ology Incorpo sets provided contract asset t toxic metals	chip of the at n the outer onductor rated cannot by raw mblers and		Doped Silicon (mg) Total	Chip (Die) 7440-21-3 Total Wire Bond	% of Total Weight 100 100.00 % of Total Weight 100.00	
ettive 2002/53/EC (End-of-Life Vehicle's (ELV) Directive). pliance with the above EU Directives has been verified hemical substance is absent from the list above, the c inology Incorporated's knowledge and belief as of the nical substance, if any, is not below the threshold of re ing compounds used by Microchip meet the UL94 V0 f //ul.com/global/eng/pages/offerings/industries/chemica protective "tubes" in which the specific product is ship and certain "reels" may be made from PVC plastic. Dechip Technology Incorporated believes the informatio ces in their original packing materials is true and corre antee the completeness and accuracy of data in this fo rial suppliers. Supplier information is often protected f	comply with EU Directive 2002/95 I via internal design controls, sup hemical substance is NOT an inte date of this document, there is no gulatory concern for any regulate lammability standard for plastics als/plastics/ oped are made from polyvinyl chl on in this form concerning substa to to the best of its knowledge an orm because it has been compilee from disclosure as trade secrets is mates of the average weight of th tals, and non-metal materials cor warranty, express or implied, with and its subsidiaries are contain	otal Mass VEC (RoHS Directive), EU Directive 2011/65/EI uplier declarations, and /or analytical test data entional ingredient in the semiconductor devic o credible reason to believe that the unavoida ory scheme world-wide. . You can access the UL iQTM family of datab loride (PVC) plastic. "Window envelopes" use unces restricted by RoHS in Microchip Techno d belief, as of the date listed in this form. Mic d based on the ranges provided in Material Sa and some information may not have been pro uese parts and the average weight of anticipat that this form. IC) in the n respect to the information provided in this do	ce and, to the ble impurity of asses to obtai d to hold the blogy Incorpo rochip Techn afety Data Sh vided by sub ted significan e finished par eclaration. Th	best of Micro concentration n a test report packing slip o rated's semico ology Incorpo sets provided contract asset t toxic metals ts.	chip of the at n the outer onductor rated cannot by raw mblers and components. mited product		Doped Silicon (mg) Total	Chip (Die) 7440-21-3 Total Wire Bond 7440-57-5	% of Total Weight 100 100.00 % of Total Weight 100.00	

MICROCHIP Semiconductor Device Type:	ML 28 (Lead) QFN 6x6 mm (M4/MM)		nation Base A pper Alloy (C			•	ogeneous Materials: .g. pc boards, displa	ys)	JEDEC 97 Product Marking and/or Pkg. Labeling e3
	1	"Contained In"	% Total			52.76	(mg) Total	Mold Compound	% ot Total Weight	51.93
Basic Substance	CAS Number	Sub-Component	Weight	mg/part	ppm	52.70	,	•	•	51.55
Silica, fused Epoxy Resin (NLP # 500-033-5)	60676-86-0 Trade Secret	Mold Compound Mold Compound	46.737 2.519	47.485 2.559	467,370 25.186	F eeter	Silica, fused (NLP # 500-033-5)	60676-86-0 Trade Secret	90.00 4.85	
Phenolic Resin	Trade Secret	Mold Compound	2.519	2.559	25,186	Epox	Phenolic Resin	Trade Secret	4.85	
Carbon Black	1333-86-4	Mold Compound	0.156	0.158	1,558		Carbon Black	1333-86-4	0.30	
Copper	7440-50-8	Lead Frame	37.885	38.491	378.847		Carbon Black	Total	100.00	4
Tin	7440-31-5	Lead Frame	0.097	0.099	972	39.51	(mg) Total	Lead Frame	% of Total Weight	38.89
Silver	7440-22-4	Lead Frame	0.741	0.753	7,409		Copper	7440-50-8	97.42	
Zinc	7440-66-6	Lead Frame	0.070	0.071	700		Tin	7440-31-5	0.25	
Chromium	7440-47-3	Lead Frame	0.097	0.099	972		Silver	7440-22-4	1.91	
Silver	7440-22-4	Die Attach	0.413	0.420	4,134		Zinc	7440-66-6	0.18	
Acrylate resins Proprietary	Trade Secret	Die Attach	0.095	0.097	954		Chromium	7440-47-3	0.25	
Treated silica	Trade Secret	Die Attach	0.011	0.011	106			Total	100.00	
Heterocyclic organic compound	Trade Secret	Die Attach	0.011	0.011	106	0.54	(mg) Total	Die Attach	% of Total Weight	0.53
Silicon	7440-21-3	Chip (Die)	3.290	3.343	32,900		Silver	7440-22-4	78	
Gold Tin	7440-57-5 7440-31-5	Wire Bond Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	0.950 4.410	0.965	9,500 44,100		Acrylate resins Proprietary Treated silica	Trade Secret Trade Secret	18 2	
	7440-31-5	Plating on external leads (pins) - Matter III / annealed at 150°C for I hour TOTALS:	100.000	101.600	1,000,000	Ш.	eterocyclic organic compou	Trade Secret	2	
	0 1016	g Total Mass	100.000	101.000	1,000,000		sterocyclic organic compou	Total	100.00	
This semiconductor device and its homogenous materials comply w Directive 2002/53/EC (End-of-Life Vehicles (ELV) Directive).		<u> </u>	EU (RoHS Reca	ast Directive) a	and with EU	3.34	Total (mg)	Chip (Die)	% of Total Weight	
Compliance with the above EU Directives has been verified via inter	nal design contro	ls. supplier declarations, and /or analytical test da	ta.				Doped Silicon	7440-21-3	100	
•	•							Total	100.00	
If a chemical substance is absent from the list above, the chemical s Technology Incorporated's knowledge and belief as of the date of th chemical substance, if any, is not below the threshold of regulatory Molding compounds used by Microchip meet the UL94 V0 flammabil	his document, the concern for any r lity standard for p	re is no credible reason to believe that the unavoid regulatory scheme world-wide.	dable impurity of	concentration	of the	0.97	(mg) Total	Wire Bond	% of Total Weight	0.95
http://ul.com/global/eng/pages/offerings/industries/chemicals/plastic The protective "tubes" in which the specific product is shipped are		nyl chloride (PVC) plastic. "Window envelopes" us	sed to hold the	packing slip o	n the outer		Doped Gold	7440-57-5	100	
box and certain "reels" may be made from PVC plastic.							Doped Cold			
Microchip Technology Incorporated believes the information in this devices in their original packing materials is true and correct to the cannot guarantee the completeness and accuracy of data in this for raw material suppliers. Supplier information is often protected from and raw material suppliers. Information is provided only as estimate components. These estimates do not include trace levels of dopants	best of its knowle m because it has disclosure as trac s of the average v	age and belief, as of the date listed in this form. M been compiled based on the ranges provided in M de secrets and some information may not have be weight of these parts and the average weight of an	licrochip Techr laterial Safety I en provided by ticipated signif	nology Incorpo Data Sheets pr subcontract a ficant toxic me	orated rovided by assemblers atals			Total	100.00	
Microchip Technology Incorporated does not provide any warranty, product warranties provided by Microchip Technology Incorporated in Microchip's quotations, sales order acknowledgement, and invoid	and its subsidiar es.	ies are contained in Microchip's standard terms a	nd conditions o	of sale. These	are provided	4.48	(mg) Total	Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	% of Total Weight	4.41
Microchip disclaims any duty to notify users of updates or changes otherwise, suffered by users or third parties as a result of the users (SGS) or of this Certificate of Compliance for semiconductor product	reliance on the i						Tin	7440-31-5 Total	100.00 100.00	
								lotal	100.00	
						101.600				100.000

Semiconductor Device	• Type: ML or MM 28	8 (Lead) QFN-S 6x6mm (M2/MB)		nation Base A pper Alloy (C	.,		•	ogeneous Materials: .g. pc boards, displa		JEDEC 97 Product Marking and/or Pkg. Labeling e3
Basic Substance	CAS Number	"Contained In" Sub-Component	% Total Weight	mg/part	ppm	52.77	(mg) Total	Mold Compound	% ot Total Weight	51.94
Silica, fused	60676-86-0	Mold Compound	46,746	47.494	467.460		Silica, fused	60676-86-0	90.00	
Epoxy Resin (NLP # 500-033-5)	Trade Secret	Mold Compound	2.519	2.559	25,191	Epox	y Resin (NLP # 500-033-5)	Trade Secret	4.85	
Phenolic Resin	Trade Secret	Mold Compound	2.519	2.559	25,191		Phenolic Resin	Trade Secret	4.85	
Carbon Black	1333-86-4	Mold Compound	0.156	0.158	1,558		Carbon Black	1333-86-4	0.30	
Copper	7440-50-8	Lead Frame	37.145	37.739	371,450			Total	100.00	
Iron	7439-89-6	Lead Frame	0.914	0.928	9,137	39.50	(mg) Total	Lead Frame	% of Total Weight	38.88
Silver	7440-22-4	Lead Frame	0.741	0.753	7,407		Copper	7440-50-8	95.54	
Zinc	7440-66-6	Lead Frame	0.049	0.049	486		Iron	7439-89-6	2.35	
Phosphorous	7723-14-0	Lead Frame	0.032	0.033	321		Silver	7440-22-4	1.91	
Silver	7440-22-4	Die Attach	0.391	0.397	3,911		Zinc	7440-66-6	0.13	
Epoxy Resin	9003-36-5	Die Attach	0.100	0.101	996		Phosphorous	7723-14-0	0.08	
t-Butyl phenyl glycidyl ether	3101-60-8	Die Attach	0.033	0.034	334			Total		
Phenolic hardener	92-88-6	Die Attach	0.002	0.002	16	0.54	(mg) Total	Die Attach	% of Total Weight	0.53
Butyl cellosolve acetate	112-07-2	Die Attach	0.004	0.004	42		Silver	7440-22-4	74	
Silicon	7440-21-3	Chip (Die)	3.290	3.343	32,900		Epoxy Resin	9003-36-5	19	
	7440-57-5	Wire Bond	0.950	0.965	9,500	t	Butyl phenyl glycidyl ether	3101-60-8	6	
Gold										
Gold Tin		Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	4.410	4.481	44,100		Phenolic hardener	92-88-6	0	
	7440-31-5 0.1016 g	Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour TOTALS: Total Mass	100.000	101.600	1,000,000	3.34	Phenolic hardener Butyl cellosolve acetate Total (mg)	92-88-6 112-07-2 Total Chip (Die)	1	3.29
Tin semiconductor device and its homogenous materials c tive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). pliance with the above EU Directives has been verified	7440-31-5 0.1016 g omply with EU Directive 200 via internal design controls,	Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour TOTALS: Total Mass 02/95/EC (RoHS Directive), EU Directive 2011/65/EU (, supplier declarations, and /or analytical test data.	100.000 RoHS Recast I	101.600 Directive) and	1,000,000 with EU	3.34	Butyl cellosolve acetate	112-07-2 Total Chip (Die) 7440-21-3	1 100.00 % of Total Weight 100	3.29
Tin semiconductor device and its homogenous materials c stive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). pliance with the above EU Directives has been verified hemical substance is absent from the list above, the ch nology Incorporated's knowledge and belief as of the c tance, if any, is not below the threshold of regulatory c ing compounds used by Microchip meet the UL94 V0 fl	7440-31-5 0.1016 g omply with EU Directive 200 via internal design controls, nemical substance is NOT an late of this document, there oncern for any regulatory so ammability standard for pla	Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour TOTALS: TOTAL Mass J2/95/EC (RoHS Directive), EU Directive 2011/65/EU (supplier declarations, and /or analytical test data. In intentional ingredient in the semiconductor device is no credible reason to believe that the unavoidable cheme world-wide.	100.000 RoHS Recast I and, to the be impurity cond	101.600 Directive) and st of Microchip centration of t	1,000,000 with EU	3.34	Butyl cellosolve acetate Total (mg)	112-07-2 Total Chip (Die)	1 100.00 % of Total Weight 100	3.29
Tin semiconductor device and its homogenous materials c tive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). pliance with the above EU Directives has been verified hemical substance is absent from the list above, the ch nology Incorporated's knowledge and belief as of the c tance, if any, is not below the threshold of regulatory c	7440-31-5 0.1016 g omply with EU Directive 200 via internal design controls, nemical substance is NOT at late of this document, there oncern for any regulatory so ammability standard for plas Is/plastics/	Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour TOTALS: TOTAL Mass 32/95/EC (RoHS Directive), EU Directive 2011/65/EU (supplier declarations, and /or analytical test data. In intentional ingredient in the semiconductor device is no credible reason to believe that the unavoidable cheme world-wide. stics. You can access the UL iQTM family of databas	100.000 RoHS Recast I and, to the bea impurity cond es to obtain a	101.600 Directive) and st of Microchip centration of ti test report at	1,000,000 with EU he chemical		Butyl cellosolve acetate Total (mg) Doped Silicon	112-07-2 Total Chip (Die) 7440-21-3 Total	1 100.00 % of Total Weight 100 100.00	
Tin semiconductor device and its homogenous materials of tive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). pliance with the above EU Directives has been verified hemical substance is absent from the list above, the ch nology incorporated's knowledge and belief as of the tance, if any, is not below the threshold of regulatory of ing compounds used by Microchip meet the UL94 V0 fil //ul.com/global/eng/pages/offerings/industries/chemica protective "tubes" in which the specific product is ship	7440-31-5 0.1016 g omply with EU Directive 200 via internal design controls, memical substance is NOT at late of this document, there oncern for any regulatory so ammability standard for pla- ls/plastics/ ped are made from polyviny n in this form concerning su at to the best of its knowledg rm because it has been com osure as trade secrets and verage weight of these part	Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour TOTALS: TOTAL Mass 32/95/EC (RoHS Directive), EU Directive 2011/65/EU (, supplier declarations, and /or analytical test data. n intentional ingredient in the semiconductor device is no credible reason to believe that the unavoidable cheme world-wide. stics. You can access the UL iQTM family of databas I chloride (PVC) plastic. "Window envelopes" used t ubstances restricted by RoHS in Microchip Technolo- ge and belief, as of the date listed in this form. Micro pilled based on the ranges provided in Material Safe some information may not have been provided by st	100.000 RoHS Recast I and, to the bea e impurity cond es to obtain a o hold the pac gy Incorporate chip Technolo ty Data Sheets ubcontract ass	101.600 Directive) and st of Microchig centration of ti test report at king slip on th d's semicondi gy Incorporate ; provided by r emblers and r	1,000,000 with EU he chemical e outer box uctor d cannot aw material		Butyl cellosolve acetate Total (mg) Doped Silicon (mg) Total	112-07-2 Total Chip (Die) 7440-21-3 Total Wire Bond	1 100.00 % of Total Weight 100 % of Total Weight 100	
Tin semiconductor device and its homogenous materials of tive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). pliance with the above EU Directives has been verified hemical substance is absent from the list above, the ch nology Incorporated's knowledge and belief as of the of tance, if any, is not below the threshold of regulatory of ing compounds used by Microchip meet the UL94 V0 fl //ul.com/global/eng/pages/offerings/industries/chemica protective "tubes" in which the specific product is ship partain "reels" may be made from PVC plastic. bochip Technology Incorporated believes the information cantee the completeness and accuracy of data in this fo liers. Information is provided only as estimates of the a	7440-31-5 0.1016 g omply with EU Directive 200 via internal design controls, nemical substance is NOT at late of this document, there oncern for any regulatory sy ammability standard for plassic is/plastics/ ped are made from polyviny in this form concerning su it to the best of its knowledger m because it has been con osure as trade secrets and verage weight of these part verage weight of these part and non-metal materials conta arranty, express or implied, and its subsidiaries are cor	Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour TOTALS: TOTAL Mass 32/95/EC (RoHS Directive), EU Directive 2011/65/EU (a supplier declarations, and /or analytical test data. In intentional ingredient in the semiconductor device is no credible reason to believe that the unavoidable cheme world-wide. stics. You can access the UL iQTM family of databas I chloride (PVC) plastic. "Window envelopes" used t bistances restricted by RoHS in Microchip Technolo ge and belief, as of the date listed in this form. Micro piled based on the ranges provided in Material Safe some information may not have been provided by sit ind within silicon devices (silicon IC) in the finished with respect to the information provided in this decl	100.000 RoHS Recast I and, to the be- e impurity cond es to obtain a o hold the pac gy Incorporate chip Technolo ty Data Sheets ubcontract ass oxic metals co I parts.	101.600 Directive) and st of Microchig centration of the test report at king slip on the d's semicondi gy Incorporate provided by r emblers and r mponents. The xclusive, limite	1,000,000 with EU the chemical e outer box actor ed cannot aw material aw material sse		Total (mg) Doped Silicon (mg) Total Doped Gold (mg) Total	112-07-2 Total Chip (Die) 7440-21-3 Total Wire Bond 7440-57-5	1 100.00 % of Total Weight 100 100.00 % of Total Weight 100	

Semiconductor Device	e Type: ML 40 (Lead) (QFN 6x6x0.9mm (\$3)		nation Base A oper Alloy (C				geneous Materials: I. pc boards, displays)	JEDEC 97 Product Markin and/or Pkg. Labeling e3
Basic Substance	CAS Number	"Contained In" Sub-Component	% Total Weight	mg/part	ppm	45.49	(mg) Total	Mold Compound	% ot Total Weight	45.04
Silica, fused	60676-86-0	Mold Compound	40.536	40.941	405,360		Silica, fused	60676-86-0	90.00	
Epoxy Resin (NLP # 500-033-5)	Trade Secret	Mold Compound	2.184	2.206	21.844	Enox	v Resin (NLP # 500-033-5)	Trade Secret	4.85	
Phenolic Resin	Trade Secret	Mold Compound	2.184	2.206	21,844	Epon	Phenolic Resin	Trade Secret	4.85	
Carbon Black	1333-86-4	Mold Compound	0.135	0.136	1,351		Carbon Black	1333-86-4	0.30	
Copper	7440-50-8	Lead Frame	46.925	47.394	469,248			Total		
Tin	7440-31-5	Lead Frame	0.120	0.122	1,204	48.65	(mg) Total	Lead Frame	% of Total Weight	
Silver	7440-22-4	Lead Frame	0.918	0.927	9,176		Copper	7440-50-8	97.42	
Zinc	7440-66-6	Lead Frame	0.087	0.088	867		Tin	7440-31-5	0.25	
Chromium	7440-47-3	Lead Frame	0.120	0.122	1,204		Silver	7440-22-4	1.91	
Silver	7440-22-4	Die Attach	0.226	0.228	2,262		Zinc	7440-66-6	0.18	
Acrylate resins Proprietary	Trade Secret	Die Attach	0.052	0.053	522		Chromium	7440-47-3	0.25	
Treated silica	Trade Secret	Die Attach	0.006	0.006	58			Total	100.00	
Heterocyclic organic compound	Trade Secret	Die Attach	0.006	0.006	58	0.29	(mg) Total	Die Attach	% of Total Weight	0.29
Silicon	7440-21-3	Chip (Die)	2,720	2.747	27.200		Silver	7440-22-4	78	
Gold	7440-57-5	Wire Bond	0.860	0.869	8,600		Acrylate resins Proprietary	Trade Secret	18	
Tin	7440-31-5 P	Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	2,920	2.949	29.200		Treated silica	Trade Secret	2	
		TOTALS:	100.000	101.000	1.000.000	Hete	rocyclic organic compound	Trade Secret	2	
	0.1010 a	Total Mass			,,			Total	100.00	1
	comply with EU Directive 20		I (RoHS Recast	Directive) and	d with EU	2.75	Total (mg)	Chip (Die)	% of Total Weight	2.72
ective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). npliance with the above EU Directives has been verified chemical substance is absent from the list above, the cl hnology Incorporated's knowledge and belief as of the c	comply with EU Directive 20 I via internal design controls hemical substance is NOT ar date of this document, there	0295/EC (RoHS Directive), EU Directive 2011/65/EU , supplier declarations, and /or analytical test data. n intentional ingredient in the semiconductor devic is no credible reason to believe that the unavoidab	e and, to the b	est of Microch	ip	2.75	Total (mg) Doped Silicon		100	2.72
ective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). mpliance with the above EU Directives has been verified chemical substance is absent from the list above, the cl hnology Incorporated's knowledge and belief as of the e mical substance, if any, is not below the threshold of re iding compounds used by Microchip meet the UL94 V0 f	comply with EU Directive 200 - - - - - - - - - - - - -	02/95/EC (RoHS Directive), EU Directive 2011/65/EU , supplier declarations, and /or analytical test data. n intentional ingredient in the semiconductor devic is no credible reason to believe that the unavoidab gulatory scheme world-wide.	e and, to the b le impurity co	est of Microch	ip the	0.87		Chip (Die) 7440-21-3	100	
ective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). mpliance with the above EU Directives has been verified a chemical substance is absent from the list above, the cl chnology Incorporated's knowledge and belief as of the c emical substance, if any, is not below the threshold of re blding compounds used by Microchip meet the UL94 V0 f p://ul.com/global/eng/pages/offerings/industries/chemica e protective "tubes" in which the specific product is ship	comply with EU Directive 200 - - - - - - - - - - - - -	2995/EC (RoHS Directive), EU Directive 2011/65/EU , supplier declarations, and /or analytical test data. n intentional ingredient in the semiconductor devic is no credible reason to believe that the unavoidab gulatory scheme world-wide. stics. You can access the UL iQTM family of databa	e and, to the b le impurity con ases to obtain	est of Microch ncentration of a test report at	ip the t		Doped Silicon	Chip (Die) 7440-21-3 Total Wire Bond 7440-57-5	100 100.00 % of Total Weight 100	
is semiconductor device and its homogenous materials rective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). Impliance with the above EU Directives has been verified a chemical substance is absent from the list above, the cl chnology Incorporated's knowledge and belief as of the emical substance, if any, is not below the threshold of re polding compounds used by Microchip meet the UL94 V0 f p://ul.com/global/eng/pages/offerings/industries/chemica e protective "tubes" in which the specific product is ship x and certain "reels" may be made from PVC plastic. crochip Technology Incorporated believes the informatio vices in their original packing materials is true and corre arantee the completeness and accuracy of data in this fo ppliers. Supplier information is often protected from disc tetrial suppliers. Information is provided only as estimate ese estimates do not include trace levels of dopants, me	comply with EU Directive 20 d via internal design controls themical substance is NOT ar date of this document, there gulatory concern for any reg flammability standard for pla als/plastics/ pped are made from polyviny on in this form concerning su ct to the best of its knowledg orm because it has been com orm because it has been com oclosure as trade secrets and es of the average weight of ti tatals, and non-metal materials	02/95/EC (RoHS Directive), EU Directive 2011/65/EU a, supplier declarations, and /or analytical test data. In intentional ingredient in the semiconductor devic is no credible reason to believe that the unavoidab gulatory scheme world-wide. Instics. You can access the UL iQTM family of databack yl chloride (PVC) plastic. "Window envelopes" used ubstances restricted by RoHS in Microchip Technol ge and belief, as of the date listed in this form. Micr upiled based on the ranges provided in Material Saft some information may not have been provided by hese parts and the average weight of anticipated si s contained within silicon devices (silicon IC) in the	e and, to the b ble impurity col asses to obtain I to hold the pa logy Incorpora ochip Technol ety Data Sheet subcontract as gnificant toxic e finished parts	est of Microch icentration of a test report at icking slip on ed's semicon- ogy Incorpora 5 provided by semblers and metals compo	ip the t the outer ductor ted cannot raw material raw onents.		(mg) Total	Chip (Die) 7440-21-3 Total Wire Bond 7440-57-5 Total	100 100.00 % of Total Weight	
ective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). mpliance with the above EU Directives has been verified in chemical substance is absent from the list above, the cl chnology Incorporated's knowledge and belief as of the e amical substance, if any, is not below the threshold of re liding compounds used by Microchip meet the UL94 V0 f p://ul.com/global/eng/pages/offerings/industries/chemica e protective "tubes" in which the specific product is ship x and certain "reels" may be made from PVC plastic. crochip Technology Incorporated believes the information vices in their original packing materials is true and corre- arantee the completeness and accuracy of data in this fo pipilers. Supplier information is forther protected from disc ese estimates do not include trace levels of dopants, me crochip Technology Incorporated does not provide any w rranties provided by Microchip Technology Incorporated crochip's quotations, sales order acknowledgement, and	comply with EU Directive 20 d via internal design controls themical substance is NOT ar date of this document, there egulatory concern for any reg flammability standard for pla als/plastics/ pped are made from polyviny on in this form concerning st ect to the best of its knowledg to the best of its knowledg to the best of its knowledg to the average weight of ti tals, and non-metal materials warranty, express or implied, d and its subsidiaries are cor d invoices.	02/95/EC (RoHS Directive), EU Directive 2011/65/EU a, supplier declarations, and /or analytical test data. In intentional ingredient in the semiconductor devic is no credible reason to believe that the unavoidab gulatory scheme world-wide. Istics. You can access the UL iQTM family of databa yl chloride (PVC) plastic. "Window envelopes" used ubstances restricted by RoHS in Microchip Technol ge and belief, as of the date listed in this form. Micr pilled based on the ranges provided in Material Saf some information may not have been provided by i hese parts and the average weight of anticipated si s contained within silicon devices (silicon IC) in the , with respect to the information provided in this den tained in Microchip's standard terms and condition	e and, to the b ble impurity con ases to obtain d to hold the part ochip Technol ety Data Sheet subcontract as gnificant toxic e finished parts eclaration. The ns of sale. The	est of Microch icentration of a test report al icking slip on ed's semicon gy Incorpora s provided by semblers and metals compo exclusive, limi se are provide	ip the t the outer ductor ted cannot raw material raw onents. ited product d in		(mg) Total (mg) Total	Chip (Die) 7440-21-3 Total Wire Bond 7440-57-5	100 100.00 % of Total Weight 100	0.86
ective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). npliance with the above EU Directives has been verified chemical substance is absent from the list above, the cl hnology Incorporated's knowledge and belief as of the e mical substance, if any, is not below the threshold of re ding compounds used by Microchip meet the UL94 V0 f s://ul.com/global/eng/pages/offerings/industries/chemicz protective "tubes" in which the specific product is ship and certain "reels" may be made from PVC plastic. rochip Technology Incorporated believes the information ices in their original packing materials is true and correr rantee the completeness and accuracy of data in this fo pilers. Suppliers. Information is often protected from disc erial suppliers. Information is provided only as estimates se estimates do not include trace levels of dopants, me rochip Technology Incorporated does not provide any v ranties provided by Microchip Technology Incorporated	comply with EU Directive 200 d via internal design controls themical substance is NOT ar date of this document, there ggulatory concern for any reg flammability standard for pla als/plastics/ pped are made from polyviny on in this form concerning su- tot to the best of its knowledg orm because it has been com closure as trade secrets and es of the average weight of the tatals, and non-metal materials warranty, express or implied, d and its subsidiaries are cord i invoices. changes to Material Content the users' reliance on the information of the secret of the offer the of	02/95/EC (RoHS Directive), EU Directive 2011/65/EU a, supplier declarations, and /or analytical test data. In intentional ingredient in the semiconductor devic is no credible reason to believe that the unavoidab yulatory scheme world-wide. Istics. You can access the UL iQTM family of databack yl chloride (PVC) plastic. "Window envelopes" used ubstances restricted by RoHS in Microchip Technol ge and belief, as of the date listed in this form. Micr upiled based on the ranges provided in Material Safi some information may not have been provided by hese parts and the average weight of anticipated sis s contained within silicon devices (silicon IC) in the trained in Microchip's standard terms and condition Evelorations and shall not be liable for any damag	e and, to the b ble impurity col asses to obtain d to hold the pa logy Incorpora ochip Technol ety Data Sheet subcontract as gnificant toxic e finished parts exclaration. The ns of sale. The	est of Microch icentration of a test report at icking slip on ed's semicon- ogy Incorpora s provided by semblers and metals compo exclusive, limi se are provide direct, conseq	ip the t the outer ductor ted cannot raw material raw onents. ited product d in uuential or	0.87	(mg) Total (mg) Total	Chip (Die) 7440-21-3 Total Wire Bond 7440-57-5 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1	100 100.00 % of Total Weight 100 100.00	0.86

				nation Base A pper Alloy (C			•	ogeneous Materials: e.g. pc boards, displa		JEDEC 97 Produ Marking and/or Pkg. Labeling e3
Semiconductor Device	Type: ML 44 (Lead)	QFN 8x8x0.9 mm (T3 / TR)								63
Basic Substance	CAS Number	"Contained In" Sub-Component	% Total Weight	mg/part	ppm	75.12	(mg) Total	Mold Compound	% ot Total Weight	39.87
Silica, fused	60676-86-0	Mold Compound	35.883	67.604	358,830		Silica, fused	60676-86-0	90.00	
Epoxy Resin (NLP # 500-033-5)	Trade Secret	Mold Compound	1.934	3.643	19,337	Epox	y Resin (NLP # 500-033-5)	Trade Secret	4.85	
Phenolic Resin	Trade Secret	Mold Compound	1.934	3.643	19,337		Phenolic Resin	Trade Secret	4.85	
Carbon Black	1333-86-4	Mold Compound	0.120	0.225	1,196		Carbon Black	1333-86-4	0.30	
Copper	7440-50-8	Lead Frame	47.903	90.248	479,025		() -	Total		
Iron Silver	7439-89-6	Lead Frame	1.178	2.220	11,783	94.46	(mg) Total	Lead Frame	% of Total Weight	50.14
Zinc	7440-22-4 7440-66-6	Lead Frame Lead Frame	0.955	1.800 0.118	9,552 627		Copper	7440-50-8 7439-89-6	95.54 2.35	
Phosphorous	7440-66-6	Lead Frame	0.063	0.078	414		Iron Silver	7439-89-6 7440-22-4	2.35	
Silver	7440-22-4	Die Attach	1.186	2.234	11.856		Zinc	7440-22-4	0.13	
Acrylate resins Proprietary	Trade Secret	Die Attach	0.274	0.515	2,736		Phosphorous	7723-14-0	0.08	
Treated silica	Trade Secret	Die Attach	0.030	0.057	304		Filospholous	Total		1
Heterocyclic organic compound	Trade Secret	Die Attach	0.030	0.057	304	2.86	(mg) Total	Die Attach	% of Total Weight	1.52
Silicon	7440-21-3	Chip (Die)	4.280	8.064	42.800	2.00	(ilig) Total Silver	7440-22-4	78	1.52
Gold	7440-21-3	Wire Bond	0.480	0.904	42,800		Acrylate resins Proprietary	Trade Secret	18	
Tin	7440-31-5	Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	3.710	6.990	37,100		Treated silica	Trade Secret	2	
1111	1440 01 0	TOTALS:	100.000	188.400	1.000.000	Hete	rocyclic organic compound	Trade Secret	2	
	0 1004				.,,	Tiete	rocyclic organic compound	Total	- 100.00	1
tive 2002/53/EC (End-of-Life Vehicles (ELV) Directive).	mply with EU Directive 200		RoHS Recast D	irective) and w	vith EU	8.06	Total (mg)	Chip (Die)	% of Total Weight	4.28
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). pliance with the above EU Directives has been verified v hemical substance is absent from the list above, the che rporated's knowledge and belief as of the date of this do	mply with EU Directive 200 ia internal design controls, emical substance is NOT ar cument, there is no credibl	22/95/EC (RoHS Directive), EU Directive 2011/65/EU (f supplier declarations, and /or analytical test data. n intentional ingredient in the semiconductor device a le reason to believe that the unavoidable impurity cor	and, to the best	t of Microchip	Technology	8.06	Total (mg) Doped Silicon		% of Total Weight	4.28
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). apliance with the above EU Directives has been verified v chemical substance is absent from the list above, the che rporated's knowledge and belief as of the date of this do is not below the threshold of regulatory concern for any ding compounds used by Microchip meet the UL94 V0 fla	mply with EU Directive 200 ia internal design controls, emical substance is NOT ar cument, there is no credibl regulatory scheme world- mmability standard for plas	22/95/EC (RoHS Directive), EU Directive 2011/65/EU (supplier declarations, and /or analytical test data. n intentional ingredient in the semiconductor device a le reason to believe that the unavoidable impurity cor wide.	and, to the best incentration of t	t of Microchip he chemical su	Technology	8.06	,	Chip (Die) 7440-21-3	% of Total Weight	4.28
a semiconductor device and its homogenous materials co ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). npliance with the above EU Directives has been verified v chemical substance is absent from the list above, the che ryporated's knowledge and belief as of the date of this do , is not below the threshold of regulatory concern for any ding compounds used by Microchip meet the UL94 V0 fla ://ul.com/global/eng/pages/offerings/industries/chemicals protective "tubes" in which the specific product is shipp certain "reels" may be made from PVC plastic.	mply with EU Directive 200 ia internal design controls, emical substance is NOT ar cument, there is no credibl regulatory scheme world- mmability standard for plas /plastics/	2295/EC (RoHS Directive), EU Directive 2011/65/EU (f supplier declarations, and /or analytical test data. n intentional ingredient in the semiconductor device a le reason to believe that the unavoidable impurity cor wide. stics. You can access the UL iQTM family of database	and, to the besi acentration of t es to obtain a to	t of Microchip he chemical si est report at	Technology ubstance, if		Doped Silicon	Chip (Die) 7440-21-3 Total	% of Total Weight 100 100.00	
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ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). apliance with the above EU Directives has been verified v chemical substance is absent from the list above, the che rporated's knowledge and belief as of the date of this do is not below the threshold of regulatory concern for any ding compounds used by Microchip meet the UL94 V0 fla s//ul.com/global/eng/pages/offerings/industries/chemicals protective "tubes" in which the specific product is shipp certain "reels" may be made from PVC plastic. rochip Technology Incorporated believes the information heir original packing materials is true and correct to the b completeness and accuracy of data in this form because plier information is often protected from disclosure as tra- rmation is provided only as estimates of the average weig	mply with EU Directive 200 ia internal design controls, emical substance is NOT ar cument, there is no credibl regulatory scheme world- mmability standard for plas /plastics/ ed are made from polyviny in this form concerning su est of its knowledge and be it has been compiled base ade secrets and some infor ght of these parts and the a las contained within silicoi rranty, express or implied, nd its subsidiaries are cor	22/95/EC (RoHS Directive), EU Directive 2011/65/EU (f , supplier declarations, and /or analytical test data. n intentional ingredient in the semiconductor device a le reason to believe that the unavoidable impurity cor wide. stics. You can access the UL iQTM family of database of chloride (PVC) plastic. "Window envelopes" used to bistances restricted by RoHS in Microchip Technolog elief, as of the date listed in this form. Microchip Tech d on the ranges provided in Material Safety Data She mation may not have been provided by subcontract a saverage weight of anticipated significant toxic metals n devices (silicon IC) in the finished parts. with respect to the information provided in this decla	and, to the besi icentration of the es to obtain a tr o hold the pack innology Incorp ets provided by assemblers and components. The ex-	t of Microchip he chemical su est report at ing slip on the 's semiconduc orated cannot / raw material d raw material These estimato clusive, limited	Technology ubstance, if o outer box ctor devices guarantee suppliers. es do not d product		(mg) Total (mg) Total	Chip (Die) 7440-21-3 Total Wire Bond 7440-57-5	% of Total Weight 100 100.00 % of Total Weight 100 100.00	
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). pliance with the above EU Directives has been verified v chemical substance is absent from the list above, the che rporated's knowledge and belief as of the date of this do is not below the threshold of regulatory concern for any ling compounds used by Microchip meet the UL94 V0 fla //ul.com/global/eng/pages/offerings/industries/chemicals protective "tubes" in which the specific product is shipp certain "reels" may be made from PVC plastic. ochip Technology Incorporated believes the information eir original packing materials is true and correct to the b completeness and accuracy of data in this form because plier information is often protected from disclosure as tri mation is provided only as estimates of the average weig de trace levels of dopants, metals, and non-metal materi ochip Technology Incorporated does not provide any wa anties provided by Microchip Technology Incorporated a	mply with EU Directive 20(ia internal design controls, emical substance is NOT ar- cument, there is no credibl regulatory scheme world- mmability standard for pla: /plastics/ ed are made from polyviny in this form concerning su est of its knowledge and b- it has been compiled base de secrets and some infor ght of these parts and the a fals contained within silico rranty, express or implied, and its subsidiaries are con twoices.	22/95/EC (RoHS Directive), EU Directive 2011/65/EU (f , supplier declarations, and /or analytical test data. n intentional ingredient in the semiconductor device a e reason to believe that the unavoidable impurity cor wide. stics. You can access the UL iQTM family of database of chloride (PVC) plastic. "Window envelopes" used to bstances restricted by RoHS in Microchip Technolog elief, as of the date listed in this form. Microchip Tech d on the ranges provided in Material Safety Data Shee mation may not have been provided by subcontract i average weight of anticipated significant toxic metals in devices (silicon IC) in the finished parts. with respect to the information provided in this deci- tatened in Microchip's standard terms and conditions Declarations and shall not be liable for any damages	and, to the besi acentration of the es to obtain a to b hold the pack by Incorporated nonlogy Incorp ets provided by assemblers and components. The aration. The ex of sale. These , direct or indir	t of Microchip he chemical su est report at ing slip on the 's semiconduc orated cannot y raw material These estimate clusive, limited are provided i ect, conseque	Technology ubstance, if e outer box ctor devices guarantee suppliers. es do not d product in	0.90	(mg) Total (mg) Total	Chip (Die) 7440-21-3 Total Wire Bond 7440-57-5 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for /	% of Total Weight 100 100.00 % of Total Weight 100 100.00	0.48

Semiconductor Device Type	e: HZH - HN 48	QFN 7x7x0.9 (RS/Y3)		nation Base A pper Alloy (C			Package Homo	geneous Materials		JEDEC 97 Product Markin and/or Pkg. Labeling e3
Basic Substance	CAS Number	"Contained In" Sub-Component	% Total Weight	mg/part	ppm	70.49	(mg) Total	Mold Compound	% ot Total Weight	52.8
Silica, vitreous	60676-86-0	Mold Compound	47.124	62.911	471.240		Silica, vitreous	60676-86-0	89.25	
Epoxy Resin (No bromine, No diantimony trioxide)	Trade Secret	Mold Compound	3.047	4.067	30,466		Epoxy Resin	Trade Secret	5.77	
Phenolic Resin (No Br / CL SbO3, No diantimony trioxide)	Trade Secret	Mold Compound	2.492	3.327	24,922		Phenolic Resin	Trade Secret	4.72	
Carbon Black	1333-86-4	Mold Compound	0.137	0.183	1,373		Carbon Black	1333-86-4	0.26	
Copper	7440-50-8	Lead Frame	36.486	48.709	364,858			Total	100.00	
Iron	7439-89-6	Lead Frame	0.897	1.198	8,975	50.98	(mg) Total	Lead Frame	% of Total Weight	38.19
Silver	7440-22-4	Lead Frame	0.728	0.971	7,275		Copper	7440-50-8	95.54	
Zinc	7440-66-6	Lead Frame	0.048	0.064	477		Iron	7439-89-6	2.35	
Phosphorous	7723-14-0	Lead Frame	0.032	0.042	315		Silver	7440-22-4	1.91	
Silver	7440-22-4	Die Attach	0.600	0.801	6,000		Zinc	7440-66-6	0.13	
Epoxy Resin	Trade secret	Die Attach	0.080	0.107	800		Phosphorous	7723-14-0	0.08	
Diluent	Trade secret	Die Attach	0.080	0.107	800			Total	100.00	
Hardener	Trade secret	Die Attach	0.040	0.053	400	1.07	(mg) Total	Die Attach	% of Total Weight	0.8
Silicon	7440-21-3	Chip (Die)	5.720	7.636	57,200		Silver	7440-22-4	75	
Copper	7440-50-8	Wire Bond palladium coated copper (CuPd)	0.941	1.256	9,409		Epoxy Resin	Trade secret	10	
Palladium	7440-05-3	Wire Bond palladium coated copper (CuPd)	0.029	0.039	291		Diluent	Trade secret	10	
Tin	7440-31-5	Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	1.520	2.029	15,200		Hardener	Trade secret	5	
		TOTALS:	100.000	133.500	1,000,000			Total	100.00	
	0.1335	g Total Mass				7.64	Total (mg)	Chip (Die)	% of Total Weight	5.72
is semiconductor device and its homogenous materials comply ective 2002/53/EC (End-of-Life Vehicles (ELV) Directive).		0	EU (RoHS Rec	ast Directive) :	and with EU	7.64	Total (mg) Doped Silicon	Chip (Die) 7440-21-3	% of Total Weight	5.72
	with EU Directive 2	002/95/EC (RoHS Directive), EU Directive 2011/65/		ast Directive) :	and with EU	7.64				5.72
ective 2002/53/EC (End-of-Life Vehicles (ELV) Directive).	with EU Directive 2 ernal design control I substance is NOT this document, the	002/95/EC (RoHS Directive), EU Directive 2011/65/ ls, supplier declarations, and /or analytical test dat an intentional ingredient in the semiconductor dev re is no credible reason to believe that the unavoic	a. vice and, to the	best of Micro	chip.	7.64		7440-21-3	100	0.97
ective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). mpliance with the above EU Directives has been verified via intr chemical substance is absent from the list above, the chemica chnology Incorporated's knowledge and belief as of the date of	with EU Directive 2 ernal design control I substance is NOT this document, then y concern for any re bility standard for pl	002/95/EC (RoHS Directive), EU Directive 2011/65/ ls, supplier declarations, and /or analytical test dat an intentional ingredient in the semiconductor dev re is no credible reason to believe that the unavoic egulatory scheme world-wide.	a. vice and, to the lable impurity of	best of Micro concentration	chip of the		Doped Silicon	7440-21-3 Total Wire Bond palladium coated	100	
ective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). mpliance with the above EU Directives has been verified via intr chemical substance is absent from the list above, the chemica chnology Incorporated's knowledge and belief as of the date of emical substance, if any, is not below the threshold of regulator Iding compounds used by Microchip meet the UL94 V0 flammal	with EU Directive 2 ernal design control I substance is NOT this document, thei y concern for any re bility standard for pl tics/	002/95/EC (RoHS Directive), EU Directive 2011/65/ ls, supplier declarations, and /or analytical test dat an intentional ingredient in the semiconductor dev re is no credible reason to believe that the unavoic egulatory scheme world-wide. lastics. You can access the UL iQTM family of data	ia. vice and, to the lable impurity bases to obtai	best of Micro concentration n a test report	chip of the t at		Doped Silicon (mg) Total	7440-21-3 Total Wire Bond palladium coated copper (CuPd)	100 100.00 % of Total Weight	
ective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). mpliance with the above EU Directives has been verified via intr chemical substance is absent from the list above, the chemica chnology incorporated's knowledge and belief as of the date of emical substance, if any, is not below the threshold of regulator lding compounds used by Microchip meet the UL94 V0 flammal p://ul.com/global/eng/pages/offerings/industries/chemicals/plas e protective "tubes" in which the specific product is shipped ar	with EU Directive 2 ernal design control I substance is NOT this document, then y concern for any rn bility standard for pl tits/ e made from polyvin s form concerning : e best of its knowle orm because it has n disclosure as tract tes of the average v	002/95/EC (RoHS Directive), EU Directive 2011/65/ (s, supplier declarations, and /or analytical test dat an intentional ingredient in the semiconductor dev re is no credible reason to believe that the unavoic egulatory scheme world-wide. lastics. You can access the UL iQTM family of data nyl chloride (PVC) plastic. "Window envelopes" us substances restricted by RoHS in Microchip Techr dge and belief, as of the date listed in this form. M been compiled based on the ranges provided in M le secrets and some information may not have bee eight of these parts and the average weight of an	a. rice and, to the lable impurity of bases to obtain ed to hold the rology Incorpo icrochip Techr aterial Safety I on provided by icipated signif	best of Micro concentration n a test report packing slip o rated's semic cology Incorpo Jata Sheets p subcontract a	chip of the at the outer onductor orated orovided by ussemblers tals		Copper	7440-21-3 Total Wire Bond palladium coated copper (CuPd) 7440-50-8	100 100.00 % of Total Weight 97 3	
ective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). mpliance with the above EU Directives has been verified via intr chemical substance is absent from the list above, the chemical chnology Incorporated's knowledge and belief as of the date of amical substance, if any, is not below the threshold of regulator lding compounds used by Microchip meet the UL94 V0 flammal p://ul.com/global/eng/pages/offerings/industries/chemicals/plas a protective "tubes" in which the specific product is shipped ar x and certain "reels" may be made from PVC plastic. crochip Technology Incorporated believes the information in thi vices in their original packing materials is true and correct to th not guarantee the completeness and accuracy of data in this f y material suppliers. Information is provided only as estima	with EU Directive 2 ernal design control I substance is NOT this document, ther y concern for any r bility standard for pl tics/ e made from polyvin is form concerning : e best of its knowle orm because it has n disclosure as trac tas of the average v nts, metals, and non y, express or implie ed and its subsidiari	002/95/EC (RoHS Directive), EU Directive 2011/65/ (s, supplier declarations, and /or analytical test dat an intentional ingredient in the semiconductor dev re is no credible reason to believe that the unavoic egulatory scheme world-wide. lastics. You can access the UL iQTM family of data nyl chloride (PVC) plastic. "Window envelopes" us substances restricted by RoHS in Microchip Techr dge and belief, as of the date listed in this form. M been compiled based on the ranges provided in M le secrets and some information may not have bee regipt of these parts and the average weight of an -metal materials contained within silicon devices (d, with respect to the information provided in this	a. vice and, to the lable impurity of bases to obtain ed to hold the vology Incorpo- vicrochip Techraterial Safety I on provided by vicipated signifi- silicon IC) in the declaration. The	best of Micro concentration n a test report packing slip o rated's semic cology Incorpo Jata Sheets p subcontract a icant toxic me te finished pa	chip of the at at on the outer orductor orated orovided by issemblers itals rts.		Copper Copper Palladium	7440-21-3 Total Wire Bond palladium coated copper (CuPd) 7440-50-8 7440-05-3	100 100.00 % of Total Weight 97 3	

pliance with the above EU Directives has been verified via internal design controls, supplier declarations, and /or analytical test data. Total 100.00 Total verified via internal design controls, supplier declarations, and /or analytical test data. The mical substance is absent from the list above, the chemical substance is NOT an intentional ingredient in the semiconductor device and, to the best of Microchip mology Incorporated's knowledge and belief as of the date of this document, there is no credible reason to believe that the unavoidable impurity concentration of the nical substance, if any, is not below the threshold of regulatory concern for any regulatory scheme world-wide. Iing compounds used by Microchip meet the UL94 V0 flammability standard for plastics. You can access the UL iQTM family of databases to obtain a test report at //ul.com/global/eng/pages/offerings/industries/chemical/splastics/ protective "tubes" in which the specific product is shipped are made from polyvinyl chloride (PVC) plastic. "Window envelopes" used to hold the packing slip on the outer Palladium Tatulo Ta	Semiconductor Device	Гуре: 64 QFN 9х9х	0.9mm (NT)		nation Base / pper Alloy (C	-		Package Homo	geneous Materials		JEDEC 97 Product Marking and/or Pkg. Labeling e3
Site Proof Mod Compand 33.3 91.13 93.5.34 Bits Proof	Dania Oshatawa						102.56	(mg) Total	Mold Compound	% ot Total Weight	44.13
Epony Real 63839-06-1 Mod Compand 3.35 7.666 33.366 Plender Kein 62200-34.4 Mod Compand 2.255 1.266 7.667 33.946 Change Kein 7.446-556 Mod Compand 2.255 1.276 7.666 33.946 Non 7.449-556 Mod Compand 2.257 1.276 7.666 33.946 Non 7.449-556 Load Frame 0.307 2.278 0.377 7.666 3.947 Non 7.449-524 Lead Frame 0.302 0.507 5.07 7.666 3.947 None 7.449-524 Lead Frame 0.503 0.502 5.07 7.666 0.13 Projections 7.646 0.13 7.666 7.67 7.666 0.13 Store 7.766 1.660 7.67 7.666 0.13 7.766 7.666 7.767 7.766 7.766 7.766 7.766 7.766 7.766 7.766 7.766 7.766 7.766 7.767				•						-	7
PHenolog Regin 623200-34-6 Mold Compound 2255 5.241 2256 Count Periodic Regin 623200-34-6 5.11 Cooper 7440-02-5 Laad Finim 0.128 0.12											
$ \frac{\text{Carton Biack}}{\text{Corper}} + \frac{1348,384-4}{1448,056} \\ \frac{\text{Corper}}{1448,056} + \frac{1348}{1448,056} \\ \frac{1378}{1448,056} + \frac{1378}{1448,056} \\ $											
Ocyper 7449-50 /rel Lead Finine 0.917 /rel 100 /rel											
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Siver 1440-62-4 Lead Frame 0.630 1.899 8,011 Znc 1440-62-4 Lead Frame 0.033 0.191 347 Phosphorus 1723-142 Lisal Frame 0.033 0.191 347 Avylic Rein Trade secret Dis Malen 0.233 0.191 347 Book Pasien Trade secret Dis Malen 0.233 0.591 347 Avylic Rein Trade secret Dis Malen 0.235 0.191 347 Polybuilderie divisive & Coptolymer Trade secret Dis Attach 0.131 656 1.537 Polybuilderie divisive & Coptolymer Trade secret Dis Attach 0.133 0.500 2.256 Polybuilderie divisive & Coptolymer Trade secret Dis Attach 0.157 0.503 2.256 Polybuilderie divisive & Coptolymer Trade secret Dis Attach 0.157 0.503 1.257 Polybuilderie divisive & Coptolymer Trade secret Dis Attach 0.157 0.503 1.256 Polybuilderie divisive & Coptolymer Trade secret Dis Attach 0.157 0.503 1.577 Polybuilderie divisione Trade secret Dis Attach 0.561 0.237 0.503 1.577 <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>97.61</td> <td>(mg) Total</td> <td></td> <td></td> <td></td>							97.61	(mg) Total			
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TOTALS: 100.000 232.40 1,00,000 Total Total	Palladium	7440-05-3	Wire Bond palladium coated copper (CuPd)	0.017	0.039	170		Acrylate	Trade secret	6	
TOTALS: 100.000 232.400 1,000,000 Total Total Total 00.00 semiconductor device and its homogenous materials comply with EU Directive 2002/95/EC (RoHS Directive), EU Directive 2011/65/EU (RoHS Recast Directive) and with EU Ister 2002/85/EC (Hohe CLife Vehicles) 13.94 Total (mg) Chip (Dire) % of Total Weight 6 vice 2002/35/EC (Rohe CLife Vehicles) Directives has been verified via intermal design controls, supplier declarations, and /or analytical test data. Doped Slicon 7440-21-3 100 hemical substance is absent from the list above, the chemical substance is no credible reason to believe that the unavoidable impurity concentration of the incal substance, if any, is not below the threshold of regulatory concern for any regulatory scheme world-wide. Total 00.97 22.5 (mg) Total paliadium casted coper (GuPd) % of Total Weight 0.97 ing compounds used by Microchip meet that ULAP V0 fammability standard for plastics. You can access the UL (ATM family of databases to obtain a test report at //uL.com/global/eng/pages/offerings/industries/chemicals/plastics/ 0.97 22.5 (mg) Total Paliadium % of Total Weight 0.97 ing compounds with Storm occursing substances restricted by RoHS in Microchip Technology Incorporated season/edge and belier as of the average weight of the apares and monodive (Silcon Clin Technology Incorporated aca	Tin	7440-31-5	Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	4.480	10.412	44,800	Polybutadien	e derivative & Coplolymer	Trade secret	7	
semiconductor device and its homogenous materials comply with EU Directive 2002/95/EC (RoHS Directive), EU Directive 2011/65/EU (RoHS Recast Directive) and with EU trive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). Deped Silicon 7/440-21.3 100 Deped Silicon 7/440-21.3 100 Total 100.00 Total 0000 2.25 (mg) Total 0100 with treshold or regulatory concern for any regulatory scheme world-wide. Ing compounds used by Microchip meth UL94 V0 fiammability standard for plastics. You can access the UL IQTM family of databases to obtain a test report at ////////////////////////////////////		•	TOTALS:	100.000	232.400	1,000,000			Total	100.00	
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and certain "reels" may be made from PVC plastic. Palladium 7440-05-3 2 Occhip Technology Incorporated believes the information in this form concerning substances restricted by RoHS in Microchip Technology Incorporated cannot antee the completeness and accuracy of data in this form because it has been compiled based on the ranges provided in Material Safety Data Sheets provided by raw orial suppliers. Supplier information is provided only as estimates of the average weight of these parts and the average weight of anticipated significant toxic metals components. Total 100.00 ochip Technology Incorporated does not provide any warranty, express or implied, with respect to the information provided in Microchip's standard terms and conditions of sale. These are provided to y failed (pins) - Matte Tin / anneled at 150°C for / i hour % of Total Weight 4.48 ochip disclaims any duty to notify users of third parties as a result of the users' reliance on the information in Material Content Declarations in Material Content Declarations (MCD) or independent third party test reports Tin 7440-31-5 100.00	ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). upliance with the above EU Directives has been verified vi chemical substance is absent from the list above, the che hnology Incorporated's knowledge and belief as of the da	mply with EU Directive 2 a internal design control mical substance is NOT te of this document, the	002/95/EC (RoHS Directive), EU Directive 2011/65/E s, supplier declarations, and /or analytical test data an intentional ingredient in the semiconductor devi e is no credible reason to believe that the unavoida	a. ice and, to the l	best of Microc	:hip		Doped Silicon	7440-21-3 Total Wire Bond palladium coated	% of Total Weight 100 100.00	6
ochip Technology Incorporated believes the information in this form concerning substances restricted by RoHS in Microchip Technology Incorporated's semiconductor ces in their original packing materials is true and correct to the best of its knowledge and belief, as of the date listed in this form. Microchip Technology Incorporated canot antee the completeness and accuracy of data in this form because it has been compiled based on the ranges provided in Material Safety Data Sheets provided by raw ariate the completeness and accuracy of data in this form because it has been compiled based on the ranges provided by subcontract assemblers and material suppliers. Supplier information is provided only as estimates of the average weight of these parts and the average weight of these parts and the average weight of these parts and the average weight of secrets (silicon IC) in the finished parts. ochip Technology Incorporated does not provide any warranty, express or implied, with respect to the information provided in Microchip's standard terms and conditions of sale. These are provided in (mg) Total Plating on external leads (pins) · Matte Tin / annealed at 150°C for i hour vise, suffered by users or third parties as a result of the users' reliance on the information in Material Content Declarations and shall not be liable for any damages, direct or indirect, consequential or responsed Tin 7440-31-5 100.00	ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). upliance with the above EU Directives has been verified vi chemical substance is absent from the list above, the che hnology Incorporated's knowledge and belief as of the da mical substance, if any, is not below the threshold of regu ding compounds used by Microchip meet the UL94 V0 flar	mply with EU Directive 2 a internal design control mical substance is NOT te of this document, thei latory concern for any r nmability standard for pl	002/95/EC (RoHS Directive), EU Directive 2011/65/E s, supplier declarations, and /or analytical test data an intentional ingredient in the semiconductor devi e is no credible reason to believe that the unavoida egulatory scheme world-wide.	a. ice and, to the l able impurity co	best of Microconcentration of	chip of the		Doped Silicon (mg) Total	7440-21-3 Total Wire Bond palladium coated copper (CuPd)	% of Total Weight 100 100.00 % of Total Weight	6
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Occinp Technology incorporated does not provide any warranty, express or implied, with respect to the information provided in this declaration. The exclusive, initiad 10.41 (mg) Total leads (pins) - Matte Tin / Annealed at 150°C for 1 hour % of Total Weight 4.48 viscopting squotations, sales order acknowledgement, and invoices. 10.41 (mg) Total Implied, with respect to the information provided in this declaration. The exclusive, initiad 10.41 (mg) Total % of Total Weight 4.48 orcinp is quotations, sales order acknowledgement, and invoices. 0 10.41 (mg) Total % of Total Weight 4.48 orcinp disclaims any duty to notify users of updates or changes to Material Content Declarations and shall not be liable for any damages, direct or indirect, consequential or rwise, suffered by users or third parties as a result of the users' reliance on the information in Material Content Declarations (MCD) or independent third party test reports Tin 7440-31-5 100.00 S) or of this Certificate of Compliance for semiconductor products. 100.00 <td>ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). apliance with the above EU Directives has been verified vi- chemical substance is absent from the list above, the che- hnology Incorporated's knowledge and belief as of the dar mical substance, if any, is not below the threshold of regu- ding compounds used by Microchip meet the UL94 V0 flar ://ul.com/global/eng/pages/offerings/industries/chemicals. protective "tubes" in which the specific product is shippe and certain "reels" may be made from PVC plastic. rochip Technology Incorporated believes the information i</td> <td>mply with EU Directive 2 a internal design control mical substance is NOT te of this document, the latory concern for any r mmability standard for pi /plastics/ ed are made from polyvia in this form concerning s</td> <td>002/95/EC (RoHS Directive), EU Directive 2011/65/E s, supplier declarations, and /or analytical test data an intentional ingredient in the semiconductor devi e is no credible reason to believe that the unavoid egulatory scheme world-wide. astics. You can access the UL iQTM family of datal nyl chloride (PVC) plastic. "Window envelopes" use substances restricted by RoHS in Microchip Techno</td> <td>a. ice and, to the l able impurity co pases to obtain ed to hold the p plogy Incorpora</td> <td>best of Microconcentration of a test report acking slip or ated's semico</td> <td>chip of the at n the outer nductor</td> <td></td> <td>Doped Silicon (mg) Total Copper</td> <td>7440-21-3 Total Wire Bond palladium coated copper (CuPd) 7440-50-8 7440-05-3</td> <td>% of Total Weight 100 100.00 % of Total Weight 98 2</td> <td>0.97</td>	ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). apliance with the above EU Directives has been verified vi- chemical substance is absent from the list above, the che- hnology Incorporated's knowledge and belief as of the dar mical substance, if any, is not below the threshold of regu- ding compounds used by Microchip meet the UL94 V0 flar ://ul.com/global/eng/pages/offerings/industries/chemicals. protective "tubes" in which the specific product is shippe and certain "reels" may be made from PVC plastic. rochip Technology Incorporated believes the information i	mply with EU Directive 2 a internal design control mical substance is NOT te of this document, the latory concern for any r mmability standard for pi /plastics/ ed are made from polyvia in this form concerning s	002/95/EC (RoHS Directive), EU Directive 2011/65/E s, supplier declarations, and /or analytical test data an intentional ingredient in the semiconductor devi e is no credible reason to believe that the unavoid egulatory scheme world-wide. astics. You can access the UL iQTM family of datal nyl chloride (PVC) plastic. "Window envelopes" use substances restricted by RoHS in Microchip Techno	a. ice and, to the l able impurity co pases to obtain ed to hold the p plogy Incorpora	best of Microconcentration of a test report acking slip or ated's semico	chip of the at n the outer nductor		Doped Silicon (mg) Total Copper	7440-21-3 Total Wire Bond palladium coated copper (CuPd) 7440-50-8 7440-05-3	% of Total Weight 100 100.00 % of Total Weight 98 2	0.97
ochip disclaims any duty to notify users of updates or changes to Material Content Declarations and shall not be liable for any damages, direct or indirect, consequential or rwise, suffered by users or third parties as a result of the users' reliance on the information in Material Content Declarations (MCD) or independent third party test reports S) or of this Certificate of Compliance for semiconductor products.	ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). apliance with the above EU Directives has been verified vi- chemical substance is absent from the list above, the che- hnology Incorporated's knowledge and belief as of the dar mical substance, if any, is not below the threshold of regu- ding compounds used by Microchip meet the UL94 V0 flar //ul.com/global/eng/pages/offerings/industries/chemicals. protective "tubes" in which the specific product is shipper and certain "reels" may be made from PVC plastic. rochip Technology Incorporated believes the information in icces in their original packing materials is true and correct rantee the completeness and accuracy of data in this form erial suppliers. Supplier information is provided only as estima	mply with EU Directive 2 a internal design control mical substance is NOT te of this document, then latory concern for any r mmability standard for pl /plastics/ ed are made from polyvia in this form concerning so to the best of its knowle b because it has been co m disclosure as trade se tes of the average weigt	002/95/EC (RoHS Directive), EU Directive 2011/65/E s, supplier declarations, and /or analytical test data an intentional ingredient in the semiconductor devi e is no credible reason to believe that the unavoid agulatory scheme world-wide. astics. You can access the UL iQTM family of datal nyl chloride (PVC) plastic. "Window envelopes" use substances restricted by RoHS in Microchip Techni dge and belief, as of the date listed in this form. Mic impiled based on the ranges provided in Material S crets and some information may not have been pro at of these parts and the average weight of anticipa	a. ice and, to the l able impurity co bases to obtain id to hold the p clogy Incorpora crochip Techno afety Data Shev ovided by subcc ted significant i	best of Microconcentration of a test report acking slip or ated's semico plogy Incorpor ets provided to ontract assem	chip of the at n the outer nductor rated cannot by raw blers and		Doped Silicon (mg) Total Copper	7440-21-3 Total Wire Bond palladium coated copper (CuPd) 7440-50-8 7440-05-3	% of Total Weight 100 100.00 % of Total Weight 98 2	0.97
	ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). apliance with the above EU Directives has been verified vi- chemical substance is absent from the list above, the che- hnology Incorporated's knowledge and belief as of the dar mical substance, if any, is not below the threshold of regu- ding compounds used by Microchip meet the UL94 V0 flar ://ul.com/global/eng/pages/offerings/industries/chemicals. protective "tubes" in which the specific product is shipped and certain "reels" may be made from PVC plastic. rochip Technology Incorporated believes the information in ces in their original packing materials is true and correct: rantee the completeness and accuracy of data in this form erial suppliers. Supplier information is often protected from material suppliers. Information is provided only as estimates to ochip Technology Incorporated does not provide any war uct warranties provided by Microchip Technology Incorporated to warranties provided by Microchip Technology Incorporated to the the set in the trong the transfer the trong the transfer the set in the transfer the transfer the transfer the set in the transfer the tra	mply with EU Directive 2 a internal design control mical substance is NOT te of this document, the latory concern for any n mability standard for pl (plastics/ ad are made from polyvin to the best of its knowle because it has been co m disclosure as trade se tes of the average weigh s, and non-metal materia rranty, express or implie orated and its subsidiari	002/95/EC (RoHS Directive), EU Directive 2011/65/E is, supplier declarations, and /or analytical test data an intentional ingredient in the semiconductor devi e is no credible reason to believe that the unavoid agulatory scheme world-wide. astics. You can access the UL iQTM family of datal nyl chloride (PVC) plastic. "Window envelopes" use substances restricted by RoHS in Microchip Techni dge and belief, as of the date listed in this form. Mic mpiled based on the ranges provided in Material S crets and some information may not have been pro- als contained within silicon devices (silicon IC) in the d, with respect to the information provided in this do	a. ice and, to the l able impurity co bases to obtain id to hold the p clogy Incorpora prochip Techno afety Data She ted significant i le finished part leclaration. The	best of Microconcentration of a test report acking slip or ated's semico ology Incorpor tes provided to ontract assem toxic metals of s.	chip of the at n the outer nductor rated cannot by raw bilers and components. mited	2.25	Doped Silicon (mg) Total Copper Palladium	7440-21-3 Total Wire Bond palladium coated copper (CuPd) 7440-50-8 7440-05-3 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for	% of Total Weight 100 100.00 % of Total Weight 98 2 100.00	0.97
	ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). apliance with the above EU Directives has been verified vi- chemical substance is absent from the list above, the che- nology Incorporated's knowledge and belief as of the dar mical substance, if any, is not below the threshold of regu- ling compounds used by Microchip meet the UL94 V0 flar c//ul.com/global/eng/pages/offerings/industries/chemicals. protective "tubes" in which the specific product is shipper and certain "reels" may be made from PVC plastic. ochip Technology Incorporated believes the information in ces in their original packing materials is true and correct rantee the completeness and accuracy of data in this form arial suppliers. Supplier information is often protected from material suppliers. Information is provided only as estimates se estimates do not include trace levels of dopants, metal ochip Technology Incorporated boles not provide any war- fuct warranties provided by Microchip Technology Incorp icrochip's quotations, sales order acknowledgement, and ochip disclaims any duty to notify users of updates or che- rwise, suffered by users or third parties as a result of the	mply with EU Directive 2 a internal design control mical substance is NOT te of this document, there latory concern for any ro mmability standard for pl /plastics/ ed are made from polyvie n this form concerning e to the best of its knowle to because it has been cc m disclosure as trade set tes of the average weigf s, and non-metal materiar ranty, express or implie orated and its subsidiari invoices. anges to Material Conter users' reliance on the in	002/95/EC (RoHS Directive), EU Directive 2011/65/E s, supplier declarations, and /or analytical test data an intentional ingredient in the semiconductor devi re is no credible reason to believe that the unavoid agulatory scheme world-wide. astics. You can access the UL iQTM family of datal hyl chloride (PVC) plastic. "Window envelopes" use substances restricted by RoHS in Microchip Technid dge and belief, as of the date listed in this form. Mic mpiled based on the ranges provided in Material S crets and some information may not have been pro at of these parts and the average weight of anticipa als contained within silicon devices (silicon IC) in th d, with respect to the information provided in this of es are contained and shall not be liable for any dama	a. ice and, to the l able impurity co bases to obtain ad to hold the p ology Incorporation rochip Techno afety Data Shea by ided by subci- ted significant in the finished part leclaration. The d conditions of ges, direct or in	best of Microconcentration of a test report acking slip or ated's semico ology Incorpoo tests provided t ontract assen toxic metals of s. e exclusive, lin sale. These a ndirect, conse	chip of the at n the outer nductor rated cannot yy raw nblers and components. nited re provided equential or	2.25	Doped Silicon (mg) Total Copper Palladium (mg) Total	7440-21-3 Total Wire Bond palladium coated copper (CuPd) 7440-50-8 7440-05-3 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	% of Total Weight 100 100.00 % of Total Weight 98 2 100.00 % of Total Weight	0.97

MICROCHIP Semiconductor Devic	e Type: MR 64 (Lead) QFN	9x9x0.9mm (R4)		nation Base / pper Alloy (C			•	ogeneous Materials: g. pc boards, display	ys)	JEDEC 97 Product Marking and/or Pkg. Labeling e3
Basic Substance	CAS Number	"Contained In" Sub-Component	% Total Weight	mg/part	ppm	10.41	(mg) Total	Mold Compound	% ot Total Weight	4.48
Silica, fused	60676-86-0	Mold Compound	4.032	9.370	40.320		Silica, fused	60676-86-0	90.00	
Epoxy Resin	Trade Secret	Mold Compound	0.217	0.505	2,173		Epoxy Resin	Trade Secret	4.85	
Phenolic Resin	Trade Secret	Mold Compound	0.217	0.505	2,173		Phenolic Resin	Trade Secret	4.85	
Carbon Black	1333-86-4	Mold Compound	0.013	0.031	134		Carbon Black	1333-86-4	0.30	
Copper	7440-50-8	Lead Frame	40.914	95.085	409,143			Total		
Tin	7440-31-5	Lead Frame	0.105	0.244	1,050	97.61	(mg) Total	Lead Frame	% of Total Weight	42
Silver	7440-22-4	Lead Frame	0.800	1.859	8.001	97.01		7440-50-8	97.42	42
Zinc	7440-22-4 7440-66-6	Lead Frame	0.076	0.176	756		Copper	7440-50-8	97.42	
				0.178			Tin			
Chromium	7440-47-3	Lead Frame	0.105		1,050		Silver	7440-22-4	1.91	
Silver	7440-22-4	Die Attach	1.888	4.387	18,876		Zinc	7440-66-6	0.18	
Acrylate resins Proprietary	Trade Secret	Die Attach	0.436	1.012	4,356		Chromium	7440-47-3	0.25	
Treated silica	Trade Secret	Die Attach	0.048	0.112	484			Total		
Heterocyclic organic compound	Trade Secret	Die Attach	0.048	0.112	484	5.62	(mg) Total	Die Attach	% of Total Weight	2.42
Silicon	7440-21-3	Chip (Die)	6.000	13.944	60,000		Silver	7440-22-4	78	
Gold	7440-57-5	Wire Bond	0.970	2.254	9,700		Acrylate resins Proprietary	Trade Secret	18	
Tin	7440-31-5 Plating or	external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	44.130	102.558	441.300		Treated silica	Trade Secret	2	
		TOTALS:	100.000	232.400	1,000,000	Heter	rocyclic organic compound	Trade Secret	2	
	0.2324 g Tota				,,			Total	100.00	
inpliance with the above EO Directives has been verified	a via internal design controls, suppl	ier declarations, and /or analytical test data.					Doped Silicon	7440-21-3	100	
chemical substance is absent from the list above, the corporated's knowledge and belief as of the date of this	chemical substance is NOT an inten document, there is no credible reas	tional ingredient in the semiconductor device					Doped Silicon	7440-21-3 Total		
chemical substance is above 20 Directives has been verified orporated's knowledge and belief as of the date of this , is not below the threshold of regulatory concern for a lding compounds used by Microchip meet the UL94 V0 p://ul.com/global/eng/pages/offerings/industries/chemic	chemical substance is NOT an inten document, there is no credible reas ny regulatory scheme world-wide. flammability standard for plastics. Y	tional ingredient in the semiconductor device on to believe that the unavoidable impurity co	oncentration of	the chemical		2.25	Doped Silicon (mg) Total			0.97
c chemical substance is absent from the list above, the or orporated's knowledge and belief as of the date of this is y, is not below the threshold of regulatory concern for a lding compounds used by Microchip meet the UL94 V0 p://ul.com/global/eng/pages/offerings/industries/chemic e protective "tubes" in which the specific product is shi d certain "reels" may be made from PVC plastic.	chemical substance is NOT an inten document, there is no credible reas ny regulatory scheme world-wide. flammability standard for plastics. Y als/plastics/ pped are made from polyvinyl chlor	tional ingredient in the semiconductor device on to believe that the unavoidable impurity co You can access the UL iQTM family of databas ide (PVC) plastic. "Window envelopes" used	oncentration of ses to obtain a t to hold the pack	the chemical test report at king slip on th	substance, if e outer box	2.25		Total	100.00	0.97
chemical substance is absent from the list above, the c orporated's knowledge and belief as of the date of this , is not below the threshold of regulatory concern for a ding compounds used by Microchip meet the UL94 V0 o://ul.com/global/eng/pages/offerings/industries/chemic protective "tubes" in which the specific product is shi	chemical substance is NOT an inten document, there is no credible reas ny regulatory scheme world-wide. flammability standard for plastics. Y als/plastics/ pped are made from polyvinyl chlor on in this form concerning substance act to the best of its knowledge and orm because it has been compiled I closure as trade secrets and some i average weight of these parts and it nd non-metal materials contained w warranty, express or implied, with re d and its subsidiaries are contained	tional ingredient in the semiconductor device on to believe that the unavoidable impurity co 'ou can access the UL iQTM family of databas ide (PVC) plastic. "Window envelopes" used ces restricted by RoHS in Microchip Technolo belief, as of the date listed in this form. Micro pased on the ranges provided in Material Safe nformation may not have been provided by s the average weight of anticipated significant to ithin silicon devices (silicon IC) in the finishe espect to the information provided in this deco	encentration of the hold the pack gy Incorporate chip Technolog ty Data Sheets buccontract asso oxic metals con d parts.	the chemical test report at king slip on th d's semiconde yy Incorporate provided by r emblers and r mponents. The cclusive, limite	substance, if e outer box uctor ed cannot "aw material aw material ese ed product	2.25	(mg) Total Doped Gold (mg) Total	Total Wire Bond 7440-57-5	100.00 % of Total Weight 100	0.97

	e Type: 177 132 D0)FN 11v11v0 95mm (NB)		nation Base A pper Alloy (C			Package Homo	ogeneous Materials		JEDEC 97 Produc Marking and/or Pkg. Labeling e3
	C Type: E21 102 D	"Contained In"	% Total		,					
Basic Substance	CAS Number	Sub-Component	Weight	mg/part	ppm	35.68	(mg) Total	Mold Compound	% ot Total Weight	34.98
Silica, vitreous (or fused)	60676-86-0	Mold Compound	29.733	30.328	297,330		Silica, vitreous (or fused)	60676-86-0	85.00	
Epoxy Resin	Trade Secret	Mold Compound	3.043	3.104	30,433		Epoxy Resin	Trade Secret	8.70	
Phenolic Resin	Trade Secret	Mold Compound	2.099	2.141	20,988		Phenolic Resin	Trade Secret	6.00	
Carbon Black	1333-86-4	Mold Compound	0.105	0.107	1,049		Carbon Black	1333-86-4	0.30	
Copper	7440-50-8	Lead Frame	52.765	53.821	527,654			Total	100.00	
Iron	7439-89-6	Lead Frame	1.298	1.324	12,979	56.33	(mg) Total	Lead Frame	% of Total Weight	55.23
Silver	7440-22-4	Lead Frame	1.052	1.073	10,521		Copper	7440-50-8	95.54	
Zinc	7440-66-6	Lead Frame	0.069	0.070	690		Iron	7439-89-6	2.35	
Phosphorous	7723-14-0	Lead Frame	0.046	0.046	456		Silver	7440-22-4	1.91	
Silver	7440-22-4	Die Attach	1.009	1.029	10,087		Zinc	7440-66-6	0.13	
Epoxy resin	68475-94-5	Die Attach	0.262	0.267	2,620		Phosphorous	7723-14-0	0.08	
Copper(II) oxide	1317-38-0	Die Attach	0.039	0.040	393		U	Total	100.00	
Silicon	7440-21-3	Chip (Die)	6.120	6.242	61,200	1.34	(mg) Total	Die Attach	% of Total Weight	1.31
Copper	7440-50-8	Wire Bond palladium coated copper (CuPd)	0.432	0.441	4.323	1.04	Silver	7440-22-4	77	1.01
Palladium	7440-05-3	Wire Bond palladium coated copper (CuPd)	0.008	0.008	77		Epoxy resin	68475-94-5	20	
Tin	7440-03-5	Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	1.920	1.958	19,200		Copper(II) oxide	1317-38-0	20	
	7440-51-5	TOTALS:	100.000	102.000	1.000.000		Copper(II) Oxide	Total	100.00	
			100.000	102.000	1,000,000					
	0.1020	g Total Mass				6.24	Total (mg)	Chip (Die)	% of Total Weight	6.12
						÷	Total (ing)	Cliip (Die)		
rective 2002/53/EC (End-of-Life Vehicles (ELV) Directive).	omply with EU Directive 200	02/95/EC (RoHS Directive), EU Directive 2011/65/		ast Directive) a	and with EU		Doped Silicon	7440-21-3	100	
ective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). mpliance with the above EU Directives has been verified v chemical substance is absent from the list above, the ch chnology Incorporated's knowledge and belief as of the da	omply with EU Directive 200 via internal design controls, emical substance is NOT ar ate of this document, there	2/95/EC (RoHS Directive), EU Directive 2011/65/ supplier declarations, and /or analytical test dat n intentional ingredient in the semiconductor dev is no credible reason to believe that the unavoid	a. ice and, to the	best of Micro	chip	0.45				0.44
ective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). mpliance with the above EU Directives has been verified v chemical substance is absent from the list above, the ch chnology Incorporated's knowledge and belief as of the di amical substance, if any, is not below the threshold of reg Iding compounds used by Microchip meet the UL94 V0 fla	omply with EU Directive 200 via internal design controls, emical substance is NOT ar ate of this document, there julatory concern for any reg ammability standard for plas	22/95/EC (RoHS Directive), EU Directive 2011/65/ supplier declarations, and /or analytical test dat n intentional ingredient in the semiconductor dev is no credible reason to believe that the unavoid julatory scheme world-wide.	a. ice and, to the able impurity c	best of Micro	chip of the		Doped Silicon	7440-21-3 Total Wire Bond palladium coated copper	100 100.00	
is semiconductor device and its homogenous materials co rective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). Impliance with the above EU Directives has been verified va a chemical substance is absent from the list above, the ch- chnology Incorporated's knowledge and belief as of the di- emical substance, if any, is not below the threshold of reg plding compounds used by Microchip meet the UL94 V0 file p://ul.com/global/eng/pages/offerings/industries/chemical e protective "tubes" in which the specific product is shipp x and certain "reels" may be made from PVC plastic.	omply with EU Directive 200 via internal design controls, emical substance is NOT ar ate of this document, there julatory concern for any reg ammability standard for plas s/plastics/	22/95/EC (RoHS Directive), EU Directive 2011/65/ supplier declarations, and /or analytical test dat n intentional ingredient in the semiconductor dev is no credible reason to believe that the unavoid julatory scheme world-wide. stics. You can access the UL iQTM family of data	a. ice and, to the able impurity c bases to obtai	best of Micro concentration on n a test report	chip of the : at		Doped Silicon (mg) Total	7440-21-3 Total Wire Bond palladium coated copper (CuPd) 7440-50-8 7440-05-3	100 100.00 % of Total Weight 98 2	
rective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). Impliance with the above EU Directives has been verified to a chemical substance is absent from the list above, the ch- chnology Incorporated's knowledge and belief as of the di- emical substance, if any, is not below the threshold of reg plding compounds used by Microchip meet the UL94 V0 file p://ul.com/global/eng/pages/offerings/industries/chemical: e protective "tubes" in which the specific product is shipp x and certain "reels" may be made from PVC plastic. crochip Technology Incorporated believes the information vices in their original packing materials is true and correc arantee the completeness and accuracy of data in this for terial suppliers. Supplier information is often protected fr w material suppliers. Information is provided only as estim ese estimates do not include trace levels of dopants, meta	omply with EU Directive 200 via internal design controls, emical substance is NOT ar ate of this document, there julatory concern for any reg ammability standard for plat s/plastics/ ped are made from polyviny h in this form concerning su t to the best of its knowledg m because it has been com om disclosure as trade sec nates of the average weight als, and non-metal materials	22/95/EC (RoHS Directive), EU Directive 2011/65/ supplier declarations, and /or analytical test dat n intentional ingredient in the semiconductor dev is no credible reason to believe that the unavoid julatory scheme world-wide. stics. You can access the UL iQTM family of data I chloride (PVC) plastic. "Window envelopes" us bstances restricted by RoHS in Microchip Techn ge and belief, as of the date listed in this form. Mi piled based on the ranges provided in Material S rets and some information may not have been pr of these parts and the average weight of anticip s contained within silicon devices (silicon IC) in t	a. ice and, to the able impurity of bases to obtain ed to hold the ology Incorporation crochip Techn afety Data She ovided by sub ated significan he finished par	best of Micro concentration of n a test report packing slip o rated's semico ology incorpo rets provided i contract asset t toxic metals rts.	chip of the : at n the outer ated cannot yr aw mblers and components.		Copper Copper	7440-21-3 Total Wire Bond palladium coated copper (CuPd) 7440-50-8 7440-05-3 Total	100 100.00 % of Total Weight 98	
rective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). Impliance with the above EU Directives has been verified to a chemical substance is absent from the list above, the ch- chnology Incorporated's knowledge and belief as of the di- emical substance, if any, is not below the threshold of reg plding compounds used by Microchip meet the UL94 V0 fla p://ul.com/global/eng/pages/offerings/industries/chemical: e protective "tubes" in which the specific product is shipp x and certain "reels" may be made from PVC plastic. crochip Technology Incorporated believes the information vices in their original packing materials is true and correc arantee the completeness and accuracy of data in this for tertial suppliers. Information is provided only as estim ese estimates do not include trace levels of dopants, meta crochip Technology Incorporated does not provide any wa oduct warranties provided by Microchip Technology Incorporated by Microchip's quotations, sales order acknowledgement, an	omply with EU Directive 200 via internal design controls, emical substance is NOT at ate of this document, there julatory concern for any reg ammability standard for plas s/plastics/ peed are made from polyviny h in this form concerning su to the best of its knowled m because it has been com om disclosure as trade sec nates of the average weight als, and non-metal materials arranty, express or implied, porated and its subsidiaries id invoices.	22/95/EC (RoHS Directive), EU Directive 2011/65/ supplier declarations, and /or analytical test dat in intentional ingredient in the semiconductor dev is no credible reason to believe that the unavoid julatory scheme world-wide. stics. You can access the UL IQTM family of data it chloride (PVC) plastic. "Window envelopes" us bstances restricted by RoHS in Microchip Techn je and belief, as of the date listed in this form. Mi piled based on the ranges provided in Material S rets and some information may not have been pr of these parts and the average weight of anticipa is contained within silicon devices (silicon IC) in t with respect to the information provided in this of a re contained in Microchip's standard terms an	a. ice and, to the able impurity of bases to obtain ed to hold the ology Incorpon crochip Techra afety Data She ovided by sub- tied significan he finished pan declaration. The d conditions of	best of Micro concentration of n a test report packing slip o rated's semico ology Incorpo tes provided I contract asset t toxic metals rts. we exclusive, li f sale. These a	chip of the at n the outer rated cannot yraw mblers and components. mited are provided		Copper Copper	7440-21-3 Total Wire Bond palladium coated copper (CuPd) 7440-50-8 7440-05-3	100 100.00 % of Total Weight 98 2	
ective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). mpliance with the above EU Directives has been verified to a chemical substance is absent from the list above, the ch- chnology Incorporated's knowledge and belief as of the di- emical substance, if any, is not below the threshold of reg- olding compounds used by Microchip meet the UL94 V0 fla p://ul.com/global/eng/pages/offerings/industries/chemical: e protective "tubes" in which the specific product is shipp x and certain "reels" may be made from PVC plastic. crochip Technology Incorporated believes the information vices in their original packing materials is true and correc arantee the completeness and accuracy of data in this for tertail suppliers. Supplier information is often protected fr w material suppliers. Information is provided only as estim ese estimates do not include trace levels of dopants, met- crochip Technology Incorporated does not provide any wa duct warranties provided by Microchip Technology Incorporated by Microchip Technology Incorporated does not provide any wa duct warranties provided by Microchip Technology Incorporated from the section t	omply with EU Directive 200 via internal design controls, emical substance is NOT ar ate of this document, there julatory concern for any reg ammability standard for plas s/plastics/ peed are made from polyviny to the best of its knowledg m because it has been com om disclosure as trade sec: ates of the average weight als, and non-metal materials arranty, express or implied, porated and its subsidiaries id invoices. hanges to Material Content te users' reliance on the info	2295/EC (RoHS Directive), EU Directive 2011/65/ supplier declarations, and /or analytical test dat n intentional ingredient in the semiconductor dev is no credible reason to believe that the unavoid julatory scheme world-wide. stics. You can access the UL iQTM family of data I chloride (PVC) plastic. "Window envelopes" us bstances restricted by RoHS in Microchip Techn ge and belief, as of the date listed in this form. Mi piled based on the ranges provided in Material S rets and some information may not have been pr of these parts and the average weight of anticip s contained within silicon devices (silicon IC) in t with respect to the information provided in this is a are contained in Microchip's standard terms an Declarations and shall not be liable for any dama	a. ice and, to the able impurity of bases to obtain ed to hold the ology Incorporation crochip Techn afety Data She ovided by sub ated significan he finished paration. The d conditions of ages, direct or	best of Microi concentration of n a test report packing slip o rated's semico ology Incorpo rets provided I contract asser t toxic metals rts. we exclusive, li f sale. These a indirect, cons	chip of the at n the outer onductor rated cannot oy raw mblers and components. mited are provided equential or	0.45	Copper Copper Palladium	7440-21-3 Total wire Bond palladium coated copper (CuPd) 7440-50-8 7440-05-3 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1	100 100.00 % of Total Weight 98 2 2 100.00	0.44

		d) UQFN 3x1.6x0.55mm (QU)		nation Base opper Alloy ((ogeneous Materials: e.g. pc boards, display:	s)	JEDEC 97 Produ Marking and/or Pkg. Labeling e3
Semiconductor Device	e Type. QUOL OU (Lea	, , ,		1						
Basic Substance	CAS Number	"Contained In" Sub-Component	% Total Weight	mg/part	ppm	1.36	(mg) Total	Mold Compound	% ot Total Weight	20.25
Silica, fused	60676-86-0	Mold Compound	18.225	1.221	182.250		Silica, fused	60676-86-0	90.00	
Epoxy Resin	Trade Secret	Mold Compound	0.982	0.066	9,821		Epoxy Resin	Trade Secret	4.85	
Phenolic Resin	Trade Secret	Mold Compound	0.982	0.066	9,821		Phenolic Resin	Trade Secret	4.85	
Carbon Black	1333-86-4	Mold Compound	0.061	0.004	608		Carbon Black	1333-86-4	0.30	
Copper	7440-50-8	Lead Frame	69.935	4.686	699,355		Suppli Biddit	Total	100.00	
Nickel	7440-02-0	Lead Frame	1.865	0.125	18,651	4.92	(mg) Total	Lead Frame	% of Total Weight	73.43
Silicon	7440-21-3	Lead Frame	0.330	0.022	3,304	-1102	Copper	7440-50-8	95.24	
Magnesium	7439-95-4	Lead Frame	0.073	0.002	734		Nickel	7440-02-0	2.54	
Silver	7439-93-4	Lead Frame	1.226	0.003	12.255		Silicon	7440-02-0	0.45	
Aq	7440-22-4	Die Attach	1.710	0.082	17,100		Magnesium	7439-95-4	0.43	
Epoxy resin	Trade secret	Die Attach	0.342	0.023	3,420		Silver	7440-22-4	1.67	
Aliphatic anhydride	Trade secret	Die Attach	0.114	0.0023	1,140		011701	Total	1.07	
2-Butoxyethyl acetate	112-07-2	Die Attach	0.114	0.008	570	0.45	(ma) Tatal		% of Total Weight	2.28
		Die Attach Die Attach	0.057	0.004	570	0.15	(mg) Total	Die Attach		2.28
Polymeric material	Trade secret		2.120	0.004	21,200		Ag	7440-22-4	75.00	
Silicon	1303-00-0	Chip (Die)					Epoxy resin	Trade secret	15.00	
Doped Gold	7440-57-5	Wire Bond	0.540	0.036	5,400		Aliphatic anhydride	Trade secret	5.00	
Tin	7440-31-5	Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	1.380	0.092	13,800		2-Butoxyethyl acetate	112-07-2	2.50	
		TOTALS:	100.000	6.700	1,000,000		Polymeric material	Trade secret	3	
		g Total Mass /95/EC (RoHS Directive), EU Directive 2011/65/EU (Ro	HS Recast Di	irective) and v	vith EU	0 14	(mg) Total	Total Chin (Die)	100.00 % of Total Weight	
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive).	mply with EU Directive 2002	95/EC (RoHS Directive), EU Directive 2011/65/EU (Ro	HS Recast Di	irective) and v	vith EU	0.14	(mg) Total	Chip (Die)	% of Total Weight	
ective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). npliance with the above EU Directives has been verified vi	mply with EU Directive 2002 a internal design controls, s	95/EC (RoHS Directive), EU Directive 2011/65/EU (Ro upplier declarations, and /or analytical test data.		ŗ		0.14	(mg) Total GaAs			2.12
s semiconductor device and its homogenous materials con active 2002/53/EC (End-of-Life Vehicles (ELV) Directive). Inpliance with the above EU Directives has been verified vi chemical substance is absent from the list above, the cher orporated's knowledge and belief as of the date of this doc , is not below the threshold of regulatory concern for any ding compounds used by Microchip meet the UL94 V0 flam b://ul.com/global/eng/pages/offerings/industries/chemicals/	mply with EU Directive 2002 a internal design controls, s mical substance is NOT an i sument, there is no credible regulatory scheme world-wi nmability standard for plasti	95/EC (RoHS Directive), EU Directive 2011/65/EU (Ro upplier declarations, and /or analytical test data. ntentional ingredient in the semiconductor device and reason to believe that the unavoidable impurity conce de.	d, to the best entration of th	of Microchip ne chemical se	Technology	0.14	,	Chip (Die)	% of Total Weight	2.12
ective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). npliance with the above EU Directives has been verified vi- chemical substance is absent from the list above, the cher orporated's knowledge and belief as of the date of this doc , is not below the threshold of regulatory concern for any ding compounds used by Microchip meet the UL94 V0 flan	mply with EU Directive 2002 a internal design controls, s mical substance is NOT an i rument, there is no credible regulatory scheme world-wi mmability standard for plasti /plastics/	95/EC (RoHS Directive), EU Directive 2011/65/EU (Ro upplier declarations, and /or analytical test data. ntentional ingredient in the semiconductor device an reason to believe that the unavoidable impurity conce de. cs. You can access the UL iQTM family of databases	d, to the best entration of th to obtain a te	of Microchip ne chemical se est report at	Technology ubstance, if		GaAs	Chip (Die) 1303-00-0 Total	% of Total Weight 100 100.00	2.12
ective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). npliance with the above EU Directives has been verified vi- chemical substance is absent from the list above, the cher orporated's knowledge and belief as of the date of this doce, is not below the threshold of regulatory concern for any ding compounds used by Microchip meet the UL94 V0 flan c//ul.com/global/eng/pages/offerings/industries/chemicals/	mply with EU Directive 2002 a internal design controls, s mical substance is NOT an i regulatory scheme world-wi mability standard for plasti (plastics/ ed are made from polyvinyl of in this form concerning subs set of its knowledge and beli it has been compiled based de secrets and some inform hof these parts and the av	⁹⁵ /EC (RoHS Directive), EU Directive 2011/65/EU (Ro upplier declarations, and /or analytical test data. ntentional ingredient in the semiconductor device an reason to believe that the unavoidable impurity conce de. cs. You can access the UL iQTM family of databases chloride (PVC) plastic. "Window envelopes" used to h stances restricted by RoHS in Microchip Technology I ef, as of the date listed in this form. Microchip Technology I en any not have been provided by subcontract as arage weight of anticipated significant toxic metals co	d, to the best entration of th to obtain a te hold the packi lncorporated' ology Incorpo s provided by semblers and	of Microchip he chemical si est report at ing slip on the s semiconduc orated cannot raw material f raw material	Technology ubstance, if e outer box ctor devices guarantee suppliers. suppliers.		GaAs (mg) Total	Chip (Die) 1303-00-0 Total Wire Bond	% of Total Weight 100 100.00 % of Total Weight	0.54
ective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). mpliance with the above EU Directives has been verified vi- chemical substance is absent from the list above, the cheir orporated's knowledge and belief as of the date of this doce, is not below the threshold of regulatory concern for any is ding compounds used by Microchip meet the UL94 V0 flan ://ul.com/global/eng/pages/offerings/industries/chemicals/ protective "tubes" in which the specific product is shipped certain "reels" may be made from PVC plastic. rochip Technology Incorporated believes the information i heir original packing materials is true and correct to the be completeness and accuracy of data in this form because i uplier information is often protected from disclosure as tra- rmation is provided only as estimates of the average weig	mply with EU Directive 2002 a internal design controls, s mical substance is NOT an i rument, there is no credible regulatory scheme world-wi plastics/ ad are made from polyvinyl of in this form concerning sub- st of its knowledge and beli thas been compiled based de secrets and some inform h of these parts and the av als contained within silicon of rranty, express or implied, w nd its subsidiaries are conta	⁹⁵ /EC (RoHS Directive), EU Directive 2011/65/EU (Ro upplier declarations, and /or analytical test data. ntentional ingredient in the semiconductor device an reason to believe that the unavoidable impurity conce de. cs. You can access the UL iQTM family of databases shloride (PVC) plastic. "Window envelopes" used to h stances restricted by RoHS in Microchip Technology ef, as of the date listed in this form. Microchip Techno on the ranges provided in Material Safety Data Sheets ation may not have been provided by subcontract as erage weight of anticipated significant toxic metals of devices (silicon IC) in the finished parts.	d, to the best entration of th to obtain a te nold the packi lncorporated' ology Incorpo s provided by semblers and omponents. T ation. The exc	of Microchip he chemical si est report at ing slip on the s semiconduc raw material 'hese estimate	Technology ubstance, if e outer box ctor devices guarantee suppliers. suppliers. es do not d product		GaAs (mg) Total	Chip (Die) 1303-00-0 Total Wire Bond 7440-57-5	% of Total Weight 100 100.00 % of Total Weight 100.00	0.54
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). upliance with the above EU Directives has been verified vis- chemical substance is absent from the list above, the cher- rporated's knowledge and belief as of the date of this doc- is not below the threshold of regulatory concern for any in- ding compounds used by Microchip meet the UL94 V0 flam //ul.com/global/eng/pages/offerings/industries/chemicals/ protective "tubes" in which the specific product is shippe certain "reels" may be made from PVC plastic. oochip Technology Incorporated believes the information i ieir original packing materials is true and correct to the be completeness and accuracy of data in this form because i piler information is often protected from disclosure as tra- mation is provided only as estimates of the average weig ude trace levels of dopants, metals, and non-metal materiar oochip Technology Incorporated does not provide any war ranties provided by Microchip Technology Incorporated a	mply with EU Directive 2002 a internal design controls, s mical substance is NOT an i rument, there is no credible regulatory scheme world-wi plastics/ ad are made from polyvingl of in this form concerning subs est of its knowledge and beli it has been compiled based de secrets and some inform ht of these parts and the av als contained within silicon rranty, express or implied, w nd its subsidiaries are conta voices.	95/EC (RoHS Directive), EU Directive 2011/65/EU (Ro upplier declarations, and /or analytical test data. ntentional ingredient in the semiconductor device and reason to believe that the unavoidable impurity conce de. cs. You can access the UL IQTM family of databases chloride (PVC) plastic. "Window envelopes" used to h stances restricted by RoHS in Microchip Technology i ef, as of the date listed in this form. Microchip Technology i et, as of the date listed in this form. Microchip Technology on the ranges provided in Material Safety Data Sheets ation may not have been provided by subcontract as erage weight of anticipated significant toxic metals co levices (silicon IC) in the finished parts. ith respect to the information provided in this declara- ined in Microchip's standard terms and conditions of eclarations and shall not be liable for any damages, d	d, to the best entration of th to obtain a te hold the packi incorporated' ology Incorpo s provided by semblers and pomponents. T ation. The exc sale. These a	of Microchip ne chemical si est report at ing slip on the s semicondur orated cannot raw material f raw material chese estimate clusive, limited are provided i ect, conseque	Technology ubstance, if e outer box ctor devices guarantee suppliers. suppliers. es do not d product in	0.04	GaAs (mg) Total Doped Gold	Chip (Die) 1303-00-0 Total Wire Bond 7440-57-5 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1	% of Total Weight 100 % of Total Weight 100.00 100.00	0.54

Semiconductor Device	Type: NA 10 UDF	N 3x3x0.5mm (RB)		nation Base opper Alloy (•	ogeneous Materials: g. pc boards, display	vs)	JEDEC 97 Product Marking and/or Pkg. Labeling e3
Basic Substance	CAS Number	"Contained In" Sub-Component	% Total Weight	mg/part	ppm	4.02	(mg) Total	Mold Compound	% ot Total Weight	34.08
Silica, fused	60676-86-0	Mold Compound	30.672	3.619	306,720		Silica, fused	60676-86-0	90.00	
Epoxy Resin	Trade Secret	Mold Compound Mold Compound	1.653	0.195	16,529		Epoxy Resin	Trade Secret	4.85	
Phenolic Resin	Trade Secret	Mold Compound	1.653	0.195	16,529		Phenolic Resin	Trade Secret	4.85	
Carbon Black	1333-86-4	Mold Compound	0.102	0.012	1,022		Carbon Black	1333-86-4	0.30	
Copper	7440-50-8	Lead Frame	43.363	5.117	433,632			Total	100.00	
Nickel	7440-02-0	Lead Frame	1.156	0.136	11,565	5.37	(mg) Total	Lead Frame	% of Total Weight	45.53
Silicon	7440-21-3	Lead Frame	0.205	0.024	2.049		Copper	7440-50-8	95.24	
Magnesium	7439-95-4	Lead Frame	0.046	0.005	455		Nickel	7440-02-0	2.54	
Silver	7440-22-4	Lead Frame	0.760	0.090	7,599		Silicon	7440-21-3	0.45	
Silver	7440-22-4	Die Attach	2.200	0.260	21,996		Magnesium	7439-95-4	0.10	
Acrylate resins Proprietary	Trade Secret	Die Attach	0.508	0.060	5,076		Silver	7440-22-4	1.67	
Treated silica	Trade Secret	Die Attach	0.056	0.007	564			Total	100.00	
Heterocyclic organic compound	Trade Secret	Die Attach	0.056	0.007	564	0.33	(mg) Total	Die Attach	% of Total Weight	2.82
Silicon	7440-21-3	Chip (Die)	14.370	1.696	143,700		Silver	7440-22-4	78.00	
Gold	7440-57-5	Wire Bond	1.060	0.125	10,600		Acrylate resins Proprietary	Trade Secret	18.00	
Tin	7440-31-5	Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	2.140	0.253	21,400		Treated silica	Trade Secret	2.00	
		TOTALS:	100.000	11.800	1,000,000	Hete	erocyclic organic compound	Trade Secret	2.00	
		g Total Mass 02/95/EC (RoHS Directive), EU Directive 2011/65/EU (F	RoHS Recast	Directive) an	d with EU	1.70	(mg) Total	Total Chip (Die)	100.00 % of Total Weight	14.37
s semiconductor device and its homogenous materials cor ective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). mpliance with the above EU Directives has been verified via chemical substance is absent from the list above, the cher shnology Incorporated's knowledge and belief as of the dat	nply with EU Directive 20 i internal design controls nical substance is NOT a	02/95/EC (RoHS Directive), EU Directive 2011/65/EU (F , supplier declarations, and /or analytical test data. n intentional ingredient in the semiconductor device a	and, to the be	est of Microch	nip	1.70	(mg) Total Doped Silicon		% of Total Weight	
ective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). mpliance with the above EU Directives has been verified via chemical substance is absent from the list above, the cher	nply with EU Directive 20 i internal design controls nical substance is NOT a e of this document, there atory concern for any re- mability standard for pla plastics/	2/295/EC (RoHS Directive), EU Directive 2011/65/EU (F , supplier declarations, and /or analytical test data. n intentional ingredient in the semiconductor device a is no credible reason to believe that the unavoidable gulatory scheme world-wide. stics. You can access the UL iQTM family of database	and, to the be impurity con es to obtain a	est of Microch acentration of test report a	nip i the t	1.70 0.13		Chip (Die) 7440-21-3	% of Total Weight	
ective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). mpliance with the above EU Directives has been verified via chemical substance is absent from the list above, the cher chnology Incorporated's knowledge and belief as of the dat smical substance, if any, is not below the threshold of regu lding compounds used by Microchip meet the UL94 V0 flan p://ul.com/global/eng/pages/offerings/industries/chemicals/ e protective "tubes" in which the specific product is shippe	nply with EU Directive 20 internal design controls nical substance is NOT a e of this document, there atory concern for any re- mability standard for pla plastics/ d are made from polyving n this form concerning si o the best of its knowled because it has been cor n disclosure as trade sec es of the average weight	20295/EC (RoHS Directive), EU Directive 2011/65/EU (F , supplier declarations, and /or analytical test data. n intentional ingredient in the semiconductor device a is no credible reason to believe that the unavoidable gulatory scheme world-wide. Istics. You can access the UL iQTM family of database yl chloride (PVC) plastic. "Window envelopes" used to ubstances restricted by RoHS in Microchip Technolog ge and belief, as of the date listed in this form. Microc mpiled based on the ranges provided in Material Safet rets and some information may not have been provid of these parts and the average weight of anticipated	and, to the be impurity con es to obtain a p hold the par gy Incorporate chip Technolo y Data Sheet ed by subcor significant to	est of Microch acentration of test report a cking slip on ed's semicon ogy Incorpora s provided by ntract assemi xic metals cc	the the the outer ductor ted cannot y raw olers and		Doped Silicon	Chip (Die) 7440-21-3 Total Wire Bond	% of Total Weight 100 100.00 % of Total Weight 100.00	14.37
ective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). mpliance with the above EU Directives has been verified via chemical substance is absent from the list above, the cher chnology Incorporated's knowledge and belief as of the dat semical substance, if any, is not below the threshold of regu lding compounds used by Microchip meet the UL94 V0 flan p://ul.com/global/eng/pages/offerings/industries/chemicals/ e protective "tubes" in which the specific product is shipper and certain "reels" may be made from PVC plastic. erochip Technology Incorporated believes the information i vices in their original packing materials is true and correct to arantee the completeness and accuracy of data in this form terial suppliers. Supplier information is often protected froor v material suppliers. Information is provided only as estimal	nply with EU Directive 20 internal design controls inical substance is NOT a e of this document, there atory concern for any re- mability standard for pla plastics/ d are made from polyving n this form concerning si o the best of its knowled because it has been cor n disclosure as trade see es of the average weight s, and non-metal material ranty, express or implied d its subsidiaries are co	20295/EC (RoHS Directive), EU Directive 2011/65/EU (F a, supplier declarations, and /or analytical test data. n intentional ingredient in the semiconductor device a is no credible reason to believe that the unavoidable gulatory scheme world-wide. stics. You can access the UL iQTM family of database yl chloride (PVC) plastic. "Window envelopes" used to ubstances restricted by RoHS in Microchip Technolog ge and belief, as of the date listed in this form. Microc npiled based on the ranges provided in Material Safet rets and some information may not have been provid of these parts and the average weight of anticipated s contained within silicon devices (silicon IC) in the fi , with respect to the information provided in this deck	and, to the be impurity con es to obtain a phold the par y Incorporate y Data Sheet ed by subco significant to nished parts. aration. The e	est of Microch acentration of test report a cking slip on ed's semicon gy Incorpora s provided by provided by xic metals co exclusive, lim	the the t the outer ductor ted cannot y raw olers and omponents.		(mg) Total Gold	Chip (Die) 7440-21-3 Total Wire Bond 7440-57-5	% of Total Weight 100 100.00 % of Total Weight 100.00	14.37
ective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). mpliance with the above EU Directives has been verified via chemical substance is absent from the list above, the cher shology Incorporated's knowledge and belief as of the dat emical substance, if any, is not below the threshold of regu lding compounds used by Microchip meet the UL94 V0 flan p://ul.com/global/eng/pages/offerings/industries/chemicals/ a protective "tubes" in which the specific product is shippe c and certain "reels" may be made from PVC plastic. erochip Technology Incorporated believes the information i vices in their original packing materials is true and correct t arantee the completeness and accuracy of data in this form terial suppliers. Supplier information is often protected fror v material suppliers. Information is provided only as estimal see estimates do not include trace levels of dopants, metals crochip Technology Incorporated does not provide any war rranties provided by Microchip Technology Incorporated an	nply with EU Directive 20 internal design controls nical substance is NOT a e of this document, there atory concern for any re- mability standard for pla plastics/ d are made from polyving n this form concerning si o the best of its knowled because it has been cor n disclosure as trade sec es of the average weight s, and non-metal material ranty, express or implied id its subsidiaries are co voices.	20295/EC (RoHS Directive), EU Directive 2011/65/EU (F , supplier declarations, and /or analytical test data. n intentional ingredient in the semiconductor device a is no credible reason to believe that the unavoidable gulatory scheme world-wide. stics. You can access the UL iQTM family of database yl chloride (PVC) plastic. "Window envelopes" used to ubstances restricted by RoHS in Microchip Technolog ge and belief, as of the date listed in this form. Microc npiled based on the ranges provided in Material Safet rets and some information may not have been provid of these parts and the average weight of anticipated s contained within silicon devices (silicon IC) in the fit , with respect to the information provided in this deck ntained in Microchip's standard terms and conditions	and, to the be impurity con as to obtain a b hold the part chip Technolo y Data Sheet led by subcor significant to nished parts. aration. The e of sale. These b, direct or inc	est of Microch incentration of test report a cking slip on ed's semicon ogy Incorpora s provided by ntract assemt poxic metals co exclusive, lim se are provide direct, consec	the the the outer ductor ted cannot raw olers and omponents. ited product ad in quential or	0.13	(mg) Total Gold	Chip (Die) 7440-21-3 Total Wire Bond 7440-57-5 Total Plating on external leads (pins) - Matte Tin Jancealed at 150°C for	% of Total Weight 100 100.00 % of Total Weight 100.00 100.00	14.37

	Type: QUBE 12 (Lead)	110FN 22/240 55mm (OM)		nation Base / pper Alloy (C	-		•	ogeneous Materials: .g. pc boards, display	ys)	JEDEC 97 Product Markin and/or Pkg. Labeling e3
Semiconductor Device		"Contained In"	0/ Total							
Basic Substance	CAS Number	Sub-Component	% Total Weight	mg/part	ppm	1.74	(mg) Total	Mold Compound	% ot Total Weight	34.08
Silica, fused	60676-86-0	Mold Compound	30.672	1.564	306,720	-	Silica, fused	60676-86-0	90.00	1
Epoxy Resin (NLP # 500-033-5)	Trade Secret	Mold Compound	1.653	0.084	16.529	Enov	vy Resin (NLP # 500-033-5)	Trade Secret	4.85	
Phenolic Resin	Trade Secret	Mold Compound	1.653	0.084	16,529		Phenolic Resin	Trade Secret	4.85	
Carbon Black	1333-86-4	Mold Compound	0.102	0.005	1,022		Carbon Black	1333-86-4	0.30	
Copper	7440-50-8	Lead Frame	43.363	2.212	433,632		-	Total	100.00	
Nickel	7440-02-0	Lead Frame	1.156	0.059	11,565	2.32	(mg) Total	Lead Frame	% of Total Weight	45.53
Silicon	7440-21-3	Lead Frame	0.205	0.010	2,049		Copper	7440-50-8	95.24	
Magnesium	7439-95-4	Lead Frame	0.046	0.002	455		Nickel	7440-02-0	2.54	
Silver	7440-22-4	Lead Frame	0.760	0.039	7,599		Silicon	7440-21-3	0.45	
Silver	7440-22-4	Die Attach	2.256	0.115	22,560		Magnesium	7439-95-4	0.10	
Epoxy Resin	Trade secret	Die Attach	0.564	0.029	5,640		Silver	7440-22-4	1.67	
GaAs	1303-00-0	Chip (Die)	14.370	0.733	143,700			Total		
Doped Gold	7440-57-5	Wire Bond	1.060	0.054	10,600	0.14	(mg) Total	Die Attach	% of Total Weight	2.82
Tin	7440-31-5 Plating	on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	2.140	0.109	21,400		Silver	7440-22-4	80.00	
	0.0051 g To	TOTALS:	100.000	5.100	1,000,00)	Epoxy Resin	Trade secret Total	20.00 100.00	
tive 2002/53/EC (End-of-Life Vehicles (ELV) Directive).		5/EC (RoHS Directive), EU Directive 2011/65/EL	(RoHS Reca	st Directive) a	nd with El	0.73 Doped GaAs	(mg) Total GaAs	Chip (Die) 1303-00-0	% of Total Weight	14.37
tive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). Diance with the above EU Directives has been verified hemical substance is absent from the list above, the cl nology Incorporated's knowledge and belief as of the e ical substance, if any, is not below the threshold of re- ing compounds used by Microchip meet the UL94 V0 fl /ul.com/global/eng/pages/offerings/industries/chemica	via internal design controls, sup hemical substance is NOT an intr date of this document, there is n gulatory concern for any regulat lammability standard for plastics als/plastics/	5/EC (RoHS Directive), EU Directive 2011/65/EU oplier declarations, and /or analytical test data. entional ingredient in the semiconductor devic o credible reason to believe that the unavoidal ory scheme world-wide.	e and, to the l le impurity co ses to obtain	best of Microo oncentration o a test report	chip of the at	0.73	GaAs (mg) Total	1303-00-0 Total Wire Bond	100 100.00 % of Total Weight	14.37
semiconductor device and its homogenous materials of ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). upliance with the above EU Directives has been verified themical substance is absent from the list above, the cl nology Incorporated's knowledge and belief as of the of nical substance, if any, is not below the threshold of re- ling compounds used by Microchip meet the UL94 V0 ff //ul.com/global/eng/pages/offerings/industries/chemica protective "tubes" in which the specific product is ship and certain "reels" may be made from PVC plastic. ochip Technology Incorporated believes the informatio ces in their original packing materials is true and corree to tguarantee the completeness and accuracy of data is material suppliers. Supplier information is often protect are material suppliers. Information is provided only as ponents. These estimates do not include trace levels of	via internal design controls, sup hemical substance is NOT an intu date of this document, there is n- gulatory concern for any regulat lammability standard for plastics als/plastics/ oped are made from polyvinyl chl n in this form concerning substa ct to the best of its knowledge ar n this form because it has been of ted from disclosure as trade sec estimates of the average weight	5/EC (RoHS Directive), EU Directive 2011/65/EL oplier declarations, and /or analytical test data. entional ingredient in the semiconductor devic o credible reason to believe that the unavoidal ory scheme world-wide. 5. You can access the UL iQTM family of databa loride (PVC) plastic. "Window envelopes" used ances restricted by RoHS in Microchip Technol nd belief, as of the date listed in this form. Micr compiled based on the ranges provided in Mat rets and some information may not have been of these parts and the average weight of antic	e and, to the l le impurity co ses to obtain to hold the p ogy Incorpora ochip Techno rrial Safety D provided by s proted signific	best of Microc oncentration of a test report acking slip or ated's semico ology Incorpo ata Sheets pre subcontract a: ant toxic met	chip of the at n the outer nductor rated ovided by ssemblers als	0.73 Doped GaAs	GaAs (mg) Total Doped Gold	1303-00-0 Total Wire Bond 7440-57-5 Total	100 100.00 % of Total Weight 100.00	
ctive 2002/53/EC (End-of-Life Vehicle's (ELV) Directive). upliance with the above EU Directives has been verified themical substance is absent from the list above, the cl nology Incorporated's knowledge and belief as of the of nical substance, if any, is not below the threshold of re- ling compounds used by Microchip meet the UL94 V0 ff //ul.com/global/eng/pages/offerings/industries/chemical protective "tubes" in which the specific product is ship and certain "reels" may be made from PVC plastic. oochip Technology Incorporated believes the information ces in their original packing materials is true and corre- tot guarantee the completeness and accuracy of data in material suppliers. Information is provided only as ponents. These estimates do not include trace levels of ochip Technology Incorporated does not provide any w luct warranties provided by Microchip Technology Inco ided in Microchip's quotations, sales order acknowledge	via internal design controls, sup hemical substance is NOT an into date of this document, there is no gulatory concern for any regulat lammability standard for plastics als/plastics/ oped are made from polyvinyl chl n in this form concerning substa ct to the best of its knowledge ar n this form because it has been of ted from disclosure as trade sec estimates of the average weight f dopants, metals, and non-meta varranty, express or implied, with prorated and its subsidiaries are gement, and invoices.	5/EC (RoHS Directive), EU Directive 2011/65/EL opplier declarations, and /or analytical test data. entional ingredient in the semiconductor device o credible reason to believe that the unavoidal ory scheme world-wide. 5. You can access the UL iQTM family of databa- loride (PVC) plastic. "Window envelopes" used ances restricted by RoHS in Microchip Technol nd belief, as of the date listed in this form. Micr compiled based on the ranges provided in Mat rets and some information may not have been of these parts and the average weight of antic I materials contained within silicon devices (sil or respect to the information provided in this de a contained in Microchip's standard terms and	e and, to the lole impurity co uses to obtain to hold the p ogy Incorpora ochip Techno rrial Safety D: provided by s provided by s provided by s provided by s provided by s provided by s con IC) in the claration. The conditions of	best of Microconcentration of a test report acking slip or ated's semico ology Incorpoi ata Sheets pro- subcontract at e finished part e exclusive, lin sale. These a	chip of the at n the outer nductor rated ovided by ssemblers als ts. nited re	0.73 Doped GaAs 0.05	GaAs (mg) Total Doped Gold	1303-00-0 Total Wire Bond 7440-57-5	100 100.00 % of Total Weight 100.00	
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). upliance with the above EU Directives has been verified themical substance is absent from the list above, the cl nology Incorporated's knowledge and belief as of the of nical substance, if any, is not below the threshold of re- ling compounds used by Microchip meet the UL94 V0 ff ///ul.com/global/eng/pages/offerings/industries/chemical protective "tubes" in which the specific product is ship and certain "reels" may be made from PVC plastic. ochip Technology Incorporated believes the information ces in their original packing materials is true and correr to tgurantee the completeness and accuracy of data in material suppliers. Information is provided only as	via internal design controls, sup hemical substance is NOT an intr date of this document, there is n gulatory concern for any regulat lammability standard for plastics als/plastics/ oped are made from polyvinyl chl on in this form concerning substa ct to the best of its knowledge an in this form because it has been o ted from disclosure as trade sec estimates of the average weight f dopants, metals, and non-meta varranty, express or implied, with riporated and its subsidiaries are gement, and invoices.	SPEC (RoHS Directive), EU Directive 2011/65/EU opplier declarations, and /or analytical test data. entional ingredient in the semiconductor device o credible reason to believe that the unavoidal ory scheme world-wide. . You can access the UL iQTM family of databa- loride (PVC) plastic. "Window envelopes" used ances restricted by RoHS in Microchip Technol d belief, as of the date listed in this form. Mic- compiled based on the ranges provided in Mat rets and some information may not have been of these parts and the average weight of antic I materials contained within silicon devices (sil or respect to the information provided in this de e contained in Microchip's standard terms and larations and shall not be liable for any damag	e and, to the l le impurity co uses to obtain to hold the p ogy Incorpora ochip Techno erial Safety Di provided by s ipated signific icon IC) in the claration. The conditions of es, direct or in	best of Microco oncentration of a test report acking slip or ated's semico ology Incorpoi ata Sheets pro- subcontract a: cant toxic met f finished part e exclusive, lin sale. These a ndirect, conse	chip of the at n the outer rated ovided by ssemblers als is. nited re	0.73 Doped GaAs 0.05	GaAs (mg) Total Doped Gold	1303-00-0 Total Wire Bond 7440-57-5 Total Plating on external leads (pins) - Matte Tin Jannealed at 150°C for	100 100.00 % of Total Weight 100.00 % of Total Weight 100.00	1.06

Semiconductor Device Type	e: QUCE 16 (.ead) UQFN/XDFN 3x3x0.45mm (QR)		ation Base oper Alloy (C				nogeneous Materials: a.g. pc boards, display:	s)	JEDEC 97 Product Marking and/or Pkg. Labeling e3
Daris Outratavez	0.00	"Contained In"	% I otal			10.61	(mg) Total	Mold Compound	% ot Total Weight	51.99
Basic Substance	CAS Number	Sub-Component	Weight	mg/part	ppm					
Silica, fused	60676-86-0	Mold Compound	46.791	9.545	467,910		Silica, fused	60676-86-0	90.00	
Epoxy Resin Phenolic Resin	Trade Secret Trade Secret	Mold Compound Mold Compound	2.522	0.514	25,215 25,215		Epoxy Resin Phenolic Resin	Trade Secret Trade Secret	4.85 4.85	
Carbon Black	1333-86-4	Mold Compound	0.156	0.032	1,560		Carbon Black	1333-86-4	4.85	
Copper	7440-50-8	Lead Frame	39.630	8.084	396.298		Caldul Diack	Total	100.00	
Nickel	7440-02-0	Lead Frame	1.057	0.216	10.569	8.49	(mg) Total	Lead Frame	% of Total Weight	
Silicon	7440-02-0	Lead Frame	0.187	0.210	1,872	0.49			95.24	41.01
Magnesium	7439-95-4	Lead Frame	0.187	0.038	416	-	Copper Nickel	7440-50-8 7440-02-0	95.24 2.54	
Silver	7440-22-4	Lead Frame	0.694	0.008	6.945		Silicon	7440-02-0	0.45	
Silver	7440-22-4	Die Attach	0.632	0.129	6,320		Magnesium	7439-95-4	0.45	
Epoxy Resin	Trade secret	Die Attach	0.158	0.032	1,580	1	Silver	7439-95-4	1.67	
Gallium arsenide (GaAs)	1303-00-0	Chip (Die)	2.170	0.443	21,700		Onver	Total	100.00	
Doped Gold	7440-57-5	Wire Bond	0.490	0.100	4,900	0.16	(mg) Total	Die Attach	% of Total Weight	0.79
Tin	7440-31-5	Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	2.950	0.602	29,500	0.10	Silver	7440-22-4	80.00	0.75
1111	7440-31-5	Plating on external leads (pins) - Matter In/ annealed at 150 C for Thour TOTALS:		20.400	1.000.000		Epoxy Resin	Trade secret	20.00	
		g Total Mass	100.000	20.400	1,000,000		Epoxy Resin	Trade Secret	20.00	
npliance with the above EU Directives has been verified via inter			to the best of	f Microchin T	achnology	0.44 Doped GaAs	(mg) Total Gallium arsenide	Chip (Die) 1303-00-0 Total	% of Total Weight 100 100.00	2.17
mpliance with the above EU Directives has been verified via inter chemical substance is absent from the list above, the chemical orporated's knowledge and belief as of the date of this documen	substance is NOT a t, there is no credil	n intentional ingredient in the semiconductor device and, le reason to believe that the unavoidable impurity concer				Doped GaAs	1	1303-00-0	100	2.17
npliance with the above EU Directives has been verified via inter chemical substance is absent from the list above, the chemical orporated's knowledge and belief as of the date of this documen , is not below the threshold of regulatory concern for any regula ding compounds used by Microchip meet the UL94 V0 flammab	substance is NOT a t, there is no credil tory scheme world ility standard for pl	in intentional ingredient in the semiconductor device and, ble reason to believe that the unavoidable impurity concer- wide.	ntration of the	chemical su		Doped GaAs	1	1303-00-0	100	0.49
mpliance with the above EU Directives has been verified via inter chemical substance is absent from the list above, the chemical orporated's knowledge and belief as of the date of this documen , is not below the threshold of regulatory concern for any regula lding compounds used by Microchip meet the UL94 V0 flammab p://ul.com/global/eng/pages/offerings/industries/chemicals/plasti e protective "tubes" in which the specific product is shipped are	substance is NOT a t, there is no credil tory scheme world ility standard for pl cs/	n intentional ingredient in the semiconductor device and, le reason to believe that the unavoidable impurity concer -wide. astics. You can access the UL iQTM family of databases to	ntration of the	chemical su t report at	bstance, if	Doped GaAs	Gallium arsenide	1303-00-0 Total	100 100.00	
ective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). mpliance with the above EU Directives has been verified via inter- inchemical substance is absent from the list above, the chemical corporated's knowledge and belief as of the date of this documen y, is not below the threshold of regulatory concern for any regula olding compounds used by Microchip meet the UL94 V0 flammab p://ul.com/global/eng/pages/offerings/industries/chemicals/plasti e protective "tubes" in which the specific product is shipped are d certain "reels" may be made from PVC plastic. crochip Technology Incorporated believes the information in this their original packing materials is true and correct to the best of i completeness and accuracy of data in this form because it has is pplier information is often protected from disclosure as trade see ormation is provided only as estimates of the average weight of idue trace levels of dopants, metals, and non-metal materials con	substance is NOT a t, there is no credil tory scheme world lifty standard for pl cs/ made from polyvir form concerning s ts knowledge and i been compiled bas crets and some infa these parts and the	In intentional ingredient in the semiconductor device and, ble reason to believe that the unavoidable impurity concer- wide. astics. You can access the UL iQTM family of databases to yl chloride (PVC) plastic. "Window envelopes" used to ho ubstances restricted by RoHS in Microchip Technology Ir belief, as of the date listed in this form. Microchip Technology Is primation may not have been provided by subcontract asse average weight of anticipated significant toxic metals cor	ntration of the o obtain a test old the packing ncorporated's logy Incorpora provided by ra emblers and r	chemical su t report at g slip on the semiconduc ated cannot <u>c</u> aw material s aw material s	bstance, if outer box tor devices guarantee uppliers. suppliers.	Doped GaAs 0.10	Gallium arsenide	1303-00-0 Total Wire Bond	100 100.00 % of Total Weight	
mpliance with the above EU Directives has been verified via inter- in chemical substance is absent from the list above, the chemical is proporated's knowledge and belief as of the date of this documen y, is not below the threshold of regulatory concern for any regula- iding compounds used by Microchip meet the UL94 V0 flammab p://ul.com/global/eng/pages/offerings/industries/chemicals/plasti e protective "tubes" in which the specific product is shipped are d certain "reels" may be made from PVC plastic. crochip Technology Incorporated believes the information in this their original packing materials is true and correct to the best of is completeness and accuracy of data in this form because it has is pplier information is often protected from disclosure as trade see ormation is provided only as estimates of the average weight of i	substance is NOT a t, there is no credil tory scheme world lility standard for pl cs/ made from polyvir form concerning e ts knowledge and been compiled bas crets and some inf these parts and the ntained within silic express or implied subsidiaries are cc	In intentional ingredient in the semiconductor device and, ble reason to believe that the unavoidable impurity concer- wide. astics. You can access the UL iQTM family of databases to yl chloride (PVC) plastic. "Window envelopes" used to ho substances restricted by RoHS in Microchip Technology Ir belief, as of the date listed in this form. Microchip Technology Ir belief, as of the date listed in this form. Microchip Technology Ir water and the transfer of the sen provided by subcontract asso average weight of anticipated significant toxic metals cor on devices (silicon IC) in the finished parts.	ntration of the o obtain a test old the packing ncorporated's logy Incorpora provided by ra emblers and r mponents. Th ion. The exclu	chemical su t report at g slip on the semiconduc ated cannot <u>g</u> aw material s aw material s ese estimates usive, limited	bstance, if outer box tor devices yuarantee uppliers. suppliers. s do not product	Doped GaAs 0.10	Gallium arsenide	1303-00-0 Total Wire Bond 7440-57-5	100 100.00 % of Total Weight 100.00	0.49
mpliance with the above EU Directives has been verified via inter- in chemical substance is absent from the list above, the chemical is proporated's knowledge and belief as of the date of this documen y, is not below the threshold of regulatory concern for any regula blding compounds used by Microchip meet the UL94 V0 flammab p://ul.com/global/eng/pages/offerings/industries/chemicals/plasti e protective "tubes" in which the specific product is shipped are d certain "reels" may be made from PVC plastic. crochip Technology Incorporated believes the information in this their original packing materials is true and correct to the best of is completeness and accuracy of data in this form because it has pplier information is often protected from disclosure as trade see ormation is provided only as estimates of the average weight of clude trace levels of dopants, metals, and non-metal materials con crochip Technology Incorporated does not provide any warranty, rranties provided by Microchip Technology Incorporated and its	substance is NOT a t, there is no credit tory scheme world ility standard for pl cs/ made from polyvir form concerning e ts knowledge and been compiled bas crets and some infi these parts and the ntained within silic express or implied subsidiaries are co s.	In intentional ingredient in the semiconductor device and, ble reason to believe that the unavoidable impurity concer- wide. astics. You can access the UL iQTM family of databases to yl chloride (PVC) plastic. "Window envelopes" used to ho ubstances restricted by RoHS in Microchip Technology Ir belief, as of the date listed in this form. Microchip Technology of the anges provided in Material Safety Data Sheets p ormation may not have been provided by subcontract assa average weight of anticipated significant toxic metals cor on devices (silicon IC) in the finished parts. I, with respect to the information provided in this declarat ntained in Microchip's standard terms and conditions of s	ntration of the o obtain a test old the packin ncorporated's logy Incorpora provided by ra emblers and r mponents. Th ion. The exclu- sale. These ar	chemical su t report at g slip on the semiconduc ated cannot <u>g</u> aw material s aw material s ese estimate: usive, limited e provided in t, consequen	bstance, if outer box tor devices yuarantee uppliers. suppliers. s do not product tital or	0.10 0.60	Gallium arsenide (mg) Total Doped Gold	Vire Bond 7440-57-5 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1	100 100.00 % of Total Weight 100.00 100.00	0.49
mpliance with the above EU Directives has been verified via inter- chemical substance is absent from the list above, the chemical proprated's knowledge and belief as of the date of this documen , is not below the threshold of regulatory concern for any regula ding compounds used by Microchip meet the UL94 V0 flammab b://ul.com/global/eng/pages/offerings/industries/chemicals/plasti protective "tubes" in which the specific product is shipped are certain "reels" may be made from PVC plastic. rochip Technology Incorporated believes the information in this heir original packing materials is true and correct to the best of i completeness and accuracy of data in this form because it has I piler information is often protected from disclosure as trade ser irmation is provided only as estimates of the average weight of ude trace levels of dopants, metals, and non-metal materials co rochip Technology Incorporated does not provide any warranty, ranties provided by Microchip Technology Incorporated and its rochip's quotations, sales order acknowledgement, and invoice rochip disclaims any duty to notify users of updates or changes erwise, suffered by users or third parties as a result of the users	substance is NOT a t, there is no credit tory scheme world ility standard for pl cs/ made from polyvir form concerning e ts knowledge and been compiled bas crets and some infi these parts and the ntained within silic express or implied subsidiaries are co s.	In intentional ingredient in the semiconductor device and, ble reason to believe that the unavoidable impurity concer- wide. astics. You can access the UL iQTM family of databases to yl chloride (PVC) plastic. "Window envelopes" used to ho ubstances restricted by RoHS in Microchip Technology Ir belief, as of the date listed in this form. Microchip Technology of the anges provided in Material Safety Data Sheets p ormation may not have been provided by subcontract assa average weight of anticipated significant toxic metals cor on devices (silicon IC) in the finished parts. I, with respect to the information provided in this declarat ntained in Microchip's standard terms and conditions of s	ntration of the o obtain a test old the packin ncorporated's logy Incorpora provided by ra emblers and r mponents. Th ion. The exclu- sale. These ar	chemical su t report at g slip on the semiconduc ated cannot <u>g</u> aw material s aw material s ese estimate: usive, limited e provided in t, consequen	bstance, if outer box tor devices yuarantee uppliers. suppliers. s do not product tital or	0.10 0.60	Gallium arsenide (mg) Total Doped Gold (mg) Total	Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	100 100.00 % of Total Weight 100.00 100.00 % of Total Weight	2.95

	T	(02)		ination Base opper Alloy (ogeneous Materials: a.g. pc boards, display	rs)	JEDEC 97 Product Marking and/or Pkg. Labeling e3
Semiconductor Device	e Type: Q3DE 20 (L	.ead) UQFN 3x3x0.55mm (QD)								es
Basic Substance	CAS Number	"Contained In" Sub-Component	% Total Weight	mg/part	ppm	10.59	(mg) Total	Mold Compound	% ot Total Weight	51.57
Silica, fused	60676-86-0	Mold Compound	46.413	9.529	464,130		Silica, fused	60676-86-0	90.00	
Epoxy Resin (NLP # 500-033-5)	Trade Secret	Mold Compound	2.501	0.513	25,011		Epoxy Resin	Trade Secret	4.85	
Phenolic Resin	Trade Secret	Mold Compound	2.501	0.513	25,011		Phenolic Resin	Trade Secret	4.85	
Carbon Black	1333-86-4	Mold Compound	0.155	0.032	1,547		Carbon Black	1333-86-4	0.30	
Copper	7440-50-8	Lead Frame	39.916	8.195	399,155			Total	100.00	
Nickel	7440-02-0	Lead Frame	1.065	0.219	10,645	8.60	(mg) Total	Lead Frame	% of Total Weight	41.91
Silver	7440-22-4	Lead Frame	0.699	0.144	6,995		Copper	7440-50-8	95.24	
Silicon	7440-21-3	Lead Frame	0.189	0.039	1,886		Nickel	7440-02-0	2.54	
Magnesium	7439-95-4	Lead Frame	0.042	0.009	419		Silver	7440-22-4	1.67	
Silver	7440-22-4	Die Attach	0.656	0.135	6,560		Silicon	7440-21-3	0.45	
Epoxy Resin	Trade secret	Die Attach	0.164	0.034	1,640		Magnesium	7439-95-4	0.10	
Silicon	7440-21-3	Chip (Die)	2.180	0.448	21,800			Total	100.00	
Doped Gold	7440-57-5	Wire Bond	0.530	0.109	5,300	0.17	(mg) Total	Die Attach	% of Total Weight	0.82
Tin	7440-31-5	Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	2.990	0.614	29,900		Silver	7440-22-4	80.00	
		TOTALS:	100.000	20.530	1,000,000		Epoxy Resin	Trade secret	20.00	
	0.02053	g Total Mass						Total	100.00	
mpliance with the above EU Directives has been verified v	via internal design controls	s, supplier declarations, and /or analytical test data.				0.45	(mg) Total Doped Silicon	Chip (Die) 7440-21-3	% of Total Weight	2.18
ompliance with the above EU Directives has been verified v a chemical substance is absent from the list above, the ch chnology Incorporated's knowledge and belief as of the d	emical substance is NOT a	in intentional ingredient in the semiconductor device							-	2.18
d a chemical substance is absent from the list above, the ch chnology Incorporated's knowledge and belief as of the d bstance, if any, is not below the threshold of regulatory co olding compounds used by Microchip meet the UL94 V0 fla	emical substance is NOT a late of this document, there oncern for any regulatory s ammability standard for pla	in intentional ingredient in the semiconductor device e is no credible reason to believe that the unavoidable scheme world-wide.	e impurity co	ncentration o	f the chemical	0.11		7440-21-3	100	0.53
· a chemical substance is absent from the list above, the ch	emical substance is NOT a late of this document, there oncern for any regulatory s ammability standard for pla ls/plastics/	in intentional ingredient in the semiconductor device is no credible reason to believe that the unavoidable scheme world-wide. Instics. You can access the UL iQTM family of databas	e impurity co	ncentration o a test report a	t the chemical		Doped Silicon	T440-21-3 Total Wire Bond 7440-57-5	100 100.00 % of Total Weight 100.00	
a chemical substance is absent from the list above, the ch cchnology Incorporated's knowledge and belief as of the d Ibstance, if any, is not below the threshold of regulatory co olding compounds used by Microchip meet the UL94 V0 fla tp://ul.com/global/eng/pages/offerings/industries/chemical as protective "tubes" in which the specific product is shipp	emical substance is NOT a late of this document, there oncern for any regulatory s ammability standard for pla ls/plastics/ ped are made from polyving in this form concerning su it to the best of its knowled rm because it has been cor osure as trade secrets and verage weight of these par	in intentional ingredient in the semiconductor device is no credible reason to believe that the unavoidable scheme world-wide. astics. You can access the UL IQTM family of databas yl chloride (PVC) plastic. "Window envelopes" used t ubstances restricted by RoHS in Microchip Technolog ge and belief, as of the date listed in this form. Micro- mpiled based on the ranges provided in Material Safe isome information may not have been provided by si ts and the average weight of anticipated significant to	e impurity co es to obtain o hold the pa gy Incorpora chip Techno ty Data Shea bacontract a oxic metals o	ncentration o a test report a acking slip on ted's semicor logy Incorpora ts provided b ssemblers and	f the chemical at the outer box iductor ated cannot y raw material d raw material		Doped Silicon (mg) Total	7440-21-3 Total Wire Bond	100 100.00 % of Total Weight	
a chemical substance is absent from the list above, the ch chnology Incorporated's knowledge and belief as of the d ibstance, if any, is not below the threshold of regulatory co olding compounds used by Microchip meet the UL94 V0 fla tp://ul.com/global/eng/pages/offerings/industries/chemical ne protective "tubes" in which the specific product is shipp id certain "reels" may be made from PVC plastic. crochip Technology Incorporated believes the information vices in their original packing materials is true and correc narantee the completeness and accuracy of data in this for ppliers. Supplier information is often protected from discl ppliers. Information is provided only as estimates of the at	emical substance is NOT a ate of this document, there oncern for any regulatory s ammability standard for pla (s/plastics/ ped are made from polyving n in this form concerning si t to the best of its knowled rm because it has been cor osure as trade secrets and verage weight of these par d non-metal materials conta arranty, express or implied and its subsidiaries are co	In intentional ingredient in the semiconductor device is no credible reason to believe that the unavoidable scheme world-wide. Instics. You can access the UL IQTM family of databas yl chloride (PVC) plastic. "Window envelopes" used t ubstances restricted by RoHS in Microchip Technolo ge and belief, as of the date listed in this form. Micro- npiled based on the ranges provided in Material Safe some information may not have been provided by su ts and the average weight of anticipated significant to alined within silicon devices (silicon IC) in the finished I, with respect to the information provided in this decl	e impurity co es to obtain o hold the pa gy Incorpora chip Techno ty Data Shee bacontract a oxic metals o d parts.	ncentration o a test report a acking slip on ted's semicor logy Incorpora ts provided b ssemblers and components. 1 exclusive, lim	f the chemical t the outer box ductor ated cannot y raw material raw material hese ited product		Doped Silicon (mg) Total	T440-21-3 Total Wire Bond 7440-57-5	100 100.00 % of Total Weight 100.00	
a chemical substance is absent from the list above, the ch choology Incorporated's knowledge and belief as of the d ibstance, if any, is not below the threshold of regulatory co olding compounds used by Microchip meet the UL94 V0 fla tp://ul.com/global/eng/pages/offerings/industries/chemical are protective "tubes" in which the specific product is ship id certain "reels" may be made from PVC plastic. crochip Technology Incorporated believes the information vices in their original packing materials is true and correc arantee the completeness and accuracy of data in this for ppliers. Supplier information is often protected from discl pippliers. Information is provided only as estimates of the ar timates do not include trace levels of dopants, metals, and crochip Technology Incorporated does not provide any wa arranties provided by Microchip Technology Incorporated	emical substance is NOT a late of this document, there oncern for any regulatory s ammability standard for pla (s/plastics/ ped are made from polyving h in this form concerning si t to the best of its knowled m because it has been cor osure as trade secrets and verage weight of these par d non-metal materials contra arranty, express or implied and its subsidiaries are co invoices. hanges to Material Content e users' reliance on the inf	In intentional ingredient in the semiconductor device is no credible reason to believe that the unavoidable scheme world-wide. Instics. You can access the UL IQTM family of databas yl chloride (PVC) plastic. "Window envelopes" used t ubstances restricted by RoHS in Microchip Technolog ge and belief, as of the date listed in this form. Micro- mpiled based on the ranges provided in Material Safe some information may not have been provided by st and the average weight of anticipated significant t ained within silicon devices (silicon IC) in the finished I, with respect to the information provided in this deci ntained in Microchip's standard terms and conditions t Declarations and shall not be liable for any damages	e impurity co es to obtain o hold the p gy Incorpora chip Techno ty Data Shee Jbcontract a oxic metals o laration. The s of sale. The s, direct or ir	ncentration o a test report a acking slip on ted's semicor logy Incorpor- ts provided b ssemblers and components. 1 exclusive, lim se are provid direct, conse	f the chemical it the outer box iductor tated cannot y raw material raw material 'hese ited product ed in quential or	0.11	Coped Silicon (mg) Total Doped Gold	7440-21-3 Total Wire Bond 7440-57-5 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for	100 100.00 % of Total Weight 100.00 100.00	0.53
chemical substance is absent from the list above, the ch nnology Incorporated's knowledge and belief as of the d stance, if any, is not below the threshold of regulatory co ding compounds used by Microchip meet the UL94 V0 fla //ul.com/global/eng/pages/offerings/industries/chemical protective "tubes" in which the specific product is ship certain "reels" may be made from PVC plastic. ochip Technology Incorporated believes the information ces in their original packing materials is true and correc rantee the completeness and accuracy of data in this for pliers. Supplier information is often protected from discl- pliers. Information is provided only as estimates of the ar nates do not include trace levels of dopants, metals, and ochip Technology Incorporated does not provide any wir anties provided by Microchip Technology Incorporated ochip's quotations, sales order acknowledgement, and i ochip disclaims any duty to notify users of updates or c rwise, suffered by users or third parties as a result of th	emical substance is NOT a late of this document, there oncern for any regulatory s ammability standard for pla (s/plastics/ ped are made from polyving h in this form concerning si t to the best of its knowled m because it has been cor osure as trade secrets and verage weight of these par d non-metal materials contra arranty, express or implied and its subsidiaries are co invoices. hanges to Material Content e users' reliance on the inf	In intentional ingredient in the semiconductor device is no credible reason to believe that the unavoidable scheme world-wide. Instics. You can access the UL IQTM family of databas yl chloride (PVC) plastic. "Window envelopes" used t ubstances restricted by RoHS in Microchip Technolog ge and belief, as of the date listed in this form. Micro- mpiled based on the ranges provided in Material Safe some information may not have been provided by st and the average weight of anticipated significant t ained within silicon devices (silicon IC) in the finished I, with respect to the information provided in this deci ntained in Microchip's standard terms and conditions t Declarations and shall not be liable for any damages	e impurity co es to obtain o hold the p gy Incorpora chip Techno ty Data Shee Jbcontract a oxic metals o laration. The s of sale. The s, direct or ir	ncentration o a test report a acking slip on ted's semicor logy Incorpor- ts provided b ssemblers and components. 1 exclusive, lim se are provid direct, conse	f the chemical it the outer box iductor tated cannot y raw material raw material 'hese ited product ed in quential or	0.11	Doped Silicon (mg) Total Doped Gold (mg) Total	7440-21-3 Total Wire Bond 7440-57-5 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	100 100.00 % of Total Weight 100.00 % of Total Weight 100.00	2.99

Semiconductor Device	Type: MV 28 (Lea	d) UQFN 4x4x0.5mm (R6)		nation Base A pper Alloy (C			•	ogeneous Materials: a.g. pc boards, display	rs)	JEDEC 97 Product Marki and/or Pkg. Labeling e3
		"Contained In"	% Total			11.99	(mg) Total	Mold Compound	% ot Total Weight	45.93
Basic Substance	CAS Number	Sub-Component	Weight	mg/part	ppm		(3,			10100
Silica, fused	60676-86-0	Mold Compound	41.337	10.789	413,370		Silica, fused	60676-86-0	90.00	
Epoxy Resin (NLP # 500-033-5)	Trade Secret	Mold Compound	2.228	0.581	22,276	Epo	xy Resin (NLP # 500-033-5)	Trade Secret	4.85	
Phenolic Resin Carbon Black	Trade Secret 1333-86-4	Mold Compound Mold Compound	0.138	0.581 0.036	22,276 1.378		Phenolic Resin Carbon Black	Trade Secret 1333-86-4	4.85	
Carbon Black	7440-50-8	Lead Frame	34.095	8.899	340.953		Carbon Black	1333-80-4 Total	0.30	
Tin	7440-30-8	Lead Frame	0.088	0.023	875	9.14	(m n) Total	Lead Frame		35
Silver	7440-31-5	Lead Frame	0.066	0.023	6,668	9.14	(mg) Total	7440-50-8	% of Total Weight 97.42	35
Zinc	7440-22-4	Lead Frame	0.067	0.174	630		Copper Tin	7440-50-8 7440-31-5	0.25	
Chromium	7440-00-0	Lead Frame	0.088	0.023	875		Silver	7440-31-5	1.91	
Silver	7440-47-3	Die Attach	1.123	0.293	11.232		Zinc	7440-66-6	0.18	
Acrylate resins Proprietary	Trade Secret	Die Attach	0.259	0.068	2.592		Chromium	7440-47-3	0.25	
Treated silica	Trade Secret	Die Attach	0.029	0.008	288			Total	100.00	
Heterocyclic organic compound	Trade Secret	Die Attach	0.029	0.008	288	0.38	(mg) Total	Die Attach	% of Total Weight	1.44
Silicon	7440-21-3	Chip (Die)	8,700	2.271	87.000		Silver	7440-22-4	78	
Gold	7440-57-5	Wire Bond	0.510	0.133	5,100		Acrylate resins Proprietary	Trade Secret	18	
Tin	7440-31-5	Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	8.420	2.198	84,200		Treated silica	Trade Secret	2	
		TOTALS:	100.000	26.100	1,000,000	Het	erocyclic organic compound	Trade Secret	2	
		g Total Mass 2002/95/EC (RoHS Directive), EU Directive 2011/65/E	U (RoHS Reca	st Directive) ar	nd with EU	2.27	Total (mg)	Total Chip (Die)	100.00 % of Total Weight	8.7
emiconductor device and its homogenous materials o ive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). Iliance with the above EU Directives has been verified	omply with EU Directive a	2002/95/EC (RoHS Directive), EU Directive 2011/65/E Is, supplier declarations, and /or analytical test data		ŗ	-	2.27	Total (mg) Doped Silicon	Chip (Die) 7440-21-3	% of Total Weight	8.7
ive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). liance with the above EU Directives has been verified emical substance is absent from the list above, the ch ology Incorporated's knowledge and belief as of the d cal substance, if any, is not below the threshold of re	omply with EU Directive : via internal design contro emical substance is NOT ate of this document, the julatory concern for any r	2002/95/EC (RoHS Directive), EU Directive 2011/65/E Is, supplier declarations, and /or analytical test data an intentional ingredient in the semiconductor devi re is no credible reason to believe that the unavoida egulatory scheme world-wide.	ce and, to the ble impurity co	best of Microc	hip f the	2.27		Chip (Die)	% of Total Weight	8.7
ve 2002/53/EC (End-of-Life Vehicles (ELV) Directive). iance with the above EU Directives has been verified emical substance is absent from the list above, the ch ology Incorporated's knowledge and belief as of the d cal substance, if any, is not below the threshold of reg g compounds used by Microchip meet the UL94 V0 fi	omply with EU Directive : via internal design contro emical substance is NOT ate of this document, the julatory concern for any r ammability standard for p	2002/95/EC (RoHS Directive), EU Directive 2011/65/E Is, supplier declarations, and /or analytical test data an intentional ingredient in the semiconductor devi re is no credible reason to believe that the unavoida egulatory scheme world-wide.	ce and, to the ble impurity co	best of Microc	hip f the	2.27		Chip (Die) 7440-21-3	% of Total Weight	8.7
ive 2002/53/EC (End-of-Life Vehicles (ELV) Directive).	omply with EU Directive : via internal design contro emical substance is NOT ate of this document, the julatory concern for any r ammability standard for p (s/plastics/	2002/95/EC (RoHS Directive), EU Directive 2011/65/E Is, supplier declarations, and /or analytical test data an intentional ingredient in the semiconductor devi re is no credible reason to believe that the unavoida egulatory scheme world-wide. lastics. You can access the UL iQTM family of data	ce and, to the ble impurity co bases to obtair	best of Microc oncentration o n a test report a	hip f the at		Doped Silicon	Chip (Die) 7440-21-3 Total Wire Bond 7440-57-5	% of Total Weight 100 100.00 % of Total Weight 100	
ive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). liance with the above EU Directives has been verified semical substance is absent from the list above, the ch lology Incorporated's knowledge and belief as of the d ical substance, if any, is not below the threshold of reg ng compounds used by Microchip meet the UL94 V0 fl u.com/global/eng/pages/offerings/industries/chemica rotective "tubes" in which the specific product is ship	omply with EU Directive : via internal design contro emical substance is NOT ate of this document, the julatory concern for any r ammability standard for p is/plastics/ ped are made from polyvi n in this form concerning t to the best of its knowle m because it has been co om disclosure as trade s nates of the average weig	2002/95/EC (RoHS Directive), EU Directive 2011/65/E Is, supplier declarations, and /or analytical test data an intentional ingredient in the semiconductor devir re is no credible reason to believe that the unavoida egulatory scheme world-wide. lastics. You can access the UL iQTM family of datat nyl chloride (PVC) plastic. "Window envelopes" use substances restricted by RoHS in Microchip Techno dge and belief, as of the date listed in this form. Mic mpiled based on the ranges provided in Material Sa acrets and some information may not have been pro- th of these parts and the average weight of anticipan	ce and, to the ble impurity co bases to obtain d to hold the p blogy Incorpor rochip Techno fety Data Sheo vided by subo ted significant	best of Microc oncentration o a test report a backing slip or ated's semico logy Incorpor its provided by ontract assem	hip f the at the outer nductor ated cannot y raw biblers and		(mg) Total	Chip (Die) 7440-21-3 Total Wire Bond	% of Total Weight 100 100.00 % of Total Weight	
ive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). liance with the above EU Directives has been verified semical substance is absent from the list above, the ch loology Incorporated's knowledge and belief as of the d ical substance, if any, is not below the threshold of reg ng compounds used by Microchip meet the UL94 V0 fl ul.com/global/eng/pages/offerings/industries/chemical rotective "tubes" in which the specific product is ship nd certain "reels" may be made from PVC plastic. chip Technology Incorporated believes the information es in their original packing materials is true and correcentee the completeness and accuracy of data in this for laterial suppliers. Information is provided only as estin	omply with EU Directive : via internal design contro- emical substance is NOT ate of this document, the julatory concern for any r ammability standard for p s/plastics/ ped are made from polyvi n in this form concerning t to the best of its knowle m because it has been co- rom disclosure as trade s nates of the average weig als, and non-metal materi arranty, express or implic and its subsidiaries are c	2002/95/EC (RoHS Directive), EU Directive 2011/65/E Is, supplier declarations, and /or analytical test data an intentional ingredient in the semiconductor devi- re is no credible reason to believe that the unavoida egulatory scheme world-wide. Ilastics. You can access the UL iQTM family of datat nyl chloride (PVC) plastic. "Window envelopes" use substances restricted by RoHS in Microchip Technor dge and belief, as of the date listed in this form. Mic mpiled based on the ranges provided in Material Sa crets and some information may not have been pro- th of these parts and the average weight of anticipan ls contained within silicon devices (silicon IC) in th d, with respect to the information provided in this d	ce and, to the ble impurity co bases to obtain d to hold the p blogy Incorpor rochip Techno fety Data Shee vided by subc ted significant e finished par eclaration. The	best of Microc oncentration o a a test report a backing slip or ated's semicoo Jogy Incorpor- ts provided by ontract assem toxic metals c is.	hip f the at n the outer nductor ated cannot y raw ublers and components. nited product		(mg) Total Doped Gold	Chip (Die) 7440-21-3 Total Wire Bond 7440-57-5	% of Total Weight 100 100.00 % of Total Weight 100	
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	ice Type: MV / MX 28 uQFN	6x6x0.5mm (MQ)		ination Base opper Alloy (nogeneous Materials: ə.g. pc boards, display	rs)	JEDEC 97 Product Marking and/or Pkg. Labeling e3
		"Contained In"	% Total							
Basic Substance	CAS Number	Sub-Component	Weight	mg/part	ppm	1.24	(mg) Total	Mold Compound	% ot Total Weight	42.75
Silica, fused	60676-86-0	Mold Compound	38.475	1.120	384,750		Silica, fused	60676-86-0	90.00	
Epoxy Resin	500-033-5	Mold Compound	2.073	0.060	20,734		Epoxy Resin	500-033-5	4.85	
Phenolic Resin	Trade Secret	Mold Compound	2.073	0.060	20,734		Phenolic Resin	Trade Secret	4.85	
Carbon Black	1333-86-4	Mold Compound	0.128	0.004	1,283		Carbon Black	1333-86-4	0.30	
Copper	7440-50-8	Lead Frame	42.249	1.229	422,489			Total	100.00	
Tin	7440-31-5	Lead Frame	0.108	0.003	1,084	1.26	(mg) Total	Lead Frame	% of Total Weight	43.37
Silver	7440-22-4	Lead Frame	0.826	0.024	8,262		Copper	7440-50-8	97.42	
Zinc	7440-66-6	Lead Frame	0.078	0.002	781		Tin	7440-31-5	0.25	
Chromium	7440-47-3	Lead Frame	0.108	0.003	1,084		Silver	7440-22-4	1.91	
Silica, vitreous	60676-86-0	Die Attach	0.483	0.014	4,830		Zinc	7440-66-6	0.18	
Solid Epoxy Resin	Trade Secret	Die Attach	0.897	0.026	8,970		Chromium	7440-47-3	0.25	
Silicon	7440-21-3	Chip (Die)	8.950	0.260	89,500			Total	100.00	
Gold	7440-57-5	Wire Bond	1.380	0.040	13,800	0.04	(mg) Total	Die Attach	% of Total Weight	1.38
Tin	7440-31-5 Plating of	on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	2.170	0.063	21,700		Silica, vitreous	60676-86-0	35.00	
		TOTALS:	100.000	2.910	1,000,000		Solid Epoxy Resin	Trade Secret	65.00	
	0.0029 g Tot	tal Mass						Total	100.00	-
s semiconductor device and its homogenous materials		EC (RoHS Directive), EU Directive 2011/65/EU (RoHS Recas	t Directive) an	d with FU					
ective 2002/53/EC (End-of-Life Vehicles (ELV) Directive	a).			. Directive) all		0.26	(mg) Total	Chip (Die)	% of Total Weight	8.95
mpliance with the above EU Directives has been verifie	ed via internal design controls, suppl	· •				0.26	(mg) Total Doped Silicon	7440-21-3	100	
mpliance with the above EU Directives has been verifie chemical substance is absent from the list above, the chnology incorporated's knowledge and belief as of the ostance, if any, is not below the threshold of regulatory Iding compounds used by Microchip meet the UL94 V0	d via internal design controls, suppl chemical substance is NOT an inten e date of this document, there is no y concern for any regulatory scheme of lammability standard for plastics.	ntional ingredient in the semiconductor device credible reason to believe that the unavoidable world-wide.	and, to the b e impurity co	est of Microcl ncentration o	hip f the chemical	0.26				
mpliance with the above EU Directives has been verifie chemical substance is absent from the list above, the chnology Incorporated's knowledge and belief as of the sstance, if any, is not below the threshold of regulatory lding compounds used by Microchip meet the UL94 V0 p://ul.com/global/eng/pages/offerings/industries/chemi e protective "tubes" in which the specific product is sh	d via internal design controls, suppl chemical substance is NOT an inten e date of this document, there is no / concern for any regulatory scheme D flammability standard for plastics. Y cals/plastics/	ntional ingredient in the semiconductor device credible reason to believe that the unavoidable world-wide. You can access the UL iQTM family of databas	and, to the b e impurity co es to obtain	est of Microcl ncentration o a test report a	hip f the chemical tt		Doped Silicon	7440-21-3 Total	100 100.00	
rective 2002/53/EC (End-of-Life Vehicles (ELV) Directive ompliance with the above EU Directives has been verifie a chemical substance is absent from the list above, the chnology Incorporated's knowledge and belief as of the bstance, if any, is not below the threshold of regulatory olding compounds used by Microchip meet the UL94 V0 tp://ul.com/global/eng/pages/offerings/industries/chemic e protective "tubes" in which the specific product is sh d certain "reels" may be made from PVC plastic.	d via internal design controls, suppl chemical substance is NOT an inten e date of this document, there is no / concern for any regulatory scheme) flammability standard for plastics. Y cals/plastics/ hipped are made from polyvinyl chlor	ntional ingredient in the semiconductor device credible reason to believe that the unavoidable world-wide. You can access the UL iQTM family of databas ride (PVC) plastic. "Window envelopes" used t	and, to the b e impurity co es to obtain o hold the pa	est of Microcl ncentration o a test report a acking slip on	hip f the chemical it the outer box		Doped Silicon (mg) Total	7440-21-3 Total Wire Bond	100 100.00 % of Total Weight	1.38
perpliance with the above EU Directives has been verifie a chemical substance is absent from the list above, the chnology Incorporated's knowledge and belief as of the bstance, if any, is not below the threshold of regulatory olding compounds used by Microchip meet the UL94 V0 p://ul.com/global/eng/gages/offerings/industries/chemi e protective "tubes" in which the specific product is sh	d via internal design controls, suppl chemical substance is NOT an inten e date of this document, there is no concern for any regulatory scheme 0 flammability standard for plastics. Y cals/plastics/ hipped are made from polyvinyl chlor con in this form concerning substan- rect to the best of its knowledge and form because it has been compiled sclosure as trade secrets and some e average weight of these parts and	tional ingredient in the semiconductor device credible reason to believe that the unavoidable world-wide. You can access the UL iQTM family of databas ride (PVC) plastic. "Window envelopes" used to ces restricted by RoHS in Microchip Technolo I belief, as of the date listed in this form. Micro based on the ranges provided in Material Safe information may not have been provided by sit the average weight of anticipated significant t	and, to the b e impurity co es to obtain o hold the pa gy Incorpora chip Techno ty Data Shee ubcontract as oxic metals c	est of Microco ncentration or a test report a acking slip on ted's semicor logy incorpora ts provided b semblers and	hip f the chemical it the outer box iductor ated canot y raw material f raw material		Doped Silicon (mg) Total	7440-21-3 Total Wire Bond 7440-57-5	100 100.00 % of Total Weight 100.00	1.38
perpliance with the above EU Directives has been verifie a chemical substance is absent from the list above, the chnology Incorporated's knowledge and belief as of the bstance, if any, is not below the threshold of regulatory polding compounds used by Microchip meet the UL94 V0 p://ul.com/global/eng/pages/offerings/industries/chemi te protective "tubes" in which the specific product is sh d certain "reels" may be made from PVC plastic. crochip Technology Incorporated believes the informat vices in their original packing materials is true and corr arantee the completeness and accuracy of data in this ppliers. Supplier information is often protected from dis ppliers. Supplier information is provided only as estimates of the	d via internal design controls, suppl chemical substance is NOT an inten e date of this document, there is no y concern for any regulatory scheme 0 flammability standard for plastics. Y cals/plastics/ hipped are made from polyvinyl chlor con in this form concerning substan- rect to the best of its knowledge and form because it has been compiled sclosure as trade secrets and some e average weight of these parts and and non-metal materials contained w y warranty, express or implied, with r ed and its subsidiaries are contained	tional ingredient in the semiconductor device credible reason to believe that the unavoidable world-wide. You can access the UL iQTM family of databas ride (PVC) plastic. "Window envelopes" used to be left, as of the date listed in this form. Micro based on the ranges provided in Material Safe information may not have been provided by si the average weight of anticipated significant t vithin silicon devices (silicon IC) in the finished respect to the information provided in this dec	and, to the b e impurity co es to obtain o hold the pa gy Incorpora chip Technoi ty Data Shee bacontract as oxic metals o I parts.	est of Microcl ncentration of a test report a acking slip on ted's semicor logy Incorpora ts provided by semblers and components. T exclusive, lim	hip f the chemical it the outer box iductor tated cannot y raw material f raw material f raw material f hese		Doped Silicon (mg) Total	7440-21-3 Total Wire Bond 7440-57-5	100 100.00 % of Total Weight 100.00	1.38
mpliance with the above EU Directives has been verifie chemical substance is absent from the list above, the chnology Incorporated's knowledge and belief as of the sstance, if any, is not below the threshold of regulatory lding compounds used by Microchip meet the UL94 V0 p://ul.com/global/eng/pages/offerings/industries/chemie e protective "tubes" in which the specific product is sh d certain "reels" may be made from PVC plastic. crochip Technology Incorporated believes the informat vices in their original packing materials is true and corr arantee the completeness and accuracy of data in this popilers. Supplier information is often protected from dis opliers. Information is provided only as estimates of the imates do not include trace levels of dopants, metals, a crochip Technology Incorporated does not provide any rranties provided by Microchip Technology Incorporate	d via internal design controls, suppl chemical substance is NOT an inten e date of this document, there is no y concern for any regulatory scheme falsmability standard for plastics. Y cals/plastics/ hipped are made from polyvinyl chlor tion in this form concerning substan- rect to the best of its knowledge and form because it has been compiled sclosure as trade secrets and some e average weight of these parts and and non-metal materials contained w y warranty, express or implied, with r ed and its subsidiaries are contained in rokanges to Material Content Decla it he users' reliance on the informati	tional ingredient in the semiconductor device credible reason to believe that the unavoidable world-wide. You can access the UL iQTM family of database ride (PVC) plastic. "Window envelopes" used to ces restricted by RoHS in Microchip Technolo belief, as of the date listed in this form. Micro based on the ranges provided in Material Safe information may not have been provided by si the average weight of anticipated significant to vithin silicon devices (silicon IC) in the finished respect to the information provided in this dec d in Microchip's standard terms and conditions rations and shall not be liable for any damage	and, to the b e impurity co es to obtain o hold the pa gy Incorpora chip Techno ty Data Shee ubcontract as oxic metals o l parts. laration. The s of sale. The s, direct or in	est of Microcl ncentration of a test report a acking slip on ted's semicorn logy Incorpora ts provided b ssemblers and components. T exclusive, lim sse are provid idirect, conse	hip f the chemical it the outer box the outer box ated cannot y raw material raw material raw material rhese ited product ed in quential or	0.04	Doped Silicon (mg) Total Gold	7440-21-3 Total Wire Bond 7440-57-5 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for	100 100.00 % of Total Weight 100.00 100.00	1.38

Semiconductor Device	Type: MV 40 (Lead) UQF	N 5x5x0.5mm (S5)		ation Base / per Alloy (C	-		Ũ	ogeneous Materials: g. pc boards, display	s)	JEDEC 97 Product Markin and/or Pkg. Labeling e3
Basic Substance	CAS Number	"Contained In" Sub-Component	% Total Weight	mg/part	ppm	18.45	(mg) Total	Mold Compound	% ot Total Weight	43.41
Silica, fused	60676-86-0	Mold Compound	39.069	16.604	390.690		Silica, fused	60676-86-0	90.00	
Epoxy Resin (NLP # 500-033-5)	Trade Secret	Mold Compound	2.105	0.895	21,054	Epox	y Resin (NLP # 500-033-5)	Trade Secret	4.85	
Phenolic Resin	Trade Secret	Mold Compound	2.105	0.895	21,054	Срох	Phenolic Resin	Trade Secret	4.85	
Carbon Black	1333-86-4	Mold Compound	0.130	0.055	1,302		Carbon Black	1333-86-4	0.30	
Copper	7440-50-8	Lead Frame	41.966	17.836	419.664			Total	100.00	
Tin	7440-31-5	Lead Frame	0.108	0.046	1,077	18.31	(mg) Total	Lead Frame	% of Total Weight	43.08
Silver	7440-22-4	Lead Frame	0.821	0.349	8.207	10101	Copper	7440-50-8	97.42	10100
Zinc	7440-66-6	Lead Frame	0.078	0.033	775		Tin	7440-31-5	0.25	
Chromium	7440-47-3	Lead Frame	0.108	0.046	1.077		Silver	7440-22-4	1.91	
Silver	7440-22-4	Die Attach	1.240	0.527	12.402		Zinc	7440-66-6	0.18	
Acrylate resins Proprietary	Trade Secret	Die Attach	0.286	0.122	2,862		Chromium	7440-47-3	0.25	
Treated silica	Trade Secret	Die Attach	0.032	0.014	318			Total	100.00	
Heterocyclic organic compound	Trade Secret	Die Attach	0.032	0.014	318	0.68	(mg) Total	Die Attach	% of Total Weight	1.59
Silicon	7440-21-3	Chip (Die)	6.650	2.826	66.500	0.00	Silver	7440-22-4	78	1.00
Gold	7440-57-5	Wire Bond	1.540	0.655	15,400		Acrylate resins Proprietary	Trade Secret	18	
Tin		on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	3.730	1.585	37.300		Treated silica	Trade Secret	2	
		TOTALS:	100.000	42.500	1.000.000	Hete	rocyclic organic compound	Trade Secret	2	
UTL / Material compilation emiconductor device and its homogenous mater U Directive 2002/53/EC (End-of-Life Vehicles (EL	V) Directive).	002/95/EC (RoHS Directive), EU Directive 2011/		Recast Direc	tive) and	2.83	Total (mg)	Total Chip (Die)	100.00 % of Total Weight	6.65
emiconductor device and its homogenous mater U Directive 2002/53/EC (End-of-Life Vehicles (EL liance with the above EU Directives has been ver emical substance is absent from the list above, t	ials comply with EU Directive 20 V) Directive). ified via internal design control he chemical substance is NOT a	002/95/EC (RoHS Directive), EU Directive 2011/ s, supplier declarations, and /or analytical test an intentional ingredient in the semiconductor	data. device and, to	the best of	Microchip	2.83	Total (mg) Doped Silicon			6.65
emiconductor device and its homogenous mater U Directive 2002/53/EC (End-of-Life Vehicles (EL liance with the above EU Directives has been ver	ials comply with EU Directive 2(V) Directive). ified via internal design control: he chemical substance is NOT <i>i</i> the date of this document, ther of regulatory concern for any re V0 flammability standard for pl.	002/95/EC (RoHS Directive), EU Directive 2011/ s, supplier declarations, and /or analytical test an intentional ingredient in the semiconductor e is no credible reason to believe that the unav gulatory scheme world-wide.	data. device and, to roidable impur	the best of ity concentra	Microchip ation of the	2.83	,	Chip (Die) 7440-21-3	% of Total Weight	6.65
emiconductor device and its homogenous mater U Directive 2002/53/EC (End-of-Life Vehicles (EL liance with the above EU Directives has been ver emical substance is absent from the list above, t ology Incorporated's knowledge and belief as of cal substance, if any, is not below the threshold ng compounds used by Microchip meet the UL94	ials comply with EU Directive 2(V) Directive). ified via internal design control- he chemical substance is NOT a the date of this document, ther of regulatory concern for any re V0 flammability standard for pl. micals/plastics/ shipped are made from polyvin	002/95/EC (RoHS Directive), EU Directive 2011/ s, supplier declarations, and /or analytical test an intentional ingredient in the semiconductor e is no credible reason to believe that the unav egulatory scheme world-wide. astics. You can access the UL iQTM family of d	data. device and, to roidable impur latabases to o	the best of ity concentr btain a test r	Microchip ation of the eport at		Doped Silicon	Chip (Die) 7440-21-3 Total Wire Bond 7440-57-5	% of Total Weight 100 100.00 % of Total Weight 100	
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MICROCHIP Semiconductor Device	Type: MV UQFN 4	18 6x6x0.5mm (R7)		ination Base opper Alloy (ogeneous Materials: g. pc boards, display	rs)	JEDEC 97 Product Markin and/or Pkg. Labeling e3
		"Contained In"	% Total			00.11	(15.00
Basic Substance	CAS Number	Sub-Component	Weight	mg/part	ppm	29.11	(mg) Total	Mold Compound	% ot Total Weight	45.63
Silica, fused	60676-86-0	Mold Compound	41.067	26.201	410,670		Silica, fused	60676-86-0	90.0000	
Epoxy Resin	Trade Secret	Mold Compound	2.213	1.412	22,131		Epoxy Resin	Trade Secret	4.85000	
Phenolic Resin	Trade Secret	Mold Compound	2.213	1.412	22,131		Phenolic Resin	Trade Secret	4.85000	
Carbon Black	1333-86-4	Mold Compound	0.137	0.087	1,369		Carbon Black	1333-86-4	0.30000	
Copper	7440-50-8	Lead Frame	38.352	24.469	383,523			Total		
Tin	7440-31-5	Lead Frame	0.098	0.063	984	25.12	(mg) Total	Lead Frame	% of Total Weight	39.37
Silver	7440-22-4	Lead Frame	0.750	0.478	7,500		Copper	7440-50-8	97.4150	
Zinc Chromium	7440-66-6 7440-47-3	Lead Frame Lead Frame	0.071	0.045	709 984		Tin	7440-31-5 7440-22-4	0.2500	
Silver	7440-47-3	Die Attach	1.201	0.063	984		Silver Zinc	7440-22-4 7440-66-6	1.9050 0.1800	
Acrylate resins Proprietary	Trade Secret	Die Attach Die Attach	0.277	0.766	2,772		Zinc Chromium	7440-66-6	0.1800	
Treated silica	Trade Secret	Die Attach	0.031	0.020	308		Chiomidin	Total		
Heterocyclic organic compound	Trade Secret	Die Attach	0.031	0.020	308	0.98	(mg) Total	Die Attach	% of Total Weight	1.54
Silicon	7440-21-3	Chip (Die)	5.660	3.611	56,600	0.90	Silver	7440-22-4	78.00	1.54
Gold	7440-21-3	Wire Bond	0.800	0.510	8.000		Acrylate resins Proprietary	Trade Secret	18.00	
Tin		Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	7.000	4.466	70.000		Treated silica	Trade Secret	2.00	
101	1440 01 0	TOTALS:	100.000	63.800	1.000.000		Heterocyclic organic compou		2.00	
	0.0638	g Total Mass			.,		instereeyene erganie eempee	Total		1
s semiconductor device and its homogenous materials cor ective 2002/53/EC (End-of-Life Vehicles (ELV) Directive).		2/95/EC (RoHS Directive), EU Directive 2011/65/EU (I	RoHS Recas	t Directive) an	d with EU	3.61	(mg) Total	Chip (Die)	% of Total Weight	5.66
mpliance with the above ELL Directives has been verified with								1		1
•	U .	supplier declarations, and /or analytical test data.					Doped Silicon	7440-21-3	100	
chemical substance is absent from the list above, the cher chnology Incorporated's knowledge and belief as of the dat ostance, if any, is not below the threshold of regulatory com	mical substance is NOT ar te of this document, there ncern for any regulatory so	intentional ingredient in the semiconductor device a is no credible reason to believe that the unavoidable cheme world-wide.	impurity co	ncentration of	the chemical			Total	100.00	
chemical substance is absent from the list above, the cher chnology Incorporated's knowledge and belief as of the dat ostance, if any, is not below the threshold of regulatory con Iding compounds used by Microchip meet the UL94 V0 flan p://ul.com/global/eng/pages/offerings/industries/chemicals/	mical substance is NOT ar te of this document, there ncern for any regulatory so nmability standard for plas /plastics/	n intentional ingredient in the semiconductor device a is no credible reason to believe that the unavoidable cheme world-wide. stics. You can access the UL iQTM family of database	impurity co	ncentration of a test report a	the chemical	0.51	Doped Silicon (mg) Total			0.80
A chemical substance is absent from the list above, the cher chnology Incorporated's knowledge and belief as of the dat bstance, if any, is not below the threshold of regulatory con olding compounds used by Microchip meet the UL94 V0 flan p://ul.com/global/eng/pages/offerings/industries/chemicals/ e protective "tubes" in which the specific product is shippe d certain "reels" may be made from PVC plastic.	mical substance is NOT ar te of this document, there ncern for any regulatory so nmability standard for plas /plastics/	n intentional ingredient in the semiconductor device a is no credible reason to believe that the unavoidable cheme world-wide. stics. You can access the UL iQTM family of database	impurity co	ncentration of a test report a	the chemical			Total Wire Bond 7440-57-5	100.00 % of Total Weight 100.00	0.80
a chemical substance is absent from the list above, the cher chnology Incorporated's knowledge and belief as of the dat bstance, if any, is not below the threshold of regulatory con olding compounds used by Microchip meet the UL94 V0 flan p://ul.com/global/eng/pages/offerings/industries/chemicals/ e protective "tubes" in which the specific product is shippe	mical substance is NOT are te of this document, there ncern for any regulatory so mmability standard for plas /plastics/ ed are made from polyviny in this form concerning su to the best of its knowledg n because it has been com sure as trade secrets and erage weight of these parts	intentional ingredient in the semiconductor device is no credible reason to believe that the unavoidable cheme world-wide. stics. You can access the UL iQTM family of database I chloride (PVC) plastic. "Window envelopes" used to ubstances restricted by RoHS in Microchip Technolog ge and belief, as of the date listed in this form. Microchip lased on the ranges provided in Material Safet some information may not have been provided by su s and the average weight of anticipated significant to	impurity co es to obtain p hold the pa gy Incorpora chip Technol y Data Shee bcontract as pxic metals c	ncentration of a test report a locking slip on ted's semicon ogy Incorpora ts provided b semblers and	the chemical t the outer box ductor ted cannot y raw material		(mg) Total	Total Wire Bond	100.00 % of Total Weight 100.00	0.80
i chemical substance is absent from the list above, the cher choology incorporated's knowledge and belief as of the dat bstance, if any, is not below the threshold of regulatory con lding compounds used by Microchip meet the UL94 V0 flan p://ul.com/global/eng/pages/offerings/industries/chemicals/ e protective "tubes" in which the specific product is shippe d certain "reels" may be made from PVC plastic. crochip Technology Incorporated believes the information i vices in their original packing materials is true and correct t arantee the completeness and accuracy of data in this form ppliers. Supplier information is often protected from disclos ppliers. Information is provided only as estimates of the ave timates do not include trace levels of dopants, metals, and 1 crochip Technology Incorporated does not provide any war rranties provided by Microchip Technology Incorporated ar crochip's quotations, sales order acknowledgement, and in	mical substance is NOT are te of this document, there neern for any regulatory so mmability standard for plas /plastics/ ed are made from polyviny in this form concerning su to the best of its knowledg n because it has been com sure as trade secrets and i erage weight of these part non-metal materials conta rranty, express or implied, nd its subsidiaries are con twoices.	in intentional ingredient in the semiconductor device a is no credible reason to believe that the unavoidable cheme world-wide. stics. You can access the UL iQTM family of database I chloride (PVC) plastic. "Window envelopes" used to bestances restricted by RoHS in Microchip Technolog ge and belief, as of the date listed in this form. Microc upiled based on the ranges provided in Material Safet some information may not have been provided by su s and the average weight of anticipated significant to inde within silicon devices (silicon IC) in the finished with respect to the information provided in this decl- tatined in Microchip's standard terms and conditions	impurity co es to obtain o hold the pa y Incorpora hip Technol y Data Shee bcontract as varie metals c parts. aration. The of sale. The	ncentration o a test report a cking slip on ted's semicon ogy Incorpor ts provided by semblers and omponents. 1 exclusive, lim se are provide	t the outer box ductor ted cannot y raw material raw material hese ited product ed in		(mg) Total Gold	Total Wire Bond 7440-57-5	100.00 % of Total Weight 100.00	0.80
c chemical substance is absent from the list above, the cher hnology Incorporated's knowledge and belief as of the dat istance, if any, is not below the threshold of regulatory con ding compounds used by Microchip meet the UL94 V0 flan b://ul.com/global/eng/pages/offerings/industries/chemicals/ protective "tubes" in which the specific product is shippe i certain "reels" may be made from PVC plastic. rochip Technology Incorporated believes the information i ices in their original packing materials is true and correct t irrantee the completeness and accuracy of data in this form pilers. Supplier information is often protected from disclos pilers. Information is provided only as estimates of the ave mates do not include trace levels of dopants, metals, and 1 rochip Technology Incorporated does not provide any war ranties provided by Microchip Technology Incorporated ar	mical substance is NOT are te of this document, there neern for any regulatory so mmability standard for plas /plastics/ ed are made from polyviny in this form concerning su to the best of its knowledg n because it has been com sure as trade secrets and sure as trade secrets and reage weight of these parts non-metal materials conta rranty, express or implied, nd its subsidiaries are con twoices. anges to Material Content users' reliance on the info	intentional ingredient in the semiconductor device is no credible reason to believe that the unavoidable cheme world-wide. stics. You can access the UL iQTM family of database I chloride (PVC) plastic. "Window envelopes" used to be the the transformation of the interference of the information provided in the finished with respect to the information provided in this declatationed in Microchip's standard terms and conditions Declarations and shall not be liable for any damages	impurity co es to obtain o hold the pa gy Incorpora ship Technol yy Data Shee bcontract as bxic metals c parts. aration. The of sale. The	ncentration o a test report a acking slip on ted's semicor ogy Incorpora ts provided by semblers and omponents. 1 exclusive, lim se are provid direct, conse	t the chemical t t the outer box ductor ted cannot y raw material raw material 'hese ited product ad in quential or		(mg) Total Gold	Total Wire Bond 7440-57-5 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for	100.00 % of Total Weight 100.00 100.00 % of Total Weight 100.00	

	e Type: QVCF 16	Lead) VQFN 3x3x0.9mm (qv)		ation Base / oper Alloy (C	-		•	ogeneous Materials: .g. pc boards, display	rs)	JEDEC 97 Product Markin and/or Pkg. Labeling e3
Semiconductor Devic	e Type. QVCL 10("Contained In"	% Total		1					
Basic Substance	CAS Number	Sub-Component	Weight	mg/part	ppm	12.83	(mg) Total	Mold Compound	% ot Total Weight	50.7
Silica, vitreous (or fused)	60676-86-0	Mold Compound	43.095	10.903	430,950		Silica, vitreous (or fused)	60676-86-0	85.00	
Epoxy Resin	Trade Secret	Mold Compound	4.411	1.116	44,109		Epoxy Resin	Trade Secret	8.70	
Phenolic Resin	Trade Secret	Mold Compound	3.042	0.770	30,420		Phenolic Resin	Trade Secret	6.00	
Carbon Black	1333-86-4	Mold Compound	0.152	0.038	1,521		Carbon Black	1333-86-4	0.30	
Copper	7440-50-8	Lead Frame	41.540	10.510	415,397			Total	100.00	
Iron	7439-89-6	Lead Frame	1.022	0.259	10,218	11.00	(mg) Total	Lead Frame	% of Total Weight	43.48
Silver	7440-22-4	Lead Frame	0.828	0.210	8,283		Copper	7440-50-8	95.54	
Zinc	7440-66-6	Lead Frame	0.054	0.014	544		Iron	7439-89-6	2.35	
Phosphorous	7723-14-0	Lead Frame	0.036	0.009	359		Silver	7440-22-4	1.91	
Silver	7440-22-4	Die Attach	1.360	0.344	13,600		Zinc	7440-66-6	0.13	
Epoxy Resin	Trade secret	Die Attach	0.340	0.086	3,400		Phosphorous	7723-14-0	0.08	
Doped GaAs	1300-00-00	Chip (Die)	1.340	0.339	13,400			Total		
Doped Gold	7440-57-5	Wire Bond	0.400	0.101	4,000	0.43	(mg) Total	Die Attach	% of Total Weight	1.7
Tin	7440-31-5	Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	2.380	0.602	23,800		Silver	7440-22-4	80.00	
		TOTALS:	100.000	25.300	1,000,000		Epoxy Resin	Trade secret	20.00	
								Total	100.00	
		g Total Mass 102/95/EC (RoHS Directive), EU Directive 2011/65/EU (RoHS	S Recast Dire	ctive) and wit	th EU	0.34	(mg) Total	Chip (Die)	% of Total Weight	1.34
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive) pliance with the above EU Directives has been verified	comply with EU Directive 20	02/95/EC (RoHS Directive), EU Directive 2011/65/EU (RoHs			-	0.34	(mg) Total Doped GaAs	Chip (Die) 1300-00-00 Total	100	1.34
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive) apliance with the above EU Directives has been verified chemical substance is absent from the list above, the ch rporated's knowledge and belief as of the date of this d is not below the threshold of regulatory concern for an ting compounds used by Microchip meet the UL94 V0 fl	comply with EU Directive 20 via internal design controls hemical substance is NOT a locument, there is no credib ny regulatory scheme world- lammability standard for pla	02/95/EC (RoHS Directive), EU Directive 2011/65/EU (RoH s, supplier declarations, and /or analytical test data. n intentional ingredient in the semiconductor device and, le reason to believe that the unavoidable impurity concen	to the best o stration of the	Microchip Te	echnology	0.34		1300-00-00	100	0.4
ective 2002/53/EC (End-of-Life Vehicles (ELV) Directive) mpliance with the above EU Directives has been verified chemical substance is absent from the list above, the ch orporated's knowledge and belief as of the date of this d i, is not below the threshold of regulatory concern for an Iding compounds used by Microchip meet the UL94 V0 fi 3/Jul.com/global/eng/pages/offerings/industries/chemica e protective "tubes" in which the specific product is ship	comply with EU Directive 20 via internal design controls hemical substance is NOT a locument, there is no credib ny regulatory scheme world- lammability standard for pla als/plastics/	02995/EC (RoHS Directive), EU Directive 2011/65/EU (RoH s, supplier declarations, and /or analytical test data. n intentional ingredient in the semiconductor device and, le reason to believe that the unavoidable impurity concen wide.	to the best o tration of the o obtain a test	Microchip To chemical sub report at	echnology ostance, if		Doped GaAs	1300-00-00 Total Wire Bond 7440-57-5	100 100.00 % of Total Weight 100	
ective 2002/53/EC (End-of-Life Vehicles (ELV) Directive) mpliance with the above EU Directives has been verified chemical substance is absent from the list above, the cf orporated's knowledge and belief as of the date of this d <i>i</i> , is not below the threshold of regulatory concern for an lding compounds used by Microchip meet the UL94 V0 fi p://ul.com/global/eng/pages/offerings/industries/chemica e protective "tubes" in which the specific product is ship d certain "reels" may be made from PVC plastic. crochip Technology Incorporated believes the informatio heir original packing materials is true and correct to the completeness and accuracy of data in this form becaus, oplier information is often protected from disclosure as to mation is provided only as estimates of the average we	comply with EU Directive 20 via internal design controls hemical substance is NOT a locument, there is no credib ity regulatory scheme world- lammability standard for pla als/plastics/ opped are made from polyvin on in this form concerning s best of its knowledge and b e it has been compiled base trade secrets and some info	02/95/EC (RoHS Directive), EU Directive 2011/65/EU (RoH is, supplier declarations, and /or analytical test data. In intentional ingredient in the semiconductor device and, le reason to believe that the unavoidable impurity concen- wide. astics. You can access the UL iQTM family of databases to yl chloride (PVC) plastic. "Window envelopes" used to ho ubstances restricted by RoHS in Microchip Technology In belief, as of the date listed in this form. Microchip Technology in mation may not have been provided by subcontract asse average weight of anticipated significant toxic metals con	to the best o stration of the o obtain a tes d the packin corporated's ogy Incorpora provided by ra emblers and r	Microchip Te chemical sub report at g slip on the o semiconduct tted cannot g w material s aw material s	echnology ostance, if outer box or devices uarantee uppliers. uppliers.		Doped GaAs (mg) Total	1300-00-00 Total Wire Bond	100 100.00 % of Total Weight 100	
ective 2002/53/EC (End-of-Life Vehicles (ELV) Directive) mpliance with the above EU Directives has been verified chemical substance is absent from the list above, the cf orporated's knowledge and belief as of the date of this d i, is not below the threshold of regulatory concern for an lding compounds used by Microchip meet the UL94 V0 f p://ul.com/global/eng/pages/offerings/industries/chemica a protective "tubes" in which the specific product is ship d certain "reels" may be made from PVC plastic. crochip Technology Incorporated believes the informatio heir original packing materials is true and correct to the completeness and accuracy of data in this form becaus opplier information is often protected from disclosure as to ormation is provided only as estimates of the average we lude trace levels of dopants, metals, and non-metal mate crochip Technology Incorporated does not provide any w	comply with EU Directive 20 via internal design controls hemical substance is NOT a locument, there is no credib ny regulatory scheme world- lammability standard for pla als/plastics/ oped are made from polyvin on in this form concerning s best of its knowledge and b e it has been compiled base trade secrets and some info eight of these parts and the erials contained within silico varranty, express or implied a and its subsidiaries are co	02/95/EC (RoHS Directive), EU Directive 2011/65/EU (RoH is, supplier declarations, and /or analytical test data. In intentional ingredient in the semiconductor device and, le reason to believe that the unavoidable impurity concen- wide. astics. You can access the UL iQTM family of databases to yl chloride (PVC) plastic. "Window envelopes" used to ho ubstances restricted by RoHS in Microchip Technology In belief, as of the date listed in this form. Microchip Technology in mation may not have been provided by subcontract asse average weight of anticipated significant toxic metals con	to the best o tration of the o obtain a test odd the packin accorporated's ogy Incorpora provided by ra- mblers and r nponents. Th ion. The exclu	Microchip Tr chemical sub report at g slip on the o semiconduct ated cannot g ww material su aw material su asse estimates sese estimates	echnology ostance, if outer box or devices uarantee uppliers. is do not		Doped GaAs (mg) Total Doped Gold	1300-00-00 Total Wire Bond 7440-57-5	100 100.00 % of Total Weight 100	
ective 2002/53/EC (End-of-Life Vehicles (ELV) Directive) mpliance with the above EU Directives has been verified chemical substance is absent from the list above, the cf orporated's knowledge and belief as of the date of this d is not below the threshold of regulatory concern for an lding compounds used by Microchip meet the UL94 V0 fl o'./ul.com/global/eng/pages/offerings/industries/chemica protective "tubes" in which the specific product is ship d certain "reels" may be made from PVC plastic. crochip Technology Incorporated believes the informatio heir original packing materials is true and correct to the completeness and accuracy of data in this form becaus oplier information is often protected from disclosure as to arrantion is provided only as estimates of the average we lude trace levels of dopants, metals, and non-metal mate crochip Technology Incorporated does not provide any w rranties provided by Microchip Technology Incorporated crochip's quotations, sales order acknowledgement, and crochip disclaims any duty to notify users of updates or of	comply with EU Directive 20 via internal design controls hemical substance is NOT a locument, there is no credib ny regulatory scheme world- lammability standard for pla als/plastics/ opped are made from polyvin on in this form concerning s best of its knowledge and b e it has been compiled base trade secrets and some info eight of these parts and the erials contained within silico varranty, express or implied a and its subsidiaries are coo invoices. changes to Material Conten he users' reliance on the inf	0299/EC (RoHS Directive), EU Directive 2011/65/EU (RoHS s, supplier declarations, and /or analytical test data. n intentional ingredient in the semiconductor device and, le reason to believe that the unavoidable impurity concen wide. astics. You can access the UL iQTM family of databases to yl chloride (PVC) plastic. "Window envelopes" used to ho ubstances restricted by RoHS in Microchip Technology In velief, as of the date listed in this form. Microchip Technology In velief, as of the date listed in this form. Microchip Technology In renation may not have been provided by subcontract asse average weight of anticipated significant toxic metals con on devices (silicon IC) in the finished parts.	to the best o tration of the o obtain a tes old the packin acorporated's ogy Incorpora provided by ra emblers and r mponents. Th ion. The exclu- sale. These an ect or indirec	Microchip Tr chemical sub report at g slip on the o semiconduct ted cannot g w material s aw material s ase estimates sive, limited a provided in t, consequent	echnology ostance, if outer box or devices uarantee uppliers. is do not product tial or	0.10	Doped GaAs (mg) Total Doped Gold	1300-00-00 Total Wire Bond 7440-57-5 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1	100 100.00 % of Total Weight 100 % of Total Weight 100.00	0.4

	ce Type: 24 VQFN 4x4	VD 9 /8/V		ination Base opper Alloy (•	mogeneous Materials: (e.g. pc boards, displays)		JEDEC 97 Product Marking and/or Pkg. Labeling e3
Semiconductor Devic	e type. 24 voi 11 474	"Contained In"	% I otal							
Basic Substance	CAS Number	Sub-Component	Weight	mg/part	ppm	18.03	(mg) Total	Mold Compound	% ot Total Weight	27.95
Silica, vitreous (or fused)	60676-86-0	Mold Compound	23.758	15.324	237,575		Silica, vitreous (or fused)	60676-86-0	85.00	
Epoxy Resin	Trade Secret	Mold Compound	2.432	1.568	24,317		Epoxy Resin	Trade Secret	8.70	
Phenolic Resin	Trade Secret	Mold Compound	1.677	1.082	16,770		Phenolic Resin	Trade Secret	6.00	
Carbon Black	1333-86-4	Mold Compound	0.084	0.054	839		Carbon Black	1333-86-4	0.30	
Copper	7440-50-8	Lead Frame	64.354	41.508	643,541			Total	100.00	
Iron	7439-89-6	Lead Frame	1.583	1.021	15,830	43.45	(mg) Total	Lead Frame	% of Total Weight	67.36
Silver	7440-22-4	Lead Frame	1.283	0.828	12,832		Copper	7440-50-8	95.54	
Zinc	7440-66-6	Lead Frame	0.084	0.054	842		Iron	7439-89-6	2.35	
Phosphorous	7723-14-0	Lead Frame	0.056	0.036	556		Silver	7440-22-4	1.91	
Silver	7440-22-4	Die Attach	0.170	0.110	1,702		Zinc	7440-66-6	0.13	
Epoxy resin	9003-36-5	Die Attach	0.046	0.030	460		Phosphorous	7723-14-0	0.08	
Copper(II) oxide	1317-38-0	Die Attach	0.007	0.004	69			Total	100.00	
Gamma-butyrolactone	96-48-0	Die Attach	0.007	0.004	69	0.15	(mg) Total	Die Attach	% of Total Weight	0.23
Silicon	7440-21-3	Chip (Die)	2.910	1.877	29,100		Silver	7440-22-4	74.00	
Copper	7440-50-8	Wire Bond	0.323	0.209	3,234		Epoxy resin	9003-36-5	20.00	
Palladium	7440-05-3	Wire Bond	0.007	0.004	66		Copper(II) oxide	1317-38-0	3.00	
Tin	7440-31-5	Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	1.220	0.787	12,200		Gamma-butyrolactone	96-48-0	3.00	
		TOTALS:	100.000	64.500	1,000,000			Total	100.00	
	0.0645	g Total Mass				1.88	(mg) Total	Chip (Die)	% of Total Weight	2.91
s semiconductor device and its homogenous materials : ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). npliance with the above EU Directives has been verified		02/95/EC (RoHS Directive), EU Directive 2011/65/EU (RoHS	S Recast Dire	ctive) and wit	h EU		Doped Silicon	7440-21-3 Total	100 100.00	
	document, there is no credib	n intentional ingredient in the semiconductor device and, le reason to believe that the unavoidable impurity concen wide.				0.21	(mg) Total	Wire Bond	% of Total Weight	0.33
lding compounds used by Microchip meet the UL94 V0 f p://ul.com/global/eng/pages/offerings/industries/chemica		astics. You can access the UL iQTM family of databases to	o obtain a tes	t report at			Copper	7440-50-8	98.00	
e protective "tubes" in which the specific product is ship tain "reels" may be made from PVC plastic.	oped are made from polyvin	yl chloride (PVC) plastic. "Window envelopes" used to ho	ld the packin	g slip on the o	outer box and		Palladium	7440-05-3	2.00	
crochin Technology Incornorated believes the informativ		ubstances restricted by RoHS in Microchip Technology In ef, as of the date listed in this form. Microchip Technolog		d cannot gua	rantee the			Total	100.00	
eir original packing materials is true and correct to the be mpleteness and accuracy of data in this form because it formation is often protected from disclosure as trade sec	has been compiled based of crets and some information r se parts and the average weight	n the ranges provided in Material Safety Data Sheets prov nay not have been provided by subcontract assemblers a ght of anticipated significant toxic metals components. Th icon IC) in the finished parts.	nd raw mater	ial suppliers.	Information					
eir original packing materials is true and correct to the be mpleteness and accuracy of data in this form because it iormation is often protected from disclosure as trade sec provided only as estimates of the average weight of thes rels of dopants, metals, and non-metal materials contain crochip Technology Incorporated does not provide any v	has been compiled based o rets and some information r se parts and the average wei ed within silicon devices (sil warranty, express or implied	nay not have been provided by subcontract assemblers a ght of anticipated significant toxic metals components. Th	nd raw mater nese estimate	ial suppliers. s do not inclu isive, limited	Information ude trace product	0.79	(mg) Total	Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	% of Total Weight	1.22
eir original packing materials is true and correct to the be mpleteness and accuracy of data in this form because it formation is often protected from disclosure as trade sec provided only as estimates of the average weight of thes rels of dopants, metals, and non-metal materials containe crochip Technology Incorporated does not provide any v irranties provided by Microchip Technology Incorporatec totations, sales order acknowledgement, and invoices. crochip disclaims any duty to notify users of updates or	has been compiled based o rets and some information I se parts and the average wei ed within silicon devices (sil warranty, express or implied d and its subsidiaries are co changes to Material Contem he users' reliance on the inf	nay not have been provided by subcontract assemblers a ght of anticipated significant toxic metals components. Th icon IC) in the finished parts. , with respect to the information provided in this declarati	nd raw mater nese estimate on. The exclu ale. These ar ect or indirec	ial suppliers. Is do not inclu Isive, limited e provided in t, consequen	Information Ide trace product Microchip's tial or	0.79	(mg) Total Tin	 Matte Tin / annealed at 150°C 	% of Total Weight	1.22
r original packing materials is true and correct to the be pleteness and accuracy of data in this form because it irmation is often protected from disclosure as trade sec rovided only as estimates of the average weight of thes als of dopants, metals, and non-metal materials contain rochip Technology Incorporated does not provide any v ranties provided by Microchip Technology Incorporatec tations, sales order acknowledgement, and invoices. rochip disclaims any duty to notify users of updates or erwise, suffered by users or third parties as a result of ti	has been compiled based o rets and some information I se parts and the average wei ed within silicon devices (sil warranty, express or implied d and its subsidiaries are co changes to Material Contem he users' reliance on the inf	nay not have been provided by subcontract assemblers a ght of anticipated significant toxic metals components. Th icon IC) in the finished parts. , with respect to the information provided in this declarati ntained in Microchip's standard terms and conditions of s Declarations and shall not be liable for any damages, dir	nd raw mater nese estimate on. The exclu ale. These ar ect or indirec	ial suppliers. Is do not inclu Isive, limited e provided in t, consequen	Information Ide trace product Microchip's tial or	0.79		- Matte Tin / annealed at 150°Ć for 1 hour	100.00	1.22

Silica, vitreous (or fused) 606 Epoxy Resin Trad Phenolic Resin Trad Carbon Black 133 Copper 744	l umber 5-86-0 Secret	(RM) "Contained In" Sub-Component Mold Compound	% Total Weight							e3
Silica, vitreous (or fused) 606 Epoxy Resin Trad Phenolic Resin Trad Carbon Black 133 Copper 744	5-86-0 Secret	Sub-Component								
Epoxy Resin Trad Phenolic Resin Trad Carbon Black 133 Copper 744	Secret	Mold Compound		mg/part	ppm	26.81	(mg) Total	Mold Compound	% ot Total Weight	40.57
Phenolic Resin Tradi Carbon Black 133 Copper 744			34.485	22.787	344,845		Silica, vitreous (or fused)	60676-86-0	85.00	
Carbon Black 133 Copper 744	Connet	Mold Compound	3.530	2.332	35,296		Epoxy Resin	Trade Secret	8.70	
Copper 744	Secret	Mold Compound	2.434	1.608	24,342		Phenolic Resin	Trade Secret	6.00	
	-86-4	Mold Compound	0.122	0.080	1,217		Carbon Black	1333-86-4	0.30	
740	-50-8	Lead Frame	50.721	33.515	507,209			Total	100.00	2
Iron 743	-89-6	Lead Frame	1.248	0.824	12,476	35.08	(mg) Total	Lead Frame	% of Total Weight	53.09
Silver 744	-22-4	Lead Frame	1.011	0.668	10,114		Copper	7440-50-8	95.54	
Zinc 744	-66-6	Lead Frame	0.066	0.044	664		Iron	7439-89-6	2.35	
	-14-0	Lead Frame	0.044	0.029	438		Silver	7440-22-4	1.91	
	-22-4	Die Attach	0.840	0.555	8,400		Zinc	7440-66-6	0.13	
Epoxy resin Trade	Secret	Die Attach	0.160	0.106	1,600		Phosphorous	7723-14-0	0.08	
Silicon 744	-21-3	Chip (Die)	3.290	2.174	32,900			Total	100.00	9
Gold 744	-57-5	Wire Bond	0.470	0.311	4,700	0.66	(mg) Total	Die Attach	% of Total Weight	1
		n external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	1.580	1.044	15.800		Silver	7440-22-4	84.00	
	or o riding on	TOTALS:	100.000	66.078	1,000,000		Epoxy resin	Trade Secret	16.00	
	0.0661 g Tot				.,,		2poxy room	Total	100.00	
emical substance is absent from the list above, the rochip Technology Incorporated's knowledge and b ty concentration of the chemical substance, if any,	lief as of the da s not below the	ate of this document, there is no credible e threshold of regulatory concern for any	e reason to belie regulatory sche	eve that the un eme world-wid	avoidable e.			Total	100.00	y
ng compounds used by Microchip meet the UL94 V0 port at http://ul.com/global/eng/pages/offerings/ind			JL iQTM family	of databases t	o obtain a	0.31	(mg) Total	Wire Bond	% of Total Weight	0.47
rotective "tubes" in which the specific product is shing slip on the outer box and certain "reels" may be			Vindow envelop	bes" used to he	old the		Gold	7440-57-5	100.00	
Achip Technology Incorporated believes the informat porated's semiconductor devices in their original pa orm. Microchip Technology Incorporated cannot gua e ranges provided in Material Safety Data Sheets pro ts and some information may not have been provide altes of the average weight of these parts and the ave levels of dopants, metals, and non-metal materials of	king materials i antee the comp ided by raw ma by subcontract rage weight of a	is true and correct to the best of its know pleteness and accuracy of data in this for aterial suppliers. Supplier information is ct assemblers and raw material suppliers. anticipated significant toxic metals comp	vledge and belie rm because it ha often protected . Information is ponents. These	ef, as of the da as been compi I from disclosu provided only	led based re as trade as			Total	100.00	
	warrante aver-	ess or implied, with respect to the information				1.04	(mg) Total	Plating on external leads (pins) - Matte Tin /	% of Total Weight	1.58
ochip Technology Incorporated does not provide any sive, limited product warranties provided by Microch itions of sale. These are provided in Microchip's quo	p Technology I		ntained in Micro	chip's standar	u ternis anu			annealed at 150°C for 1 hour		
sive, limited product warranties provided by Microch	p Technology I ations, sales or changes to Mat hird parties as	rder acknowledgement, and invoices. aterial Content Declarations and shall not a result of the users' reliance on the info	t be liable for an prmation in Mate	ny damages, di	rect or				100.00	

		5x5x0.9 (MW)		nination Bas Copper Alloy				Homogeneous Materials ics (e.g. pc boards, displ		JEDEC 97 Product Marking and/or Pkg. Labeling
Semiconductor Device		"Contained In"	% Total	1				1		e4
Basic Substance	CAS Number	Sub-Component	Weight	mg/part	ppm	39.52	(mg) Total	Mold Compound	% ot Total Weight	40.57
Silica Fused	60676-86-0	Mold Compound	35.438	34.517	354,379		Silica Fused	60676-86-0	87.35	
Epoxy Resin	Trade Secret	Mold Compound	2.085	2.031	20,853	1	Epoxy Resin	Trade Secret	5.14	
Metal Hydroxide	Trade Secret	Mold Compound	1.250	1.217	12,496		Metal Hydroxide	Trade Secret	3.08	
Phenol Resin	Trade Secret	Mold Compound	0.836	0.814	8,357		Phenol Resin	Trade Secret	2.06	
Phenol Novolac	9003-35-4	Mold Compound	0.836	0.814	8,357		Phenol Novolac	9003-35-4	2.06	
Carbon Black	1333-86-4	Mold Compound	0.126	0.122	1,258		Carbon Black	1333-86-4	0.31	
Copper	7440-50-8	Lead Frame	50.721	49.402	507,209			Total	100.00	
Iron	7439-89-6	Lead Frame	1.248	1.215	12,476	51.71	(mg) Total	Lead Frame	% of Total Weight	53.09
Silver	7440-22-4	Lead Frame	1.011	0.985	10,114	4	Copper	7440-50-8	95.54	
Zinc	7440-66-6	Lead Frame	0.066	0.065	664	4	Iron	7439-89-6	2.35	
Phosphorous	7723-14-0	Lead Frame	0.044	0.043	438	_	Silver	7440-22-4	1.91	
Silver	7440-22-4	Die Attach Die Attach	0.560	0.545	5,600	-	Zinc	7440-66-6 7723-14-0	0.13	
Epoxy Resin	Trade Secret				1,400 33.000	-	Phosphorous	Total	0.08	l
Silicon Gold	7440-21-3 7440-57-5	Chip (Die) Wire Bond	3.300 0.500	3.214 0.487	5,000	0.68			% of Total Weight	0.7
						0.68	(mg) Total	Die Attach		0.7
Nickel Palladium	7440-02-0 7440-05-3	Plating on external leads (pins) Plating on external leads (pins)	1.656	1.613	<u>16,560</u> 920	-	Silver	7440-22-4 Trade Secret	80 20	
Gold	7440-57-5	Plating on external leads (pins)	0.092	0.090	920	-	Epoxy Resin	Tade Secret	100.00	J
Gold	7440-57-5		100.092	97.400	1,000,000	3.21	Total (mg)	Chip (Die)	% of Total Weight	3.3
	0.0074	TOTALS:	100.000	57.400	1,000,000	3.21				3.3
	0.0974 g 1						Doped Silicon	7440-21-3	100	
is semiconductor device and its homogenous th EU Directive 2002/53/EC (End-of-Life Vehicl		rective 2002/95/EC (RoHS Directive), EU Directive	e 2011/65/EU (F	RoHS Recast	Directive) and			Total	100.00	
ompliance with the above EU Directives has be	een verified via internal desig	n controls, supplier declarations, and /or analytic	cal test data.			0.49	(mg) Total	Wire Bond	% of Total Weight	0.5
	f as of the date of this docum	e is NOT an intentional ingredient in the semicon nent, there is no credible reason to believe that th for any regulatory scheme world-wide.					Gold	7440-57-5	100.00	
olding compounds used by Microchip meet the tp://ul.com/global/eng/pages/offerings/industri		ard for plastics. You can access the UL iQTM fan	nily of database	es to obtain a	test report at			Total	100.00	1
he protective "tubes" in which the specific produter box and certain "reels" may be made from		m polyvinyl chloride (PVC) plastic. "Window enve	elopes" used to	o hold the pac	king slip on the	1.79	(mg) Total	Plating on external leads (pins)	% of Total Weight	1.84
emiconductor devices in their original packing echnology Incorporated cannot guarantee the afety Data Sheets provided by raw material sup ovided by subcontract assemblers and raw ma	materials is true and correct completeness and accuracy opliers. Supplier information aterial suppliers. Information	cerning substances restricted by RoHS in Micro to the best of its knowledge and belief, as of the of data in this form because it has been compiled s often protected from disclosure as trade secre is provided only as estimates of the average wei ude trace levels of dopants, metals, and non-met	date listed in the d based on the its and some in ght of these pa	his form. Micr ranges provi formation ma rts and the a	ochip ded in Material y not have been verage weight of		Nickel	7440-02-0	90.00	
oduct warranties provided by Microchip Techr ovided in Microchip's quotations, sales order a	nology Incorporated and its s acknowledgement, and invoid	or implied, with respect to the information provid ubsidiaries are contained in Microchip's standar ces. al Content Declarations and shall not be liable fo	d terms and co	nditions of sa	ale. These are		Palladium	7440-05-3	5.00	
	r third parties as a result of th	ne users' reliance on the information in Material (Gold	7440-57-5	5.00	
	•	-				1		Total	100.00	

100

100.00

Total

Semiconductor Device	• Type: EZK 32 \	/QFN 5x5x0.9 (RN)		nation Base A pper Alloy (C			Package Ho	mogeneous Materials		JEDEC 97 Product Marking and/or Pkg. Labeling e3
Basic Substance	CAS Number	"Contained In" Sub-Component	% Total Weight	mg/part	ppm	18.20	(mg) Total	Mold Compound	% ot Total Weight	28.62
Silica, vitreous (or fused)	60676-86-0	Mold Compound	24.327	15.472	243.270		Silica, vitreous (or fused)	60676-86-0	85.00	
Epoxy Resin	Trade Secret	Mold Compound	2.490	1.584	24.899		Epoxy Resin	Trade Secret	8.70	i
Phenolic Resin	Trade Secret	Mold Compound	1.717	1.092	17,172		Phenolic Resin	Trade Secret	6.00	1
Carbon Black	1333-86-4	Mold Compound	0.086	0.055	859		Carbon Black	1333-86-4	0.30	1
Copper	7440-50-8	Lead Frame	62,166	39.538	621,663			Total	100.00	
Iron	7439-89-6	Lead Frame	1.529	0.973	15,291	41.38	(mg) Total	Lead Frame	% of Total Weight	65.07
Silver	7440-22-4	Lead Frame	1.240	0.788	12.396	41.00	Copper	7440-50-8	95.54	00.01
Zinc	7440-22-4	Lead Frame	0.081	0.052	813		Iron	7439-89-6	2.35	i
Phosphorous	7723-14-0	Lead Frame	0.054	0.032	537		Silver	7439-89-0	1.91	1
Silver	7440-22-4	Die Attach	0.363	0.231	3.626		Zinc	7440-22-4 7440-66-6	0.13	i
	Trade Secret	Die Attach	0.363	0.062	3,626		Phosphorous	7440-66-6	0.13	1
Epoxy resin							Phosphorous			r
Metal oxide	Trade Secret	Die Attach	0.015	0.009	147			Total	100.00	
Gamma-butyrolactone	96-48-0	Die Attach	0.015	0.009	147	0.31	(mg) Total	Die Attach	% of Total Weight	0.49
Silicon	7440-21-3	Chip (Die)	2.410	1.533	24,100		Silver	7440-22-4	74	i
Copper	7440-50-8	Wire Bond palladium coated copper (CuPd)	0.648	0.412	6,485		Epoxy resin	Trade Secret	20	i
Palladium	7440-05-3	Wire Bond palladium coated copper (CuPd)	0.012	0.007	116		Metal oxide	Trade Secret	3	1
Tin	7440-31-5	Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	2.750	1.749	27,500		Gamma-butyrolactone	96-48-0	3	1
		TOTALS:	100.000	63.600	1,000,000			Total	100.00	
	0.0636 (g Total Mass				1.53	Total (mg)	Chip (Die)	% of Total Weight	2.41
rective 2002/53/EC (End-of-Life Vehicles (ELV) Directive).		002/95/EC (RoHS Directive), EU Directive 2011/65/EU (RoH	S Recast Direc	ctive) and with	EU		Doped Silicon	7440-21-3 Total	100	
ompliance with the above EU Directives has been verified a chemical substance is absent from the list above, the cl corporated's knowledge and belief as of the date of this c ny, is not below the threshold of regulatory concern for ar	hemical substance is NOT a document, there is no credil	an intentional ingredient in the semiconductor device and ble reason to believe that the unavoidable impurity concert				0.42	(mg) Total	Wire Bond palladium coated copper (CuPd)	% of Total Weight	0.66
olding compounds used by Microchip meet the UL94 V0 f		astics. You can access the UL iQTM family of databases t	o obtain a tes	t report at			Copper	7440-50-8		
ttp://ui.com/giobal/eng/pages/offerings/industries/chemic							Сорры	1110 00 0	98	
ttp://ul.com/global/eng/pages/offerings/industries/chemica he protective "tubes" in which the specific product is ship nd certain "reels" may be made from PVC plastic.	oped are made from polyvir	yl chloride (PVC) plastic. "Window envelopes" used to he	old the packin	g slip on the o	uter box		Palladium	7440-05-3	98	
he protective "tubes" in which the specific product is ship	on in this form concerning s best of its knowledge and has been compiled based o trade secrets and some info eight of these parts and the	substances restricted by RoHS in Microchip Technology I belief, as of the date listed in this form. Microchip Techno on the ranges provided in Material Safety Data Sheets prov ormation may not have been provided by subcontract assa average weight of anticipated significant toxic metals co	ncorporated's blogy Incorpor vided by raw n emblers and ra	semiconduct ated cannot g naterial suppl aw material su	or devices uarantee the ers. ppliers.					
he protective "tubes" in which the specific product is ship nd certain "reels" may be made from PVC plastic. licrochip Technology Incorporated believes the informatic their original packing materials is true and correct to the ompleteness and accuracy of data in this form because it upplier information is often protected from disclosure as formation is provided only as estimates of the average w	on in this form concerning s best of its knowledge and has been compiled based of trade secrets and some info eight of these parts and the erials contained within silic warranty, express or implied	substances restricted by RoHS in Microchip Technology II belief, as of the date listed in this form. Microchip Techno on the ranges provided in Material Safety Data Sheets pro ormation may not have been provided by subcontract asso average weight of anticipated significant toxic metals co on devices (silicon IC) in the finished parts. d, with respect to the information provided in this declarat	ncorporated's ology Incorpor vided by raw n emblers and ra mponents. The tion. The exclu	semiconduct ated cannot g naterial suppl aw material su ese estimates usive, limited	or devices uarantee the ers. ppliers. do not	1.75		7440-05-3	2	2.75
he protective "tubes" in which the specific product is ship nd certain "reels" may be made from PVC plastic. licrochip Technology Incorporated believes the informatio their original packing materials is true and correct to the ompleteness and accuracy of data in this form because it upplier information is often protected from disclosure as iformation is provided only as estimates of the average we clcude trace levels of dopants, metals, and non-metal matt licrochip Technology Incorporated does not provide any v arranties provided by Microchip Technology Incorporate	on in this form concerning s best of its knowledge and has been compiled based o trade secrets and some info eight of these parts and the erials contained within silic warranty, express or implied d and its subsidiaries are co changes to Material Contern he users' reliance on the in	substances restricted by RoHS in Microchip Technology I belief, as of the date listed in this form. Microchip Techno on the ranges provided in Material Safety Data Sheets prov ormation may not have been provided by subcontract asse average weight of anticipated significant toxic metals con on devices (silicon IC) in the finished parts. d, with respect to the information provided in this declarat ontained in Microchip's standard terms and conditions of at Declarations and shall not be liable for any damages, di	ncorporated's ology Incorpor vided by raw n emblers and ra mponents. The tion. The exclu sale. These ar irect or indirec	semiconduct ated cannot g naterial suppl aw material su ese estimates usive, limited re provided in ct, consequent	or devices uarantee the ers. ppliers. do not product Microchip's ial or	1.75	Palladium	7440-05-3 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1	2 100.00	2.75
The protective "tubes" in which the specific product is ship di certain "reels" may be made from PVC plastic. icrochip Technology Incorporated believes the informatic their original packing materials is true and correct to the mpleteness and accuracy of data in this form because it upplier information is often protected from disclosure as formation is provided only as estimates of the average we clude trace levels of dopants, metals, and non-metal mate icrochip Technology Incorporated does not provide any va arranties provided by Microchip Technology Incorporated totations, sales order acknowledgement, and invoices. icrochip disclaims any duty to notify users of updates or herwise, suffered by users or third parties as a result of the	on in this form concerning s best of its knowledge and has been compiled based o trade secrets and some info eight of these parts and the erials contained within silic warranty, express or implied d and its subsidiaries are co changes to Material Contern he users' reliance on the in	substances restricted by RoHS in Microchip Technology I belief, as of the date listed in this form. Microchip Techno on the ranges provided in Material Safety Data Sheets prov ormation may not have been provided by subcontract asse average weight of anticipated significant toxic metals con on devices (silicon IC) in the finished parts. d, with respect to the information provided in this declarat ontained in Microchip's standard terms and conditions of at Declarations and shall not be liable for any damages, di	ncorporated's ology Incorpor vided by raw n emblers and ra mponents. The tion. The exclu sale. These ar irect or indirec	semiconduct ated cannot g naterial suppl aw material su ese estimates usive, limited re provided in ct, consequent	or devices uarantee the ers. ppliers. do not product Microchip's ial or	1.75	Palladium (mg) Total	7440-05-3 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	2 100.00 % of Total Weight	2.75

		VOTI		ination Base opper Alloy (nogeneous Materials: e.g. pc boards, display:	s)	JEDEC 97 Produ Marking and/or Pkg. Labeling e3
Semiconductor Device	e Type: AEZC 36 (L	.ead) VQFN 6x6x0.9 (RP/RQ) "Contained In"	% Total							
Basic Substance	CAS Number	Sub-Component	Weight	mg/part	ppm	26.10	(mg) Total	Mold Compound	% ot Total Weight	17.33
Silica, vitreous (or fused)	60676-86-0	Mold Compound	14.731	22.184	147,305		Silica, vitreous (or fused)	60676-86-0	85.00	
Epoxy Resin	Trade Secret	Mold Compound	1.508	2.271	15,077		Epoxy Resin	Trade Secret	8.70	
Phenolic Resin	Trade Secret	Mold Compound	1.040	1.566	10,398		Phenolic Resin	Trade Secret	6.00	
Carbon Black	1333-86-4	Mold Compound	0.052	0.078	520		Carbon Black	1333-86-4	0.30	
Copper	7440-50-8	Lead Frame	72.322	108.917	723,219		•	Total	100.00	
Iron	7439-89-6	Lead Frame	1.779	2.679	17,790	114.00	(mg) Total	Lead Frame	% of Total Weight	75.7
Silver	7440-22-4	Lead Frame	1.442	2.172	14,421		Copper	7440-50-8	95.54	
Zinc	7440-66-6	Lead Frame	0.095	0.143	946		Iron	7439-89-6	2.35	
Phosphorous	7723-14-0	Lead Frame	0.062	0.094	625		Silver	7440-22-4	1.91	
Silver	7440-22-4	Die Attach	0.143	0.215	1,425		Zinc	7440-66-6	0.13	
Epoxy resin	Trade Secret	Die Attach	0.048	0.072	475		Phosphorous	7723-14-0	0.08	
Silicon	7440-21-3	Chip (Die)	4.210	6.340	42,100			Total	100.00	
Copper	7440-57-5	Wire Bond	0.764	1.151	7,644	0.29	(mg) Total	Die Attach	% of Total Weight	0.19
Palladium	7440-05-3	Wire Bond	0.016	0.023	156		Silver	7440-22-4	75.00	
Tin	7440-31-5	Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	1.790	2,696	17.900		Epoxy resin	Trade Secret	25.00	
101	1440 01 0	TOTALS:	100.000	150.600	1.000.000		Epoxyreain	Total	100.00	
	0.4500	a Total Mass			.,000,000	6.34	(mg) Total	Chip (Die)	% of Total Weight	4.21
	mply with EU Directive 2002	2/95/EC (RoHS Directive), EU Directive 2011/65/EU (RoHS Recast	Directive) and	d with EU		Doped Silicon	7440-21-3	100	
ective 2002/53/EC (End-of-Life Vehicles (ELV) Directive).			RoHS Recast	Directive) and	d with EU		Doped Silicon	7440-21-3 Total	100 100.00	
ective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). mpliance with the above EU Directives has been verified vi chemical substance is absent from the list above, the che proprated's knowledge and belief as of the date of this doc	a internal design controls, mical substance is NOT an cument, there is no credible	supplier declarations, and /or analytical test data. Intentional ingredient in the semiconductor device reason to believe that the unavoidable impurity co	and, to the be	est of Microch	ip Technology	1.17	Doped Silicon (mg) Total			0.78
ective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). mpliance with the above EU Directives has been verified vi chemical substance is absent from the list above, the cher orporated's knowledge and belief as of the date of this doc r, is not below the threshold of regulatory concern for any lding compounds used by Microchip meet the UL94 V0 flar	a internal design controls, i mical substance is NOT an ument, there is no credible regulatory scheme world-w mmability standard for plas	supplier declarations, and /or analytical test data. intentional ingredient in the semiconductor device reason to believe that the unavoidable impurity co ide.	and, to the be ncentration of	est of Microch f the chemical	ip Technology substance, if	1.17		Total	100.00	0.78
ective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). mpliance with the above EU Directives has been verified vi chemical substance is absent from the list above, the che orporated's knowledge and belief as of the date of this doc /, is not below the threshold of regulatory concern for any lding compounds used by Microchip meet the UL94 V0 flar p://ul.com/global/eng/pages/offerings/industries/chemicals e protective "tubes" in which the specific product is shippe	a internal design controls, mical substance is NOT an ument, there is no credible regulatory scheme world-w nmability standard for plass /plastics/	supplier declarations, and /or analytical test data. intentional ingredient in the semiconductor device a reason to believe that the unavoidable impurity con ide. tics. You can access the UL iQTM family of databas	and, to the be ncentration of es to obtain a	est of Microch f the chemical n test report at	ip Technology substance, if	1.17	(mg) Total	Total Wire Bond	100.00 % of Total Weight	0.78
is semiconductor device and its homogenous materials con ective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). mpliance with the above EU Directives has been verified vi a chemical substance is absent from the list above, the che- icorporated's knowledge and belief as of the date of this doc y, is not below the threshold of regulatory concern for any iding compounds used by Microchip meet the UL94 V0 flar p://ul.com/global/eng/pages/offerings/industries/chemicals. e protective "tubes" in which the specific product is shipped d certain "reels" may be made from PVC plastic. crochip Technology Incorporated believes the information i their original packing materials is true and correct to the be e completeness and accuracy of data in this form because i pplier information is often protected from disclosure as tra ormation is provided only as estimates of the average weig slude trace levels of dopants, metals, and non-metal materix	a internal design controls, mical substance is NOT an cument, there is no credible regulatory scheme world-w mmability standard for plasi /plastics/ ad are made from polyvinyl in this form concerning sub est of its knowledge and be it has been compiled based de secrets and some inform int of these parts and the ar	supplier declarations, and /or analytical test data. intentional ingredient in the semiconductor device reason to believe that the unavoidable impurity conide. tics. You can access the UL iQTM family of databas chloride (PVC) plastic. "Window envelopes" used t intersearch and the stances restricted by RoHS in Microchip Technolog lief, as of the date listed in this form. Microchip Technolog lief, as of the date listed in this form. Microchip Technolog nation may not have been provided by subcontract verage weight of anticipated significant toxic metals	and, to the be ncentration of es to obtain a o hold the par gy Incorporate hnology Inco rets provided assemblers a	est of Microchi f the chemical t test report at cking slip on t cking slip on t ed's semicono rporated cann by raw materi nof raw materi	ip Technology substance, if the outer box fuctor devices of guarantee al suppliers. al suppliers.	1.17	(mg) Total	Total Wire Bond 7440-57-5	100.00 % of Total Weight 98.00	0.78
ective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). mpliance with the above EU Directives has been verified vi a chemical substance is absent from the list above, the chei- corporated's knowledge and belief as of the date of this doc y, is not below the threshold of regulatory concern for any viding compounds used by Microchip meet the UL94 V0 flar p://ul.com/global/eng/pages/offerings/industries/chemicals/ e protective "tubes" in which the specific product is shipped d certain "reels" may be made from PVC plastic. crochip Technology Incorporated believes the information i their original packing materials is true and correct to the be completeness and accuracy of data in this form because is pplier information is often protected from disclosure as tra ormation is provided only as estimates of the average weig	a internal design controls, mical substance is NOT an sument, there is no credible regulatory scheme world-w mmability standard for plasi /plastics/ ad are made from polyvinyl in this form concerning sub set of its knowledge and be thas been compiled based de secrets and some inforr pht of these parts and the ar als contained within silicon rranty, express or implied, n dits subsidiaries are cont	supplier declarations, and /or analytical test data. intentional ingredient in the semiconductor device reason to believe that the unavoidable impurity condet. tide. tics. You can access the UL iQTM family of databas chloride (PVC) plastic. "Window envelopes" used to instances restricted by RoHS in Microchip Technolog lief, as of the date listed in this form. Microchip Tec on the ranges provided in Material Safety Data She nation may not have been provided by subcontract verage weight of anticipated significant toxic metals devices (silicon IC) in the finished parts.	and, to the be ncentration of es to obtain a o hold the par gy Incorporate hnology Inco rets provided assemblers a s components aration. The e	est of Microchi f the chemical a test report at cking slip on t cking slip on t ad's semicono rporated cann by raw materi nd raw materi . These estim exclusive, limi	ip Technology substance, if the outer box tuctor devices of guarantee al suppliers. ial suppliers. iates do not ted product	2.70	(mg) Total	Total Wire Bond 7440-57-5 7440-05-3	100.00 % of Total Weight 98.00 2.00	0.78
ective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). mpliance with the above EU Directives has been verified vi i chemical substance is absent from the list above, the che- orporated's knowledge and belief as of the date of this doc y, is not below the threshold of regulatory concern for any lding compounds used by Microchip meet the UL94 V0 flar p/ul.com/global/eng/pages/offerings/industries/chemicals, e protective "tubes" in which the specific product is shippe d certain "reels" may be made from PVC plastic. crochip Technology Incorporated believes the information i their original packing materials is true and correct to the be orompleteness and accuracy of data in this form because i pplier information is often protected from disclosure as tra ormation is provided only as estimates of the average weig lude trace levels of dopants, metals, and non-metal materic crochip Technology Incorporated does not provide any war rrantics provided by Microchip Technology Incorporated an	a internal design controls, mical substance is NOT an sument, there is no credible regulatory scheme world-w mmability standard for plasi /plastics/ ad are made from polyvinyl in this form concerning sub est of its knowledge and be it has been compiled based de secrets and some inforn pht of these parts and the ar als contained within silicon rranty, express or implied, y and its subsidiaries are cont ivoices.	supplier declarations, and /or analytical test data. intentional ingredient in the semiconductor device reason to believe that the unavoidable impurity con- ide. tics. You can access the UL iQTM family of databas chloride (PVC) plastic. "Window envelopes" used to ustances restricted by RoHS in Microchip Technolog lief, as of the date listed in this form. Microchip Tec- on the ranges provided in Material Safety Data She nation may not have been provided by subcontract verage weight of anticipated significant toxic metals devices (silicon IC) in the finished parts. with respect to the information provided in this decl ained in Microchip's standard terms and conditions Declarations and shall not be liable for any damages	and, to the be ncentration of es to obtain a o hold the par- gy Incorporate hnology Inco- rets provided assemblers a scomponents aration. The e o f sale. Thes s, direct or inc	est of Microchi f the chemical a test report at cking slip on t ed's semicono rporated cann by raw materi and raw materi . These estim exclusive, limi se are provide direct, conseq	ip Technology substance, if the outer box fuctor devices of guarantee al suppliers. ala suppliers. ates do not ted product d in uential or		(mg) Total Copper Palladium	Total Wire Bond 7440-57-5 7440-05-3 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1	100.00 % of Total Weight 98.00 2.00 100.00	
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). apliance with the above EU Directives has been verified vi chemical substance is absent from the list above, the cheir prorated's knowledge and belief as of the date of this doc is not below the threshold of regulatory concern for any ding compounds used by Microchip meet the UL94 V0 flar ://ul.com/global/eng/pages/offerings/industries/chemicalsu protective "tubes" in which the specific product is shipped certain "reels" may be made from PVC plastic. rochip Technology Incorporated believes the information in their original packing materials is true and correct to the be completeness and accuracy of data in this form because in piler information is often protected from disclosure as tra rmation is provided only as estimates of the average weig ude trace levels of dopants, metals, and non-metal materia rochip squotations, sales order acknowledgement, and in rochip disclaims any duty to notify users of updates or charvies, suffered by users or third parties as a result of the provise, suffered by users or third parties as a result of the sufference in the server of the sufference in the sufference of the suffer	a internal design controls, mical substance is NOT an sument, there is no credible regulatory scheme world-w mmability standard for plasi /plastics/ ad are made from polyvinyl in this form concerning sub est of its knowledge and be it has been compiled based de secrets and some inforn pht of these parts and the ar als contained within silicon rranty, express or implied, y and its subsidiaries are cont ivoices.	supplier declarations, and /or analytical test data. intentional ingredient in the semiconductor device reason to believe that the unavoidable impurity con- ide. tics. You can access the UL iQTM family of databas chloride (PVC) plastic. "Window envelopes" used to ustances restricted by RoHS in Microchip Technolog lief, as of the date listed in this form. Microchip Tec- on the ranges provided in Material Safety Data She nation may not have been provided by subcontract verage weight of anticipated significant toxic metals devices (silicon IC) in the finished parts. with respect to the information provided in this decl ained in Microchip's standard terms and conditions Declarations and shall not be liable for any damages	and, to the be ncentration of es to obtain a o hold the par- gy Incorporate hnology Inco- rets provided assemblers a scomponents aration. The e o f sale. Thes s, direct or inc	est of Microchi f the chemical a test report at cking slip on t ed's semicono rporated cann by raw materi and raw materi . These estim exclusive, limi se are provide direct, conseq	ip Technology substance, if the outer box fuctor devices of guarantee al suppliers. ala suppliers. ates do not ted product d in uential or		(mg) Total Copper Palladium (mg) Total	Total Wire Bond 7440-57-5 7440-05-3 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	100.00 % of Total Weight 98.00 2.00 100.00 % of Total Weight	

Contained for No Total Mode Compound % of total Weight Sina, virtual or fuend) 66676-86.0 Mode Compound 92.52 12.500 255.260 Econ Name 55.00 55.00 Plonk Region Trade Storett Mode Compound 3.022 12.500 255.260 Econ Name 55.00 55.00 Plonk Region Trade Storett Mode Compound 3.022 12.500 255.260 Econ Name 75.00 55.00 Cooper 7440.50-8 Lead Frame 4.00 0.044 0.044 0.045 0.045 100.00 760.00 55.00 Econ Name 76.00 55.00 100.00 760.00 55.00 100.00 1	Semiconductor Device	Type: 48 VQFN 7x7x0	1.9 (RS)		ination Base opper Alloy (ogeneous Materials: g. pc boards, display	s)	JEDEC 97 Product Marking and/or Pkg. Labeling e3
Since vitrosis (or fuent) 0007-64-0 Mold Compound 322.52 12.50 295.290 12.50 295.290 12.50 295.290 12.50 295.290 12.50 295.290 12.50 295.290 12.50 295.290 12.50 295.290 12.50 295.290 12.50 295.290 12.50 295.290 12.50 295.200 295.200 2			"Contained In"		mg/part	ppm	14.73	(mg) Total	Mold Compound	% ot Total Weight	34.74
Epoy Resin Trade Secret Mold Compound 2.022 1.281 30.221 Carbon Black Trade Secret Mold Compound 2.044 0.684 0.024 Prevalue Resin Trade Secret 8.70 Carbon Black Trade Secret Mold Compound 0.409 2.031 1.053 Streer 7440-524 Lead Frame 1.070 0.457 10.766 Streer 7440-566 Lead Frame 0.007 0.007 600 7469-564 95.54 Prevention Resin Trade Secret De Attach 0.007 0.027 0.021 100.07 7469-56 95.54 Depotyresin Trade Secret De Attach 0.027 0.021 400 100.00 7469-724 100.00 Meetal oxide Trade Secret De Attach 0.021 1.020 1.020 1.020 1.020 1.020 1.020 1.020 1.020 1.020 1.020 1.020 1.020 1.020 1.020 1.020 1.020 1.020 1.020 1.				- J	01			Silica vitreous (or fused)	60676-86-0	85.00	
Phenols Ream Trade Secret Mold Compound 0.104 0.084 20.844											
Cathon Black 1333-86-4 Mold Compound 0.104 1.0.42 Cathon Black 1333-86-4 0.30 Inon 7740-80-8 Lead Finme 4.0.93 22.936 46.0.933 700 Total 0.00 Share 7740-80-6 Lead Finme 1.0.76 10.766 73.0.66 24.01 (mg) Total Lead Finme 5.0 Phosphorus 7722-14-0 Lead Finme 0.047 0.020 467 3.00 30.00 30.00 30.00 30.00 30.00 7240-224 1.01 20.00 7440-50.6 0.08 0.01 30.00 7220-14.0 0.08 0.01 30.00 7220-14.0 0.08 0.08 0.01 7440-50.6 0.08 0.08 0.01 7240-20.0 0.08 0.08 0.00 7220-14.0 0.08 0.08 0.01 7240-20.0 0.08 0.08 0.01 7240-20.0 0.08 0.08 0.01 7240-20.0 0.08 0.08 0.00 0.02 0.02 0.02 0.02 <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>											
Iron 7439-89-6 Lead Frame 1.31 0.564 13.305 24.01 (mg) Tetal Lead Frame % of Tetal Weight 2/nc 744-056-6 Load Frame 0.071 0.050 708 0.071 0.050 708 Phyphphrous 7723-14-0 Load Frame 0.050 0.011 6.050 10.708 Bitom Trade Secret De Attach 0.303 0.713 0.85 0.017 303 Cigad 7440-51-5 Chip (Die) 4.150 0.25 10.766 41500 0.65 (mg) Tetal 740-21-3 0.060 Silcon 7440-51-5 Wite Bond 0.030 0.71 333 0.55 (mg) Tetal 740-21-3 7				0.104							
Silver 7440-224 Lead Frame 0.071 0.437 10.786 Tric 7440-666 Lead Frame 0.071 0.030 786 Phosphorous 7725:14-0 Lead Frame 0.047 0.020 467 Silver 7740:22-4 1:91 Silver 7740:22-4 1:91 Melal oxide Tride Seriel Die Attach 0.089 0.017 333 Silver 7740:22-4 1:91 Silver 7740:22-4 1:91 Melal oxide Tride Seriel Die Attach 0.017 333 Silver 7740:22-4 1:91 Gold 7740:725 Immune anterial some	Copper	7440-50-8	Lead Frame	54.093	22.936	540,933		•	Total	100.00	
$\frac{2}{100} + \frac{2}{100} + \frac{2}$	Iron	7439-89-6	Lead Frame	1.331	0.564	13,306	24.01	(mg) Total	Lead Frame	% of Total Weight	56.62
Phosphorous 7723-14-0 Lead Frame 0.047 0.020 467 Silver 7440-224 Die Attach 0.369 0.021 467 Epoxy resin Trade Secret Die Attach 0.361 0.111 9,864 Silver 7440-224 101 Attach 0.031 0.017 333 Silver 7440-224 101 Attach 0.035 0.017 333 0.55 (mg) Total Die Attach % of Total Weight Gid 7440-213 Chip (Die) 1.150 1.760 41.500 0.55 (mg) Total Die Attach % of Total Weight Directive 2007/325C (Endor Lile Values Total Total 0.000 Total 0.000 semiconductor device and its homogenous materials comply with EUD incretive 2002/35C (Endor Directive), EUD Zinder 2002/35C (Endor Lile Values and Comment, there is no credible reason to believe that the unavoidable impurity concentration of the made of the date of this doweed to precise the date of this doweed to receive and the above. EU bencise the date of this doweed to receive the date of	Silver	7440-22-4	Lead Frame	1.079	0.457	10,786		Copper	7440-50-8	95.54	
Silver 7440-22-4 Die Attach 0.369 0.411 9.694 Epoxy resin Trade Secret Die Attach 0.303 0.017 393 Metal oxide Trade Secret Die Attach 0.039 0.017 393 Gold 7440-2575 Wire Bond 7440-2576 Wire Bond 7440-213 Trade Secret 0.0424 7440-213 0.000 4.150 0.555 13.100 Die Attach 0.002 Die Attach 0.000 18.700 Die Attach 0.000 18.700 Die Attach 0.000 4.400 1,00.000 4.400 1,00.000 Metal oxide Trade Secret 2.00 Die Attach 0.000 Metal oxide Trade Secret 2.00 Die Attach 0.000 Metal oxide Trade Secret 2.00 Die Attach 0.000 Metal oxide Trade Secret 2.00 Trade Secret 2.00 Metal oxide Micro oxide Metal oxide Micro oxide Metal oxide Micro oxide Micro oxide Micro oxide Micro oxide Micro oxide Micro oxide<	Zinc	7440-66-6	Lead Frame	0.071	0.030	708			7439-89-6	2.35	
Epoxy resin Trade Secret Die Attach 0.301 0.128 3.013 Prosphorus 7723-140 0.08 Silicon 7440-27-3 Chip (Dip) 4.150 1.760 41.500 0.556 133.100 Silicon 77440-27-3 Chip (Dip) 4.150 1.760 41.500 0.556 13.100 Silicon 7440-27-4 7440-27-5 Yes provide by the Bond 1.870 0.783 18.700 Wes provide by the Silicon 7740-22-4 7440-27-4 7440-27-5 Yes provide by the Silicon 7740-22-4 7440-27-4 7440-27-5 Yes provide by the Silicon Yes provide											
Metal oxide Trade Secret Die Attach 0.039 0.017 933 Construction Total 100.00 Gold 7440-21-3 Chip (Die) 4.150 0.555 13,100 58 (mg) Total Vert Table Secret 74.00 70.00 70	Silver							Zinc			
Silicon 7440-21-3 Chip (Dip) 4.150 1.760 4.1500 0.56 (mg) Total Die Attach % of Total Weight Tin 7440-57-5 IW/mc Bond 1.3100 0.555 13.100 IW/mc Bond 740-37-5 20.00 Total Weight Total Weight 740-37-5 20.00 Total Weight 20.00 Total Weight 20.00 Total Weight 20.00 Total Weight 20.00 Total Store 20.00 Total Weight 20.00 Total 400.00 1.76 (mg) Total Chip (Dip) %, of Total Weight 9.00 9.00 9.00 9.00 1.76 (mg) Total Chip (Dip) %, of Total Weight 9.00 9.00 1.76 (mg) Total Chip (Dip) %, of Total Weight 9.00 1.76 (mg) Total Chip (Dip) %, of Total Weight 100.00 1.76 (mg) Total Weight 100.00 1.76 (mg) Total Weight 100.00 100.00								Phosphorous	7723-14-0	0.08	
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Tin Team or research lease provided in the Try research or latter to try and the Try and try							0.56	(mg) Total		% of Total Weight	1.31
Ordel g Totals: 100.000 42.400 1,000,000 Metal oxide Total 3.00 s semiconductor device and its homogenous materials comply with EU Directive 2002/5/EC (RoHS Directive), EU Directive 2001/5/EU (RoHS Recast Directive) and with Directive 2002/5/EC (Enchor-Life Vehicles (ELV) Directive). Metal oxide Total 100.00 0.0424 g Total Velocity Metal oxide Total 0.00 Total Velocity Directive 2002/5/EC (Enchor-Life Vehicles (ELV) Directive). Metal oxide Total Chip (Die) % of Total Weight Directive 2002/5/EC (Enchor-Life Vehicles (ELV) Directive 2002/5/EC (RoHS Directive). Total 0.00 7440.21-3 100.00 0.000 (mical substance is absent from worlide via internal design controls, supplier declarations, and /or analytical test data. 1.76 (mg) Total Chip (Die) % of Total Weight will a substance, if any, is no belief as of the date of this document, there is no credible reason to believe that the unavoidable impurity concentration of the real substance, if any, is no below the threshold of regulatory concern for any regulatory scheme world-wide. 1.76 (mg) Total Velocity Velocity Total 100.00 wind compounds used by Microchip meethe ULS4 V0 Immobility standard for plastic.											
0.0424 g Total Mass Total 100.00 s semiconductor device and its homogenous materials comply with EU Directive 2002/5%EC (RoHS Directive), EU Directive 2011/55/EU (RoHS Recast Directive) and with poliance with the above (ELV) Directive). 1.76 (mg) Total Chip (Die) % of Total Weight poliance with the above EU Directives has been verified via internal design controls, supplier declarations, and /or analytical test data. Doped Silicon 7440-21-3 100.00 chemical substance is absent from the list above, the chemical substance is NOT and regulatory scheme world-wide. Internal test as of the date of this document, there is no credible reason to believe that the unavoidable impurity concentration of the mical substance, if any, is not below the threshold of regulatory concern for any regulatory scheme world-wide. 0.56 (mg) Total Wire Bond % of Total Weight vill.com/globalleng/pages/offerings/industrise/schemicals/plastics/ voca cacess the UL IQTM family of databases to obtain a test report at information in this form concerning substances restricted by RoHS in Microchip Technology Incorporated's semiconductor device and normetial suppliers. Information is provided only as estimates of the average weight of the appes provided in Material Safety Data Sheets provided aw material suppliers. Information is provided only as estimates of the average weight of these parts and the average weight of these parts and the average weight of the conjecteness and accuracy of data in this form because in formation may not have been provided by Microchip Technology Incorporated on the ranges provided in Material Safety Data Sheets provided aw material su	Tin	7440-31-5									
semiconductor device and its homogenous materials comply with EU Directives 2002/95/EC (RoH5 Directive), EU Directive 2001/65/EU (RoH5 Recast Directive) and with Directive 2002/S3/EC (End-of-Life Vehicles (ELV) Directives 2002/95/EC (RoH5 Directive), EU Directive 2002/S3/EC (RoH5 Directive), and /or analytical test data. chemical substance is absent from the list above, the chemical substance is NOT an intentional ingredient in the semiconductor device and, to the best of Microchip hnology incorporated's knowledge and belief as of the date of this document, three is no credible reason to believe that the unavoidable impurity concentration of the mical substance, if any, is not below the threshold of regulatory concern for any regulatory scheme world-wide. ding compounds used by Microchip meet the U.94 V0 flammability standard for plastics. You can access the UL iQTM family of databases to obtain a test report at //uLcom/global/eng/pages/offerings/industries/chemicals/plastics/ protective "tubes" in which the specific product is shipped are made from polyvinyl chloride (PVC) plastic. "Window envelopes" used to hold the packing slip on the rookip Technology incorporated believes the information in this form concerning substances restricted by RoHS in Microchip Technology incorporated. Total 100.00 Total Wire Bond % of Total Weight mole quarantee the completeness and accuracy of data in this form concerning substances restricted by RoHS in Microchip Technology incorporated area material suppliers. Information is provided only as estimates of the average weight of these parts and the average weight of atticipated significant toxic als components. These estimates do not include trace levels of dopants, metals, and non-metal materials contained within silicon devices (silicon IC) in the finished is. roochip Technology Incorporated does not provide any warranty, express or implied, with respect to the information provided in Microchip's standard terms and conditions of sale. These are vided in Microchi			TOTALS:	100.000	42.400	1,000,000		Metal oxide			
Directive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). Total Veight plaince with the above EU Directives has been verified via internal design controls, supplier declarations, and /or analytical test data. Themical substance is absent from the list above, the chemical substance is NOT an intentional ingredient in the semiconductor device and, to the best of Microchip honology Incorporated's knowledge and belief as of the date of this document, there is no credible reason to believe that the unavoidable impurity concentration of the mical substance, if any, is not below the threshold of regulatory concern for any regulatory scheme world-wide. Ifing compounds used by Microchip meet the UL94 V0 finamability standard for plastics. You can access the UL iQTM family of databases to obtain a test report at iful.com/global/eng/pages/offerings/industries/chemicals/plastics/ protective "tubes" in which the specific product is shipped are made from polyvinyl chloride (PVC) plastic. "Window envelopes" used to hold the packing slip on the rob and certain "reles" may be made from PVC plastic. Total 100.00 Total 0.56 (mg) Total 0.56 (mg) Total 0.56 (mg) Total 0.00 Total 100.00 Total		0.0424 0	n Total Mass						Total	100.00	
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chemical substance is absent from the list above, the chemical substance is NOT an interintonial ingredient in the semiconductor device and, to the best of Microchip hinolog incorporated's knowledge and belief as of the date of this document, there is no credible reason to believe that the unavoidable impurity concentration of the mical substance, if any, is not below the threshold of regulatory concern for any regulatory scheme world-wide. ding compounds used by Microchip meet the UL94 V0 flammability standard for plastics. You can access the UL iQTM family of databases to obtain a test report at ://ui.com/global/eng/pages/offerings/industries/chemicals/plastics/ protective "tubes" in which the specific product is shipped are made from polyvinyl chloride (PVC) plastic. "Window envelopes" used to hold the packing slip on the to box and certain "reels" may be made from PVC plastic. rochip Technology Incorporated believes the information in this form concerning substances restricted by RoHS in Microchip Technology Incorporated are material suppliers. Supplier information is often protected from disclosure as trade secrets and some information may not have been provided by subcontract emblers and raw material suppliers. Information is provided only as estimates of the average weight of these parts and the average weight of anticipated significant toxic las components. These estimates do not include trace levels of dopants, metals, and non-metal materials contained within silicon devices (silicon IC) in the finished ts. rochip Technology Incorporated does not provided and its subsidiaries are contained in Microchip's standard terms and conditions of sale. These are rochip disclaims any duty to notify uses of updates or changes to Material Content Declarations and shall not be liable for any damages, direct or indirect, consequential	•			5/EU (RoHS F	Recast Directi	ve) and with	1.76	(mg) Total			4.15
Gold (440-5/-5 100.00 rochip Technology Incorporated believes the information in this form concerning substances restricted by RoHS in Microchip Technology Incorporated's semiconductor ices in their original packing materials is true and correct to the best of its knowledge and belief, as of the date listed in this form. Microchip Technology Incorporated by subcontract more than a material suppliers. Supplier information is often protected from disclosure as trade secrets and some information may not have been provided by subcontract emblers and raw material suppliers. Information is provided only as estimates of the average weight of these parts and the average weight of anticipated significant toxic tals components. These estimates do not include trace levels of dopants, metals, and non-metal materials contained within silicon devices (silicon IC) in the finished ts. Plating on external leads (pins) - Matte Tin / annealed at 150°C for thour / annealed at 150°C for / annealed at 150°C for /	ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive) nce with the above EU Directives has been verified via	a internal design controls,	22/95/EC (RoHS Directive), EU Directive 2011/6 supplier declarations, and /or analytical test of	lata.		·	1.76	,	Chip (Die) 7440-21-3	% of Total Weight	4.15
term for original packing materials is true and correct to the best of its knowledge and belief, as of the date listed in this form. Microchip Technology Incorporated not guarantee the completeness and accuracy of data in this form because it has been compiled based on the ranges provided in Material Safety Data Sheets provided aw material suppliers. Supplier information is protected from disclosure as trade secrets and some information may not have been provided by subcontract emblers and raw material suppliers. Information only as estimates of the average weight of these parts and the average weight of anticipated significant toxic als components. These estimates do not include trace levels of dopants, metals, and non-metal materials contained within silicon devices (silicon IC) in the finished is. Torchip Technology Incorporated does not provide any warranty, express or implied, with respect to the information provided in this declaration. The exclusive, limited duct warranties provided by Microchip Technology Incorporated and its subsidiaries are contained in Microchip's standard terms and conditions of sale. These are vided in Microchip's quotations, sales order acknowledgement, and invoices. Torchip disclaims any duty to notify users of updates or changes to Material Content Declarations and shall not be liable for any damages, direct or indirect, consequential	tive 2002/53/EC (End-of-Life Vehicles (ELV) Directive) nce with the above EU Directives has been verified via nical substance is absent from the list above, the cher ogy Incorporated's knowledge and belief as of the dat I substance, if any, is not below the threshold of regul compounds used by Microchip meet the UL94 V0 flam	a internal design controls, mical substance is NOT ar te of this document, there latory concern for any reg nmability standard for plas	2/95/EC (RoHS Directive), EU Directive 2011/6 supplier declarations, and /or analytical test of n intentional ingredient in the semiconductor d is no credible reason to believe that the unavo gulatory scheme world-wide.	lata. levice and, to pidable impur	the best of M ity concentrat	licrochip tion of the		Doped Silicon	Chip (Die) 7440-21-3 Total	% of Total Weight 100 100.00	4.15
crochip disclaims any duty to notify users of updates or changes to Material Content Declarations and shall not be liable for any damages, direct or indirect, consequential	tive 2002/53/EC (End-of-Life Vehicles (ELV) Directive) nce with the above EU Directives has been verified via nical substance is absent from the list above, the chen ogy Incorporated's knowledge and belief as of the dat I substance, if any, is not below the threshold of regul compounds used by Microchip meet the UL94 V0 flam com/global/eng/pages/offerings/industries/chemicals/ tective "tubes" in which the specific product is shippe	a internal design controls, mical substance is NOT ar le of this document, there latory concern for any reg mmability standard for plas plastics/	2/95/EC (RoHS Directive), EU Directive 2011/6 supplier declarations, and /or analytical test of n intentional ingredient in the semiconductor d is no credible reason to believe that the unavo gulatory scheme world-wide. stics. You can access the UL iQTM family of da	lata. levice and, to pidable impur ntabases to ol	the best of M ity concentrat btain a test re	licrochip tion of the port at		(mg) Total	Chip (Die) 7440-21-3 Total Wire Bond	% of Total Weight 100 100.00 % of Total Weight	
	tive 2002/53/EC (End-of-Life Vehicles (ELV) Directive) nce with the above EU Directives has been verified via nical substance is absent from the list above, the chen ogy Incorporated's knowledge and belief as of the dat il substance, if any, is not below the threshold of regul compounds used by Microchip meet the UL94 V0 flam com/global/eng/pages/offerings/industries/chemicals/ kective "tubes" in which the specific product is shippe x and certain "reels" may be made from PVC plastic. ip Technology Incorporated believes the information in in their original packing materials is true and correct t yuarantee the completeness and accuracy of data in th inaterial suppliers. Supplier information is often protec	a internal design controls, nical substance is NOT ar e of this document, there latory concern for any reg mability standard for plas plastics/ ad are made from polyviny n this form concerning su to the best of its knowledg his form because it has be ted from disclosure as tra d only as estimates of the	2/95/EC (RoHS Directive), EU Directive 2011/6 , supplier declarations, and /or analytical test of n intentional ingredient in the semiconductor d is no credible reason to believe that the unavo gulatory scheme world-wide. stics. You can access the UL iQTM family of da I chloride (PVC) plastic. "Window envelopes" i ubstances restricted by RoHS in Microchip Tec ge and belief, as of the date listed in this form. sen compiled based on the ranges provided in ide secrets and some information may not hav average weight of these parts and the average	lata. levice and, to idable impur atabases to ol used to hold t hnology Inco Microchip Te Material Safe e been provid e weight of an	the best of M ity concentrat btain a test re the packing si rporated's se ichnology Ince ty Data Sheei ded by subco	licrochip tion of the port at lip on the miconductor orporated ts provided ntract mifricant toxic		(mg) Total	Chip (Die) 7440-21-3 Total Wire Bond 7440-57-5	% of Total Weight 100 100.00 % of Total Weight 100.00	
otherwise, suffered by users or third parties as a result of the users' reliance on the information in Material Content Declarations (MCD) or independent third party test norts (SGS) or of this Certificate of Compliance for semiconductor products.	the 2002/53/EC (End-of-Life Vehicles (ELV) Directive) nce with the above EU Directives has been verified via nical substance is absent from the list above, the chern ogy Incorporated's knowledge and belief as of the dat Il substance, if any, is not below the threshold of regul compounds used by Microchip meet the UL94 V0 flam com/global/eng/pages/offerings/industries/chemicals/ tective "tubes" in which the specific product is shippe in and certain "reels" may be made from PVC plastic. ip Technology Incorporated believes the information in in their original packing materials is true and correct t guarantee the completeness and accuracy of data in th naterial suppliers. Supplier information is often protect ers and raw material suppliers. Information is provide components. These estimates do not include trace leve in the provided by Microchip Technology Incorpored	a internal design controls, mical substance is NOT ar e of this document, there latory concern for any reg mability standard for plas 'plastics' d are made from polyviny n this form concerning su to the best of its knowledg his form because it has be ted from disclosure as tra d only as estimates of the els of dopants, metals, an ranty, express or implied, orated and its subsidiaries	2/95/EC (RoHS Directive), EU Directive 2011/6 supplier declarations, and /or analytical test of in intentional ingredient in the semiconductor d is no credible reason to believe that the unavo julatory scheme world-wide. stics. You can access the UL iQTM family of da I chloride (PVC) plastic. "Window envelopes" i obstances restricted by RoHS in Microchip Tec ge and belief, as of the date listed in this form. sen compiled based on the ranges provided in ide secrets and some information may not hav average weight of these parts and the averag d non-metal materials contained within silicon with respect to the information provided in thi	lata. levice and, to pidable impur atabases to ol used to hold f hnology Inco Microchip Te Material Safe e been provid e weight of an devices (silic is declaration	the best of M ity concentral btain a test re the packing s rporated's se icchnology Inci the by Subco nticipated sig icon IC) in the f	licrochip tion of the port at lip on the miconductor orporated ts provided ntract nificant toxic finished ve, limited	0.56	(mg) Total	Chip (Die) 7440-21-3 Total Wire Bond 7440-57-5 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for	% of Total Weight 100 100.00 % of Total Weight 100.00 100.00	

MICROCHIP Semiconductor Devic	ce Type: ABZJ 56 V	QFN 8x8x0.9 (RT)		ation Base A oper Alloy (C	-		Package Homo	geneous Materials		JEDEC 97 Product Markin and/or Pkg. Labeling e3
Basic Substance	CAS Number	"Contained In" Sub-Component	% Total Weight	mg/part	ppm	74.48	(mg) Total	Mold Compound	% ot Total Weight	40.82
Silica, vitreous (or fused)	60676-86-0	Mold Compound	34.697	63,308	346.970		Silica, vitreous (or fused)	60676-86-0	85.00	1
Epoxy Resin	Trade Secret	Mold Compound	3.551	6.480	35.513		Epoxy Resin	Trade Secret	8.70	
Phenolic Resin	Trade Secret	Mold Compound	2.449	4,469	24,492		Phenolic Resin	Trade Secret	6.00	
Carbon Black	1333-86-4	Mold Compound	0.122	0.223	1,225		Carbon Black	1333-86-4	0.30	
Copper	7440-50-8	Lead Frame	50.558	92.249	505,584		•	Total	100.00	•
Iron	7439-89-6	Lead Frame	1.244	2.269	12,436	96.56	(mg) Total	Lead Frame	% of Total Weight	52.92
Silver	7440-22-4	Lead Frame	1.008	1.839	10,081		Copper	7440-50-8	95.54	
Zinc	7440-66-6	Lead Frame	0.066	0.121	662		Iron	7439-89-6	2.35	
Phosphorous	7723-14-0	Lead Frame	0.044	0.080	437		Silver	7440-22-4	1.91	
Silver	7440-22-4	Die Attach	0.120	0.219	1,200		Zinc	7440-66-6	0.13	
Epoxy resin	Trade Secret	Die Attach	0.030	0.055	300		Phosphorous	7723-14-0	0.08	
Silicon	7440-21-3	Chip (Die)	2.500	4.562	25,000			Total		
Copper	7440-50-8	Wire Bond palladium coated copper (CuPd)	1.857	3.388	18,569	0.27	(mg) Total	Die Attach	% of Total Weight	0.15
Palladium	7440-05-3	Wire Bond palladium coated copper (CuPd)	0.033	0.060	331		Silver	7440-22-4	80	
Tin	7440-31-5	Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	1.720	3.138	17,200		Epoxy resin	Trade Secret	20	
		TOTALS:	100.000	182.460	1,000,000			Total		
	0.18246	g Total Mass				4.56	Total (mg)	Chip (Die)	% of Total Weight	2.5
a comisenductor device and its homegeneus materials	a a manhu with ELL Directive 2	002/05/EC (DeUS Directive) EU Directive 2011/65/			nd with EU					
rective 2002/53/EC (End-of-Life Vehicles (ELV) Directive).			st Directive) a	nd with EU		Doped Silicon	7440-21-3	100	
nis semiconductor device and its homogenous materials rective 2002/53/EC (End-of-Life Vehicles (ELV) Directive ompliance with the above EU Directives has been verifie	e). Ind via internal design control	s, supplier declarations, and /or analytical test dat	a.				Doped Silicon	7440-21-3 Total		
rective 2002/53/EC (End-of-Life Vehicles (ELV) Directive ompliance with the above EU Directives has been verifie a chemical substance is absent from the list above, the inchnology Incorporated's knowledge and belief as of the	 e) ed via internal design control chemical substance is NOT e date of this document, ther 	s, supplier declarations, and /or analytical test dat an intentional ingredient in the semiconductor dev e is no credible reason to believe that the unavoid	a. ice and, to the I	best of Microc	chip	3.45	Doped Silicon (mg) Total			
rective 2002/53/EC (End-of-Life Vehicles (ELV) Directive ompliance with the above EU Directives has been verifie a chemical substance is absent from the list above, the chnology incorporated's knowledge and belief as of the emical substance, if any, is not below the threshold of r olding compounds used by Microchip meet the UL94 V0	 b). ch via internal design control chemical substance is NOT e date of this document, ther regulatory concern for any re flammability standard for pl 	s, supplier declarations, and /or analytical test data an intentional ingredient in the semiconductor dev e is no credible reason to believe that the unavoid egulatory scheme world-wide.	a. ice and, to the l able impurity co	best of Microconcentration of	chip of the	3.45		Total Wire Bond palladium coated	100.00	
rective 2002/53/EC (End-of-Life Vehicles (ELV) Directive ompliance with the above EU Directives has been verifie a chemical substance is absent from the list above, the schnology Incorporated's knowledge and belief as of the nemical substance, if any, is not below the threshold of r olding compounds used by Microchip meet the UL94 V0 tp://ul.com/global/eng/pages/offerings/industries/chemic re protective "tubes" in which the specific product is sh	 b). chemical substance is NOT e date of this document, ther regulatory concern for any re flammability standard for pl cals/plastics/ 	s, supplier declarations, and /or analytical test data an intentional ingredient in the semiconductor dev e is no credible reason to believe that the unavoid egulatory scheme world-wide. astics. You can access the UL iQTM family of data	a. ice and, to the l able impurity co bases to obtain	best of Microconcentration of a test report	chip of the at	3.45	(mg) Total	Total Wire Bond palladium coated copper (CuPd) 7440-50-8 7440-05-3	100.00 % of Total Weight 98 2	1.89
rective 2002/53/EC (End-of-Life Vehicles (ELV) Directive	b). In via internal design control chemical substance is NOT a date of this document, ther regulatory concern for any re flammability standard for pl cals/plastics/ ipped are made from polyvir ion in this form concerning s rect to the best of its knowled form because it has been co I from disclosure as trade set limates of the average weigh	s, supplier declarations, and /or analytical test data an intentional ingredient in the semiconductor dev e is no credible reason to believe that the unavoid egulatory scheme world-wide. astics. You can access the UL IQTM family of data nyl chloride (PVC) plastic. "Window envelopes" use substances restricted by RoHS in Microchip Techn dge and belief, as of the date listed in this form. Mi mpiled based on the ranges provided in Material S crets and some information may not have been pri- t of these parts and the average weight of anticipa	a. ice and, to the l able impurity co bases to obtain ed to hold the p ology Incorpora crochip Techno afety Data Shev ovided by subc ted significant	best of Microconcentration of a test report acking slip or ated's semico ology Incorpor tes provided b ontract assem	chip of the at n the outer nductor rated cannot by raw nblers and	3.45	(mg) Total	Total Wire Bond palladium coated copper (CuPd) 7440-50-8	100.00 % of Total Weight 98 2	1.89
rective 2002/53/EC (End-of-Life Vehicles (ELV) Directive ompliance with the above EU Directives has been verifie a chemical substance is absent from the list above, the schoology Incorporated's knowledge and belief as of the nemical substance, if any, is not below the threshold of r olding compounds used by Microchip meet the UL94 V0 tp://ul.com/global/eng/pages/offerings/industries/chemid ne protective "tubes" in which the specific product is sh ox and certain "reels" may be made from PVC plastic. icrochip Technology Incorporated believes the informati vices in their original packing materials is true and corr iaterial suppliers. Supplier information is often protected w material suppliers. Information is provided only as est nese estimates do not include trace levels of dopants, m icrochip Technology Incorporated does not provide any oduct warranties provided by Microchip Technology Inc	b). In the second se	s, supplier declarations, and /or analytical test data an intentional ingredient in the semiconductor dev re is no credible reason to believe that the unavoid gulatory scheme world-wide. astics. You can access the UL IQTM family of data nyl chloride (PVC) plastic. "Window envelopes" use substances restricted by RoHS in Microchip Techn dge and belief, as of the date listed in this form. Mi mpiled based on the ranges provided in Material S icrets and some information may not have been pri t of these parts and the average weight of anticipa als contained within silicon devices (silicon IC) in the d, with respect to the information provided in this of es are contained in Microchip's standard terms an	a. ice and, to the l able impurity co bases to obtain ad to hold the p ology Incorpora crochip Techno afety Data She ovided by subc red significant he finished part leclaration. The d conditions of	a test report a test report acking slip or ated's semico ology Incorpor ets provided to ontract assem toxic metals of s.	chip of the at n the outer nductor rated cannot by raw nblers and components. nited re provided	3.45	(mg) Total Copper Palladium	Total Wire Bond palladium coated copper (CuPd) 7440-50-8 7440-05-3	100.00 % of Total Weight 98 2	1.89
rective 2002/53/EC (End-of-Life Vehicles (ELV) Directive ompliance with the above EU Directives has been verifie a chemical substance is absent from the list above, the e- ichnology Incorporated's knowledge and belief as of the remical substance, if any, is not below the threshold of r obding compounds used by Microchip meet the UL94 V0 tp://ul.com/global/eng/pages/offerings/industries/chemid ee protective "tubes" in which the specific product is sh ix and certain "reels" may be made from PVC plastic. crochip Technology Incorporated believes the informati vices in their original packing materials is true and corr arantee the completeness and accuracy of data in this i aterial suppliers. Information is provided only as est uese estimates do not include trace levels of dopants, m crochip Technology Incorporated does not provide any oduct waranties provided by Microchip Technology Incorporated	b). In the second se	is, supplier declarations, and /or analytical test data an intentional ingredient in the semiconductor dev e is no credible reason to believe that the unavoid egulatory scheme world-wide. astics. You can access the UL iQTM family of data nyl chloride (PVC) plastic. "Window envelopes" use substances restricted by RoHS in Microchip Techn dge and belief, as of the date listed in this form. Mi mpiled based on the ranges provided in Material S crets and some information may not have been pr t of these parts and the average weight of anticipa als contained within silicon devices (silicon IC) in th d, with respect to the information provided in this of es are contained in Microchip's standard terms an t Declarations and shall not be liable for any dama	a. ice and, to the l able impurity co bases to obtain ed to hold the p ology Incorpora afety Data She ovided by subc ted significant te finished part d conditions of uges, direct or in	best of Microconcentration of a test report acking slip or ated's semico ology Incorpoo tests provided to ontract assen toxic metals of s. exclusive, lin sale. These a ndirect, conse	chip of the at n the outer nductor rated cannot by raw holers and components. mited ire provided equential or		(mg) Total Copper Palladium	Total Wire Bond palladium coated copper (CuPd) 7440-50-8 7440-05-3 Total Plating on external leads (pins) - Matte Tin Jannealed at 150°C for	100.00 % of Total Weight 98 2 100.00	1.89

MICROCHIP Semiconductor Device 1	Type: AKZE 72 V	QFN 10x10x0.9 (NU)		nation Base A pper Alloy (C			Package Homo	geneous Materials		JEDEC 97 Product Markin and/or Pkg. Labeling e3
Basic Substance	CAS Number	"Contained In" Sub-Component	% Total Weight	mg/part	ppm	101.10	(mg) Total	Mold Compound	% ot Total Weight	45.83
Silica Fused	60676-86-0	Mold Compound	40.454	89.242	404.541		Silica Fused	60676-86-0	88.27	1
Epoxy Resin	Trade Secret	Mold Compound	2.860	6.309	28,598		Epoxy Resin	Trade Secret	6.24	
Phenol Resin	Trade Secret	Mold Compound	2.379	5.247	23,786		Phenol Resin	Trade Secret	5.19	
Carbon Black	1333-86-4	Mold Compound	0.137	0.303	1.375		Carbon Black	1333-86-4	0.30	
Copper	7440-50-8	Lead Frame	48.584	107.176	485,836		Ourbon Black	Total	100.00	_
Iron	7439-89-6	Lead Frame	1.173	2.587	11,729	110.10	(mg) Total	Lead Frame	% of Total Weight	49.91
Zinc	7440-66-6	Lead Frame	0.062	0.138	624	110.10	Copper		97.34	40.01
Silver	7440-00-0	Lead Frame	0.050	0.138	499		Iron		2.35	
Phosphorus	7723-14-0	Lead Frame	0.030	0.091	412		Zinc		0.13	
Silver	7440-22-4	Die Attach	0.870	1.919	8,701		Silver		0.10	
Acrylic Resin	Trade secret	Die Attach	0.096	0.212	961		Phosphorus		0.08	
Epoxy Resin	Trade secret	Die Attach	0.028	0.062	283		Thoophorad	Total		4
Acrylated EP-Resin	Trade secret	Die Attach	0.062	0.137	622	2.49	(mg) Total	Die Attach	% of Total Weight	
Polybutadiene derivative & Coplolymer	Trade secret	Die Attach	0.073	0.162	735	2.45	Silver	7440-22-4	77.00	1.13
Silicon	7440-21-3	Chip (Die)	2.500	5.515	25,000		Acrylic Resin	Trade secret	8.50	
Copper	7440-50-8	Wire Bond palladium coated copper (CuPd)	0.265	0.585	2.653		Epoxy Resin	Trade secret	2.50	
Palladium	7440-55-3	Wire Bond palladium coated copper (CuPd) Wire Bond palladium coated copper (CuPd)	0.005	0.010	47		Acrylated EP-Resin	Trade secret	5.50	
Tin		Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	0.360	0.794	3,600	Dolubutodio	ne derivative & Coplolymer		6.50	
101	7440-51-5	TOTALS:	100.000	220.600	1.000.000	Folybulaule		Total		4
		g Total Mass	100.000	220.000	1,000,000	5.52	Total (mg)	Chip (Die)	% of Total Weight	
		02/05/EC (RoHS Directive) ELL Directive 2011/65	EII (RoHS Rec	ast Directive)	and with ELL				, , , , , , , , , , , , , , , , , , ,	2.50
rective 2002/53/EC (End-of-Life Vehicles (ELV) Directive).		102/95/EC (RoHS Directive), EU Directive 2011/65, s, supplier declarations, and /or analytical test da		ast Directive)	and with EU		Doped Silicon	7440-21-3 Total	100	
ective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). mpliance with the above EU Directives has been verified via a chemical substance is absent from the list above, the cher chnology Incorporated's knowledge and belief as of the dat	a internal design controls nical substance is NOT a se of this document, there	s, supplier declarations, and /or analytical test da In intentional ingredient in the semiconductor de e is no credible reason to believe that the unavoi	ta. vice and, to the	e best of Micro	ochip	0.60		7440-21-3	100]
ective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). mpliance with the above EU Directives has been verified via chemical substance is absent from the list above, the cher chnology Incorporated's knowledge and belief as of the dat emical substance, if any, is not below the threshold of regu Iding compounds used by Microchip meet the UL94 V0 flan	a internal design controls nical substance is NOT a te of this document, there latory concern for any re nmability standard for pla	s, supplier declarations, and /or analytical test da in intentional ingredient in the semiconductor de e is no credible reason to believe that the unavoi gulatory scheme world-wide.	ta. vice and, to the dable impurity	e best of Micro concentration	ochip of the	0.60	Doped Silicon	7440-21-3 Total Wire Bond palladium coated	100]
rective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). ompliance with the above EU Directives has been verified via a chemical substance is absent from the list above, the cher ichnology Incorporated's knowledge and belief as of the dat emical substance, if any, is not below the threshold of regu olding compounds used by Microchip meet the UL94 V0 flan tp://ul.com/global/eng/gages/offerings/industries/chemicals/ a protective "tubes" in which the specific product is shippe	a internal design controls nical substance is NOT a se of this document, there latory concern for any re nmability standard for pla plastics/	s, supplier declarations, and /or analytical test da in intentional ingredient in the semiconductor de e is no credible reason to believe that the unavoi gulatory scheme world-wide. astics. You can access the UL iQTM family of dat	ta. vice and, to the dable impurity abases to obta	e best of Micro concentration in a test repor	ochip of the t at	0.60	Doped Silicon (mg) Total	7440-21-3 Total Wire Bond palladium coated copper (CuPd) 7440-50-8 7440-05-3	100 100.00 % of Total Weight 98 1.75	0.27
rective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). ompliance with the above EU Directives has been verified via a chemical substance is absent from the list above, the cher schology Incorporated's knowledge and belief as of the dat is not below the threshold of regu olding compounds used by Microchip meet the UL94 V0 flan tp://ul.com/global/eng/pages/offerings/industries/chemicals/ te protective "tubes" in which the specific product is shippe and certain "reels" may be made from PVC plastic. crochip Technology Incorporated believes the information i vices in their original packing materials is true and correct to mont guarantee the completeness and accuracy of data in the w material suppliers. Supplier information is provided only as essi-	a internal design controls mical substance is NOT a ce of this document, there latory concern for any re nmability standard for pla plastics/ d are made from polyvin n this form concerning s to the best of its knowled his form because it has to if from disclosure as trad timates of the average w	s, supplier declarations, and /or analytical test da un intentional ingredient in the semiconductor de is no credible reason to believe that the unavoi gulatory scheme world-wide. astics. You can access the UL iQTM family of dat yl chloride (PVC) plastic. "Window envelopes" un ubstances restricted by RoHS in Microchip Tech lge and belief, as of the date listed in this form. No een compiled based on the ranges provided in No e secrets and some information may not have be eight of these parts and the average weight of ar	ta. vice and, to the dable impurity abases to obta sed to hold the nology Incorpo licrochip Tech laterial Safety en provided by ticipated signi	e best of Micro concentration in a test repor packing slip o patad's semic nology Incorpo Data Sheets p subcontract a ficant toxic me	ochip of the t at on the outer onductor orated orovided by assemblers stals	0.60	Copper	7440-21-3 Total Wire Bond palladium coated copper (CuPd) 7440-50-8	100 100.00 % of Total Weight 98	0.27
his semiconductor device and its homogenous materials cor irective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). ompliance with the above EU Directives has been verified via a chemical substance is absent from the list above, the cher schnology Incorporated's knowledge and belief as of the dat emical substance, if any, is not below the threshold of regu olding compounds used by Microchip meet the UL94 V0 flan tp://ul.com/global/eng/pages/offerings/industries/chemicals/ he protective "tubes" in which the specific product is shippe ox and certain "reels" may be made from PVC plastic. icrochip Technology Incorporated believes the information i avices in their original packing materials is true and correct t annot guarantee the completeness and accuracy of data in ti w material suppliers. Supplier information is often protected and raw material suppliers. Information is provided only as es somponents. These estimates do not include trace levels of d icrochip Technology Incorporated does not provide any war roduct warranties provided by Microchip Technology Incorpy Microchip's quotations, sales order acknowledgement, and	a internal design controls mical substance is NOT a ce of this document, there latory concern for any re mmability standard for pla plastics/ id are made from polyvin n this form concerning s to the best of its knowled his form because it has b I from disclosure as trad I from disclosure as trad timates of the average w opants, metals, and non- ranty, express or implied orated and its subsidiarie	s, supplier declarations, and /or analytical test da un intentional ingredient in the semiconductor de is no credible reason to believe that the unavoi gulatory scheme world-wide. astics. You can access the UL iQTM family of dat yl chloride (PVC) plastic. "Window envelopes" us ubstances restricted by RoHS in Microchip Tech Ige and belief, as of the date listed in this form. N eeen compiled based on the ranges provided in M escrets and some information may not have be eight of these parts and the average weight of ar metal materials contained within silicon devices I, with respect to the information provided in this	ta. vice and, to the dable impurity abases to obta sed to hold the nology Incorpo licrochip Techn laterial Safety en provided by ticipated signi (silicon IC) in ti declaration. Ti	e best of Micro concentration in a test repor packing slip o prated's semic nology Incorp Data Sheets p subcontract i ficant toxic mo he finished pa he exclusive, I	ochip of the t at on the outer onductor orated rovided by assemblers etals rts. imited	0.60	Copper	7440-21-3 Total Wire Bond palladium coated copper (CuPd) 7440-50-8 7440-05-3	100 100.00 % of Total Weight 98 1.75	0.27
ective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). mpliance with the above EU Directives has been verified via chemical substance is absent from the list above, the cher chnology Incorporated's knowledge and belief as of the dat emical substance, if any, is not below the threshold of regu lding compounds used by Microchip meet the UL94 V0 flan p:/ul.com/global/eng/pages/offerings/industries/chemicals/ a protective "tubes" in which the specific product is shippe and certain "reels" may be made from PVC plastic. crochip Technology Incorporated believes the information i vices in their original packing materials is true and correct for an atterial suppliers. Supplier information is often protected of raw material suppliers. Information is provided only as es imponents. These estimates do not include trace levels of de- trochip Technology Incorporated does not provide any warr duct warranties provided by Microchip Technology Incorpor- rection Technology Incorporated being trace in the protected traching technology Incorporated besent provide any warr	a internal design controls mical substance is NOT a ce of this document, there latory concern for any re- mability standard for pla plastics/ d are made from polyvin n this form concerning s to the best of its knowled his form because it has t if from disclosure as trad- timates of the average w opants, metals, and non- ranty, express or implied orated and its subsidiarie invoices. anges to Material Conten users' reliance on the in	s, supplier declarations, and /or analytical test da un intentional ingredient in the semiconductor de is no credible reason to believe that the unavoi gulatory scheme world-wide. astics. You can access the UL iQTM family of dat yl chloride (PVC) plastic. "Window envelopes" us ubstances restricted by RoHS in Microchip Tech Ige and belief, as of the date listed in this form. No esen compiled based on the ranges provided in No esecrets and some information may not have be eight of these parts and the average weight of ar metal materials contained within silicon devices I, with respect to the information provided in this as are contained in Microchip's standard terms a t Declarations and shall not be liable for any dam	ta. vice and, to the dable impurity abases to obta sed to hold the nology Incorpo licrochip Techu laterial Safety en provided by ticipated signi (silicon IC) in ti declaration. Ti nd conditions o	e best of Micro concentration in a test repor packing slip o rated's semic nology Incorp Juata Sheets p subcontract a ficant toxic me he finished pa he exclusive, I of sale. These	ochip of the t at on the outer onductor orated rovided by assemblers stals rts. imited are provided sequential or		Copper Palladium	7440-21-3 Total Wire Bond palladium coated copper (CuPd) 7440-50-8 7440-05-3 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for	100 100.00 % of Total Weight 98 1.75 100.00	0.27

	e Type: QXBE 12 (Le	ad) XQFN 2x2x0.45mm (QL)		nination Base Copper Alloy				ogeneous Materials: .g. pc boards, display	rs)	JEDEC 97 Product Marking and/or Pkg. Labeling e3
Basic Substance	CAS Number	"Contained In" Sub-Component	% Total Weight	mg/part	ppm	6.10	(mg) Total	Mold Compound	% ot Total Weight	60.43
Silica, fused	60676-86-0	Mold Compound	54.387	5,493	543.870		Silica, fused	60676-86-0	90.00	
Epoxy Resin (NLP # 500-033-5)	Trade Secret	Mold Compound	2.931	0.296	29,309	1	Epoxy Resin	Trade Secret	4.85	
Phenolic Resin	Trade Secret	Mold Compound	2.931	0.296	29,309	1	Phenolic Resin	Trade Secret	4.85	
Carbon Black	1333-86-4	Mold Compound	0.181	0.018	1,813	1	Carbon Black	1333-86-4	0.30	
Copper	7440-50-8	Lead Frame	34.039	3.438	340,391		p	Total	100.00	
Nickel	7440-02-0	Lead Frame	0.908	0.092	9,078	3.61	(mg) Total	Lead Frame	% of Total Weight	35.74
Silicon	7440-21-3	Lead Frame	0.161	0.016	1,608		Copper	7440-50-8	95.24	
Magnesium	7439-95-4	Lead Frame	0.036	0.004	357	1	Nickel	7440-02-0	2.54	
Šilver	7440-22-4	Lead Frame	0.597	0.060	5,965]	Silicon	7440-21-3	0.45	
Silver	7440-22-4	Die Attach	0.904	0.091	9,040]	Magnesium	7439-95-4	0.10	
Epoxy Resin	Trade secret	Die Attach	0.226	0.023	2,260	l	Silver	7440-22-4	1.67	
Gallium arsenide (GaAs)	1303-00-0	Chip (Die)	1.230	0.124	12,300			Total	100.00	
Gold	7440-57-5	Wire Bond	0.370	0.037	3,700	0.11	(mg) Total	Die Attach	% of Total Weight	1.13
Tin	7440-31-5	Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	1.100	0.111	11,000		Silver	7440-22-4	80.00	
	· · · ·	TOTALS:	100.000	10.100	1,000,000	1	Epoxy Resin	Trade secret	20.00	
	0.0101	g Total Mass						Total	100.00	
semiconductor device and its homogenous materials c birective 2002/53/EC (End-of-Life Vehicles (ELV) Directiv pliance with the above EU Directives has been verified v	omply with EU Directive 200 e).	02/95/EC (RoHS Directive), EU Directive 2011/		Recast Direct	ive) and with	0.12 Doped GaAs	(mg) Total Gallium arsenide (GaAs)	Chip (Die)	% of Total Weight	1.23
Directive 2002/53/EC (End-of-Life Vehicles (ELV) Directive pliance with the above EU Directives has been verified v chemical substance is absent from the list above, the ch	omply with EU Directive 200 e). via internal design controls, emical substance is NOT ar	22/95/EC (RoHS Directive), EU Directive 2011/ , supplier declarations, and /or analytical test n intentional ingredient in the semiconductor	data. device and, t	o the best of N	licrochip	-		Chip (Die)		1.23
birective 2002/53/EC (End-of-Life Vehicles (ELV) Directive pliance with the above EU Directives has been verified vehicles.	omply with EU Directive 200 e). via internal design controls, emical substance is NOT ar ate of this document, there	22/95/EC (RoHS Directive), EU Directive 2011/ , supplier declarations, and /or analytical test n intentional ingredient in the semiconductor is no credible reason to believe that the unav	data. device and, t	o the best of N	licrochip	-		Chip (Die) 1303-00-0	100.00	1.23
Directive 2002/53/EC (End-of-Life Vehicles (ELV) Directiv pliance with the above EU Directives has been verified v chemical substance is absent from the list above, the ch nology Incorporated's knowledge and belief as of the d	omply with EU Directive 200 e). via internal design controls, emical substance is NOT ar ate of this document, there julatory concern for any reg ammability standard for plas	22/95/EC (RoHS Directive), EU Directive 2011/ , supplier declarations, and /or analytical test n intentional ingredient in the semiconductor is no credible reason to believe that the unav julatory scheme world-wide.	data. device and, t voidable impu	o the best of M Irity concentra	licrochip tion of the	-		Chip (Die) 1303-00-0	100.00	0.37
Directive 2002/53/EC (End-of-Life Vehicles (ELV) Directiv pliance with the above EU Directives has been verified v shemical substance is absent from the list above, the ch nnology Incorporated's knowledge and belief as of the d nical substance, if any, is not below the threshold of reg ling compounds used by Microchip meet the UL94 V0 fla	omply with EU Directive 200 e). via internal design controls, emical substance is NOT ar ate of this document, there julatory concern for any reg ammability standard for plas is/plastics/ ped are made from polyviny	22/95/EC (RoHS Directive), EU Directive 2011/ , supplier declarations, and /or analytical test n intentional ingredient in the semiconductor is no credible reason to believe that the unav gulatory scheme world-wide. stics. You can access the UL iQTM family of c	data. device and, t voidable impu databases to o	o the best of M Irity concentra obtain a test re	licrochip tion of the eport at	Doped GaAs	Gallium arsenide (GaAs)	Chip (Die) 1303-00-0 Total Wire Bond 7440-57-5	100.00 100.00 % of Total Weight 100.00	
Directive 2002/53/EC (End-of-Life Vehicles (ELV) Directiv pliance with the above EU Directives has been verified we themical substance is absent from the list above, the ch nology Incorporated's knowledge and belief as of the d nical substance, if any, is not below the threshold of reg ling compounds used by Microchip meet the UL94 V0 file //ul.com/global/eng/pages/offerings/industries/chemical protective "tubes" in which the specific product is shipp	omply with EU Directive 200 e). via internal design controls, emical substance is NOT at ate of this document, there julatory concern for any reg ammability standard for pla- is/plastics/ bed are made from polyviny in this form concerning su t to the best of its knowledg this form because it has be ad from disclosure as trade stimates of the average we	22/95/EC (RoHS Directive), EU Directive 2011/ , supplier declarations, and /or analytical test n intentional ingredient in the semiconductor is no credible reason to believe that the unav julatory scheme world-wide. stics. You can access the UL iQTM family of c rl chloride (PVC) plastic. "Window envelopes" ubstances restricted by RoHS in Microchip Te ge and belief, as of the date listed in this form secrets and some information may not have ight of these parts and the average weight of	data. device and, t voidable impu latabases to (' used to hold chnology Inc Microchip T n Material Sai been provide anticipated s	o the best of N irity concentra obtain a test ro I the packing s orporated's se 'echnology Inc fety Data Shee d by subcontr significant toxi	flicrochip tion of the eport at slip on the emiconductor orporated ts provided by act assemblers t metals	Doped GaAs	Gallium arsenide (GaAs) (mg) Total	Chip (Die) 1303-00-0 Total Wire Bond	100.00 100.00 % of Total Weight	
Directive 2002/53/EC (End-of-Life Vehicles (ELV) Directive pliance with the above EU Directives has been verified we themical substance is absent from the list above, the ch anology Incorporated's knowledge and belief as of the d nical substance, if any, is not below the threshold of reg ling compounds used by Microchip meet the UL94 V0 fit //ul.com/global/eng/pages/offerings/industries/chemical protective "tubes" in which the specific product is ship r box and certain "reels" may be made from PVC plastic ochip Technology Incorporated believes the information ces in their original packing materials is true and correc tot guarantee the completeness and accuracy of data in material suppliers. Supplier information is often protect on the protection is provided only as e	omply with EU Directive 200 e). via internal design controls, emical substance is NOT ar ate of this document, there julatory concern for any reg ammability standard for plas is/plastics/ bed are made from polyviny bed are made from polyviny bed are made from polyviny chis form concerning su t to the best of its knowled this form because it has be ded from disclosure as trade estimates of the average we dopants, metals, and non-ra arranty, express or implied, porated and its subsidiaries	22/95/EC (RoHS Directive), EU Directive 2011/ , supplier declarations, and /or analytical test n intentional ingredient in the semiconductor is no credible reason to believe that the unav julatory scheme world-wide. stics. You can access the UL iQTM family of c rl chloride (PVC) plastic. "Window envelopes" ubstances restricted by RoHS in Microchip Te ge and belief, as of the date listed in this form secrets and some information may not have ight of these parts and the average weight of netal materials contained within silicon device with respect to the information provided in th	data. device and, t voidable impu- latabases to (' used to hold chnology Inc Microchip T n Material Sai been provide anticipated s es (silicon IC) his declaratio	o the best of M irity concentra obtain a test ro I the packing s orporated's se cechnology Inc fety Data Shee d by subcontr significant toxi i n the finishe n. The exclusi	flicrochip tion of the eport at slip on the emiconductor orporated ts provided by act assemblers to metals d parts. ve, limited	Doped GaAs	Gallium arsenide (GaAs) (mg) Total	Chip (Die) 1303-00-0 Total Wire Bond 7440-57-5	100.00 100.00 % of Total Weight 100.00	
Directive 2002/53/EC (End-of-Life Vehicles (ELV) Directive pliance with the above EU Directives has been verified vehicles and the second seco	omply with EU Directive 200 e). via internal design controls, emical substance is NOT ar ate of this document, there julatory concern for any reg ammability standard for pla- is/plastics/ bed are made from polyviny c. in this form concerning su t to the best of its knowled this form because it has bu- d from disclosure as trade estimates of the average we dopants, metals, and non-n- arranty, express or implied, porated and its subsidiaries ement, and invoices.	22/95/EC (RoHS Directive), EU Directive 2011/ , supplier declarations, and /or analytical test n intentional ingredient in the semiconductor is no credible reason to believe that the unav julatory scheme world-wide. stics. You can access the UL iQTM family of c rl chloride (PVC) plastic. "Window envelopes" bistances restricted by RoHS in Microchip Te ge and belief, as of the date listed in this form een compiled based on the ranges provided in secrets and some information may not have ight of these parts and the average weight of these parts and the average weight of with respect to the information provided in th s are contained in Microchip's standard terms Declarations and shall not be liable for any d	data. device and, t voidable impu latabases to d ' used to hold chnology Inc h Microchip T n Material Sat been provide anticipated s es (silicon IC) his declaratio s and condition	o the best of N irity concentra obtain a test ro I the packing s orporated's se echnology Inc fety Data Shee d by subcontr significant toxi jonificant toxi i, in the finishe n. The exclusi ons of sale. Th ct or indirect,	flicrochip tion of the eport at slip on the miconductor orporated ts provided by act assemblers c metals d parts. ve, limited ese are consequential	Doped GaAs	Gallium arsenide (GaAs) (mg) Total Doped Gold	Chip (Die) 1303-00-0 Total Wire Bond 7440-57-5 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for	100.00 100.00 % of Total Weight 100.00 100.00	0.37

	e Type: QXCE 16 (Lead) XC	DEN 3x3x0.45mm (OP)		nation Base / pper Alloy (C				ogeneous Materials: 9.g. pc boards, display	/s)	JEDEC 97 Product Marking and/or Pkg. Labeling e3
		"Contained In"	% Total							
Basic Substance	CAS Number	Sub-Component	Weight	mg/part	ppm	7.94	(mg) Total	Mold Compound	% ot Total Weight	44.83
Silica, fused	60676-86-0	Mold Compound	40.347	7.149	403,470		Silica, fused	60676-86-0	90.00	1
Epoxy Resin	Trade Secret	Mold Compound	2.174	0.385	21,743		Epoxy Resin	Trade Secret	4.85	
Phenolic Resin	Trade Secret	Mold Compound	2.174	0.385	21,743		Phenolic Resin	Trade Secret	4.85	
Carbon Black	1333-86-4	Mold Compound	0.134	0.024	1,345		Carbon Black	1333-86-4	0.30	
Copper	7440-50-8	Lead Frame	45.544	8.070	455,442			Total		
Nickel	7440-02-0	Lead Frame	1.215	0.215	12,146	8.47	(mg) Total	Lead Frame	% of Total Weight	47.82
Silicon	7440-21-3	Lead Frame	0.215	0.038	2,152		Copper	7440-50-8	95.24	
Magnesium	7439-95-4	Lead Frame	0.048	0.008	478		Nickel	7440-02-0	2.54	
Silver	7440-22-4 7440-22-4	Lead Frame	0.798	0.141	7,981		Silicon	7440-21-3	0.45	
Silver Epoxy Resin		Die Attach Die Attach	0.728	0.129	7,280		Magnesium	7439-95-4	0.10	
Gallium arsenide (GaAs)	Trade secret 1303-00-0	Chip (Die)	2.490	0.032	1,820 24,900		Silver	7440-22-4 Total		<u>I</u>
Doped Gold	7440-57-5	Wire Bond	0.560	0.099	5,600	0.16	(mg) Total	Die Attach	% of Total Weight	
Tin		on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	3.390	0.601	33.900	0.10	Silver	7440-22-4	80.00	0.91
111	7440-31-5 Plaing 0	TOTALS:	100.000	17.720	1.000.000		Epoxy Resin	Trade secret	20.00	
	0.0177 g Tot				.,,		Epoxy resin	Total		4
ective 2002/53/EC (End-of-Life Vehicles (ELV) Directive).						0.44	(mg) Total	Chip (Die)	% of Total Weight	2.49
mpliance with the above EU Directives has been verified chemical substance is absent from the list above, the ch chnology Incorporated's knowledge and belief as of the c emical substance, if any, is not below the threshold of reg	nemical substance is NOT an inten late of this document, there is no o gulatory concern for any regulator	tional ingredient in the semiconductor device a credible reason to believe that the unavoidable y scheme world-wide.	impurity con	centration of	the	Doped GaAs	(mg) I otal	1303-00-0 Total	100]
mpliance with the above EU Directives has been verified a chemical substance is absent from the list above, the ch chnology Incorporated's knowledge and belief as of the c emical substance, if any, is not below the threshold of reg olding compounds used by Microchip meet the UL94 V0 fl p://ul.com/global/eng/pages/offerings/industries/chemica	emical substance is NOT an inten late of this document, there is no o gulatory concern for any regulator ammability standard for plastics. Y Is/plastics/	tional ingredient in the semiconductor device a credible reason to believe that the unavoidable y scheme world-wide. You can access the UL iQTM family of database	impurity con s to obtain a	centration of test report at	the	Doped GaAs	<u> </u>	1303-00-0	100	
rective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). ompliance with the above EU Directives has been verified a chemical substance is absent from the list above, the ch chnology Incorporated's knowledge and belief as of the c emical substance, if any, is not below the threshold of reg blding compounds used by Microchip meet the UL94 V0 fl p://ul.com/global/eng/pages/offerings/industries/chemica e protective "tubes" in which the specific product is ship x and certain "reels" may be made from PVC plastic.	emical substance is NOT an inten late of this document, there is no o gulatory concern for any regulator ammability standard for plastics. Y Is/plastics/	tional ingredient in the semiconductor device a credible reason to believe that the unavoidable y scheme world-wide. You can access the UL iQTM family of database	impurity con s to obtain a	centration of test report at	the	Doped GaAs	Gallium arsenide	1303-00-0 Total Wire Bond 7440-57-5	100 100.00 % of Total Weight 100.00	0.56
mpliance with the above EU Directives has been verified a chemical substance is absent from the list above, the ch chology Incorporated's knowledge and belief as of the c emical substance, if any, is not below the threshold of reg olding compounds used by Microchip meet the UL94 V0 fl p://ul.com/global/eng/pages/offerings/industries/chemical e protective "tubes" in which the specific product is ship x and certain "reels" may be made from PVC plastic. crochip Technology Incorporated believes the information vices in their original packing materials is true and correc arantee the completeness and accuracy of data in this fo treiral suppliers. Supplier information is often protected fi w material suppliers. Information is provided only as estin ese estimates do not include trace levels of dopants, met crochip Technology Incorporated does not provide any w rranties provided by Microchip Technology Incorporated crochip's quotations, sales order acknowledgement, and crochip disclaims any duty to notify users of updates or c	emical substance is NOT an inten late of this document, there is no o gulatory concern for any regulator ammability standard for plastics. I Is/plastics/ ped are made from polyvinyl chlor in this form concerning substance t to the best of its knowledge and rm because it has been compiled I om disclosure as trade secrets an nates of the average weight of these als, and non-metal materials conter arranty, express or implied, with r and its subsidiaries are contained invoices.	tional ingredient in the semiconductor device a credible reason to believe that the unavoidable y scheme world-wide. You can access the UL iQTM family of database ide (PVC) plastic. "Window envelopes" used to ces restricted by RoHS in Microchip Technology belief, as of the date listed in this form. Microch based on the ranges provided in Material Safety di some information may not have been provide se parts and the average weight of anticipated s ained within silicon devices (silicon IC) in the fin espect to the information provided in this decla I in Microchip's standard terms and conditions of rations and shall not be liable for any damages,	impurity con- s to obtain a hold the pac y Incorporate hip Technolo / Data Sheets d by subcon significant to significant to nished parts. ration. The e of sale. These direct or ind	centration of test report at king slip on t ed's semiconc gy Incorporat s provided by tract assemb xic metals con xclusive, limit e are provider	the ductor ted cannot raw lers and mponents. ted product d in uential or	Doped GaAs	Gallium arsenide (mg) Total Doped Gold (mg) Total	1303-00-0 Total Wire Bond 7440-57-5 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	100 100.00 % of Total Weight 100.00 100.00	0.56
mpliance with the above EU Directives has been verified a chemical substance is absent from the list above, the ch chnology Incorporated's knowledge and belief as of the c emical substance, if any, is not below the threshold of reg olding compounds used by Microchip meet the UL94 V0 fl p://ul.com/global/eng/pages/offerings/industries/chemical e protective "tubes" in which the specific product is ship	emical substance is NOT an inten- tate of this document, there is no c gulatory concern for any regulator ammability standard for plastics. N Is/plastics/ ped are made from polyvinyl chlor in this form concerning substance to the best of its knowledge and rm because it has been compiled 1 rom disclosure as trade secrets an nates of the average weight of the als, and non-metal materials conta arranty, express or implied, with r and its subsidiaries are contained invoices.	tional ingredient in the semiconductor device a credible reason to believe that the unavoidable y scheme world-wide. You can access the UL iQTM family of database ide (PVC) plastic. "Window envelopes" used to ces restricted by RoHS in Microchip Technology belief, as of the date listed in this form. Microch based on the ranges provided in Material Safety di some information may not have been provide se parts and the average weight of anticipated s ained within silicon devices (silicon IC) in the fin espect to the information provided in this decla I in Microchip's standard terms and conditions of rations and shall not be liable for any damages,	impurity con- s to obtain a hold the pac y Incorporate hip Technolo / Data Sheets d by subcon significant to significant to nished parts. ration. The e of sale. These direct or ind	centration of test report at king slip on t ed's semiconc gy Incorporat s provided by tract assemb xic metals con xclusive, limit e are provider	the ductor ted cannot raw lers and mponents. ted product d in uential or	0.10	Gallium arsenide (mg) Total Doped Gold	1303-00-0 Total Wire Bond 7440-57-5 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for	100 100.00 % of Total Weight 100.00 100.00	3.39

Basic Substance CAS Number Virolity Wolght ppn 10.0 (mg) Total Mode Compound %.1 of total Weight 45.91 Siles, stress (n frame) OKR #86.0 Mod Compound 33.324 0.027 33.424 0.027 33.424 0.027 33.424 0.027 33.424 0.027 33.424 0.027 33.424 0.027 33.424 0.027 33.424 0.027 1.007 Mode Compound %.0.01 1.007 Mode Compound <th>Semiconductor Device</th> <th>Type: QCF 16 (Lead)</th> <th>NQFN 3x3x0.75mm (30)</th> <th></th> <th>ation Base A oper Alloy (C</th> <th>-</th> <th></th> <th>•</th> <th>ogeneous Materials: e.g. pc boards, displa</th> <th></th> <th>JEDEC 97 Product Marking and/or Pkg. Labeling e4</th>	Semiconductor Device	Type: QCF 16 (Lead)	NQFN 3x3x0.75mm (30)		ation Base A oper Alloy (C	-		•	ogeneous Materials: e.g. pc boards, displa		JEDEC 97 Product Marking and/or Pkg. Labeling e4
Bala Construction With depresent of the second of the sec		, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	. ,	% Total				<i>.</i>			
Encore ResinTimes SectorMold Compound39440.87539443945	Basic Substance	CAS Number	Sub-Component	Weight	mg/part	ppm	10.05	(mg) I otal	Mold Compound	% of 1 otal Weight	45.91
Plennic Rom Task Stern Med Compand 2756 0.003 127.54 Cathon Rax. 133.84 Med Compand 0.134 0.030 127.54 Comm 173.84 Med Compand 0.134 0.201 127.64 0.000 128.94 <t< td=""><td>Silica, vitreous (or fused)</td><td>60676-86-0</td><td>Mold Compound</td><td>39.024</td><td>8.546</td><td>390,235</td><td></td><td>Silica, vitreous (or fused)</td><td>60676-86-0</td><td>85.00</td><td></td></t<>	Silica, vitreous (or fused)	60676-86-0	Mold Compound	39.024	8.546	390,235		Silica, vitreous (or fused)	60676-86-0	85.00	
Gate on Black 1338 644 Mod Compound 0.138 0.030 1.377 Copper 7440566 Lead Farme 61.46 0.620 40.443 total Farme 0.76 total Farme 0.787 100 total Farme 0.787 100 total Farme 0.787 100											
$ \frac{1}{100} 1$											
$\frac{1160}{Prophytocy} = \frac{1146}{7728} \frac{11463}{100} \frac{10.47}{104} 10.4$								Carbon Black			
Photogramma 7723-14.0 Lead Frame 0.128 0.027 1,240 1.028 0.027 1,240 Arry (Mellin) 7440-44.0 Lead Frame 0.028 0.037 15.89 16.89 16.89 15.89 16.89											
Dr. Chrolophing 7440-24-0 Lead Frame 0.075 0.016 748 Procession 7733-96-6 2.30 Anylow Trained Car Trained Store Dis Attach 0.53 0.305 0.538 0.207 5.288 0.207 5.288 0.207 5.288 0.207 5.288 0.207 5.288 0.207 5.288 0.207 5.288 0.207 5.288 0.207 5.288 0.207 5.288 0.207 724-94-2 0.19 0.000 Galum arrance 300-00.00 Chip (Inc) 1.558 0.338 15.500 0.202 2.640 1.600 744-92-4 6.40 744-92-4 6.40 744-92-4	-						10.91				49.84
Silver 7440224 Die Attach 1.529 0.338 15.298 Anythun seins Propriaty Trade Secret Die Attach 0.338 0.000 332 0.000 332 0.000 332 0.000 332 0.000 332 0.000 332 0.000 332 0.000 332 0.000 332 0.000 332 0.000 332 0.000 332 0.000 332 0.000 100 0.000											
Anyster results Trade Secter De Attach 0.533 0.077 3.532 Image Secter De Attach 0.18 Heterocycle organic compound Trade Secter De Attach 0.038 0.007 3.525 Trade Secter 0.64 1000 302 0.43 Trade Secter 1000											
Interpreted alica Trade Scott De Attach 0.039 0.000 932 Total Total 100.00 Gallum arende 1300-00-00 Chap (be) 1.560 0.339 15.600 Chap (be) 1.560 Chap (be) Chap (b											
Heterocyclic orapianic compound Trade Sporter De Attach 0.009 932 0.009 932 0.009 Deck attach X of Total Weight 1.98 Gold 7440-27.5 Wille Bond 0.400 0.101 4.000 Store Total Participan stermi leads (prins) 0.265 0.268 2.648 Total Participan stermi leads (prins) 0.000 1.4 Total Acyclic real regin Trade Secure 1.0 Acyclic real regin Trade Secure 2.0								Zinc (Metal)			
Galum reservice 1300 0000 Chip (Dip) 1.550 0.333 15,500 Steve 7440 22-4 75 Nickel 7440 02-0 Plaining on external leads (pins) 0.245 0.058 2.646 0 old 7440 02-0 Plaining on external leads (pins) 0.021 1.000.001 1.00											
Gail 7440-07-5 Write Band 0.460 0.101 4.000 Nickel 7440-02-0 Pating on external leads (pins) 0.014 0.005 140 Ocid 7440-05-03 Pating on external leads (pins) 0.014 0.000 140 Total 0.000 0.000 100 0	Heterocyclic organic compound		Die Attach				0.43	(mg) Total	Die Attach	% of Total Weight	1.96
Notes 7440-020 Plating on external leads (pins) 0.285 0.058 2.646 Coid 7440-57-5 Plating on external leads (pins) 0.001 0.000 140 Coid 7440-57-5 Plating on external leads (pins) 0.001 0.000 140 0.0219 g Total Mass Total 100.000 140 Total 100.000 1000253EPC (End-of-Lip Vehicles (ELV) Directive). 21.900 1,000.000 1,000.000 100	Gallium arsenide	1300-00-00	Chip (Die)	1.550	0.339	15,500		Silver	7440-22-4	78	
Plandium 7440-05-03 Plating on external leads (pins) 0.014 0.003 140 Gold 7440-55-75 Plating on external leads (pins) 0.001 0.000 14 TOTALS: 100.000 21.900 1,000,000 21.900 1,000,000 100 </td <td>Gold</td> <td>7440-57-5</td> <td>Wire Bond</td> <td>0.460</td> <td>0.101</td> <td>4,600</td> <td></td> <td>Acrylate resins Proprietary</td> <td>Trade Secret</td> <td>18</td> <td></td>	Gold	7440-57-5	Wire Bond	0.460	0.101	4,600		Acrylate resins Proprietary	Trade Secret	18	
Gold 7440-57-5 Plating on external leads (pins) 0.001 0.000 14 Total 100.000 0.021 9 Total Mass TOTALS: 100.000 21.300 1,000,0	Nickel	7440-02-0	Plating on external leads (pins)	0.265	0.058	2,646		Treated silica	Trade Secret	2	
Output: Control of the section of the secting of the secting of the secting of the sectinge	Palladium	7440-05-03	Plating on external leads (pins)	0.014	0.003	140	Hete	erocyclic organic compound	Trade Secret	2	
Output Depend Gaks 1300-00-00 100 s semiconductor device and its homogenous materials comply with EU Directive 2002/SEC (End-sLife Vehicles (ELV)) Directives 2002/SEC (End-SLife Vehicles (ELV)) Total 100.00 npliance with the above EU Directives. 0.10 (mg) Total Wire Bond % of Total Weight 0.46 chemical substance is absent from the list above, the chemical substance is NOT an intentional ingredient in the semiconductor device and, to the best of Microchip Technology Doped Gold 7440-57-5 100 group careful S knowledge and belief as of the date of this document, three is no credible reason to believe that the unavoidable impurity concentration of the chemical substance, if diagonal substance is absent from the list above, the chemical substance is absent from the list above, the chemical substance is no credible reason to believe that the unavoidable impurity of databases to obtain a test report at difficuency (biopyrated's knowledge and belier). Doped Gold 7440-57-5 100 Uncomploabulary incorporated knowledge and belier as of the date of the movel provide by Nicrochip Technology Incorporated is set report at directive and to the device set in formation in this form concerning substances restricted by ROHS in Microchip Technology Incorporated set lease of the date of the knowledge and belier as of the date of the knowledge and belier as of the date of the knowledge and belier as of the date of the knowledge and belier as of the date of the knowledge and belier as of the date of the knowledge and belier as of the date of the knowledge and belier as of the date of the knowledge and bel	Gold	7440-57-5	Plating on external leads (pins)	0.001	0.000	14			Total	100.00	2
0.0219 g Total Mass Doped GaAs 100 101 semiconductor device and its homogenous materials comply with EU Directive 200739/EC (RoHS Directive), EU Directive 200739/EC (RoHS Directive) and with EU 0.10 (mg) Total Wire Bond % of Total Weight 0.46 hehmical substance is absent from the list above, the chemical substance is NOT an intentional ingredient in the semiconductor device and, to the best of Microchip Technology 0.10 (mg) Total Wire Bond % of Total Weight 0.46 hehmical substance is absent from the list above, the chemical substance is NOT an intentional ingredient in the semiconductor device and, to the best of Microchip Technology Doped Gald 7440-57-5 100			TOTALS	100.000	21.900	1,000,000	0.34	Total (mg)	Chip (Die)	% of Total Weight	1.55
semiconductor device and its homogeneous materials comply with EU Directive 2002/85/EC (RoHS Directive). EU Directive 2001/85/EU (RoHS Recast Directive) and with EU citive 2002/85/EC (RoHS Directive). Total Total 100.00 pinance with the above EU Directives has been verified via internal design controls, supplier declarations, and /or analytical test data. 0.10 (mg) Total Wire Bond % of Total Weight 0.46 homical substance is absent from the list above, the chemical substance is bloc and this document, three is no credicible reason to believe that the unavoidable impurity concentration of the chemical substance, if is not below the threshold of regulatory concern for any regulatory scheme world-wide. 0.10 (mg) Total Wire Bond % of Total Weight 0.46 ///Locorrylobal/going/substrice/store/mical/plastes/store/store/mical/plastes/store/store/mical/plastes/store/store/mical/plastes/store/store/mical/plastes/store/store/mical/plastes/store/store/mical/plastes/store/store/mical/plastes/store/store/mical/plastes/store/store/mical/plastes/store/store/mical/plastes/store/store/mical/plastes/store/store/mical/plastes/store/store/mical/plastes/store/mical/plastes/store/store/mical/plastes/store/store/mical/plastes/store/store/mical/plastes/store/store/mical/plastes/store/store/mical/plastes/store/store/mical/plastes/store/store/mical/plastes/store/store/mical/plastes/store/mical/plastes/store/store/mical/plastes/store/store/mical/plastes/store/store/mical/plastes/store/store/mical/plastes/store/mical/plastes/store/mical/plastes/store/mical/plastes/store/mical/plastes/store/mical/plastes/store/mical/plastes/store/mical/plastes/store/mical/plastes/store/mica		0.0210 a T	ntal Mass					1		100	
porated 's knowledge and belief as of the date of this document, there is no credible reason to believe that the unavoidable impurity concentration of the chemical substance, if is not below the threshold of regulatory concern for any regulatory scheme world-wide. Ing compounds used by Microchip meet the UL94 V0 fiammability standard for plastics. You can access the UL IQTM family of databases to obtain a test report at ////////////////////////////////////			2/95/EC (RoHS Directive), EU Directive 2011/65/EU	(RoHS Recast D	virective) and v	vith EU		Dopod Our to			J
ting compounds used by Microchip meet the UL94 VD hammability standard tor plastics. You can access the UL IQTIM family of databases to obtain a test report at protective "tubes" in which the specific product is shipped are made from polyvinyl chloride (PVC) plastic. "Window envelopes" used to hold the packing slip on the outer box certain "reels" may be made from PVC plastic. torochip Technology Incorporated believes the information in this form concerning substances restricted by RoHS in Microchip Technology Incorporated cannot guarantee completeness and accuracy of data in this form because it has been compiled based on the ranges provided in Microchip Technology Incorporated cannot guarantee completeness and accuracy of data in this form because it has been compiled based on the ranges provided by subcontract assemblers and raw material suppliers. Tration is provided only as estimates of the average weight of these parts and the average weight of these parts and the average weight of envices (silicon IC) in the finished parts. Trochip factonology Incorporated does not provide and its subsidiaries are contained within silicon devices (silicon IC) in the finished parts. Trochip's quotations, sales order acknowledgement, and invoices. Trochip's quotations, sales order acknowledgement, and invoices. Trochip's quotations, sales order acknowledgement, and invoices. Trochip's continged by users or third parties as a result of the users' reliance on the information in Material Content Declarations and shall not be liable for any damages, direct or indirect, consequential or Travise, suffreed by users or third parties as a result of the users' reliance on the information in Material Content Declarations (MCD) or independent third party test reports (SGS) Gold 7440-65-3 0.50	ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive	e).		(RoHS Recast D	irective) and v	vith EU	0.10		Total	100.00	0.46
certain "reels" may be made from PVC plastic. 0.06 (mg) Total ieads (pins) % of Total Weight 0.28	ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directiv pliance with the above EU Directives has been verifi chemical substance is absent from the list above, the rporated's knowledge and belief as of the date of this	e). ed via internal design controls, chemical substance is NOT an s document, there is no credible	supplier declarations, and /or analytical test data. intentional ingredient in the semiconductor devic reason to believe that the unavoidable impurity c	e and, to the bes	t of Microchip	Technology	0.10	(mg) Total	Total Wire Bond	100.00 % of Total Weight	0.46
heir original packing materials is true and correct to the best of its knowledge and belief, as of the date listed in this form. Microchip Technology Incorporated cannot guarantee completeness and accuracy of data in this form because it has been compiled based on the ranges provided by raw material suppliers. Institute of the series of the average weight of these parts and the average weight of anticipated significant toxic metals components. These estimates do not ude trace levels of dopants, metals, and non-metal materials contained within silicon devices (silicon IC) in the finished parts.	ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directiv opliance with the above EU Directives has been verifi- chemical substance is absent from the list above, the rporated's knowledge and belief as of the date of this is not below the threshold of regulatory concern for ting compounds used by Microchip meet the UL94 V	e). ed via internal design controls, chemical substance is NOT an s document, there is no credible any regulatory scheme world-w 0 flammability standard for plas	supplier declarations, and /or analytical test data. intentional ingredient in the semiconductor devic reason to believe that the unavoidable impurity c ide.	e and, to the bes	t of Microchip the chemical s	Technology	0.10	(mg) Total	Total Wire Bond 7440-57-5	100.00 % of Total Weight 100	0.46
ranties provided by Microchip Technology Incorporated and its subsidiaries are contained in Microchip's standard terms and conditions of sale. These are provided in rochip's quotations, sales order acknowledgement, and invoices.	ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive opliance with the above EU Directives has been verifi- chemical substance is absent from the list above, the rporated's knowledge and belief as of the date of this is not below the threshold of regulatory concern for ting compounds used by Microchip meet the UL94 Ve //ul.com/global/eng/pages/offerings/industries/chem protective "tubes" in which the specific product is sl	e). ed via internal design controls, chemical substance is NOT an s document, there is no credible any regulatory scheme world-w 0 flammability standard for plas icals/plastics/	supplier declarations, and /or analytical test data. intentional ingredient in the semiconductor devic reason to believe that the unavoidable impurity c ide. ics. You can access the UL iQTM family of databa	e and, to the bes oncentration of t	t of Microchip the chemical s est report at	Technology substance, if		(mg) Total	Total Wire Bond 7440-57-5 Total Plating on external	100.00 % of Total Weight 100 100.00	
erwise, suffered by users or third parties as a result of the users' reliance on the information in Material Content Declarations (MCD) or independent third party test reports (SGS) Gold 7440-57-5 0.50	ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directiv spliance with the above EU Directives has been verifi- chemical substance is absent from the list above, the rporated's knowledge and belief as of the date of thi- is not below the threshold of regulatory concern for thing compounds used by Microchip meet the UL94 Vi //ul.com/global/eng/pages/offerings/industries/chem protective "tubes" in which the specific product is sl certain "reels" may be made from PVC plastic. ochip Technology Incorporated believes the informa eir original packing materials is true and correct to th completeness and accuracy of data in this form beca plier information is often protected from disclosure a mation is provided only as estimates of the average	e). ed via internal design controls, chemical substance is NOT an s document, there is no credible any regulatory scheme world-w 0 flammability standard for plas- icals/plastics/ nipped are made from polyvinyl tion in this form concerning sut the best of its knowledge and be use it has been compiled based s trade secrets and some inforr weight of these parts and the an	supplier declarations, and /or analytical test data. intentional ingredient in the semiconductor device reason to believe that the unavoidable impurity of ide. ics. You can access the UL iQTM family of databa chloride (PVC) plastic. "Window envelopes" used estances restricted by RoHS in Microchip Technol- lief, as of the date listed in this form. Microchip Te on the ranges provided in Material Safety Data SI nation may not have been provided by subcontrad rerage weight of anticipated significant toxic meta	e and, to the bes oncentration of t ses to obtain a to to hold the pack ogy Incorporated chnology Incorp tests provides	t of Microchip the chemical s est report at ting slip on the d's semicondu orated canno y raw material d raw material	Technology substance, if e outer box ctor devices guarantee suppliers. suppliers.		(mg) Total Doped Gold (mg) Total	Total Wire Bond 7440-57-5 Total Plating on external leads (pins)	100.00 % of Total Weight 100 100.00 % of Total Weight	
<u> </u>	ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directiv spliance with the above EU Directives has been verifi- chemical substance is absent from the list above, the rporated's knowledge and belief as of the date of thi- is not below the threshold of regulatory concern for ling compounds used by Microchip meet the UL94 V/ //ul.com/global/eng/pages/offerings/industries/chem protective "tubes" in which the specific product is sl certain "reels" may be made from PVC plastic. ochip Technology Incorporated believes the informa eir original packing materials is true and correct to th completeness and accuracy of data in this form beca plier information is often protected from disclosure a mation is provided only as estimates of the average ide trace levels of dopants, metals, and non-metal m ochip Technology Incorporated does not provide any anties provided by Microchip Technology Incorporated	e). e) via internal design controls, chemical substance is NOT an s document, there is no credible any regulatory scheme world-w 0 flammability standard for plas- icals/plastics/ hipped are made from polyvinyl tion in this form concerning sub te best of its knowledge and be use it has been compiled based s trade secrets and some inforr weight of these parts and the ar- aterials contained within silicon y warranty, express or implied, ed and its subsidiaries are cont	supplier declarations, and /or analytical test data. intentional ingredient in the semiconductor device reason to believe that the unavoidable impurity of ide. ics. You can access the UL iQTM family of databa chloride (PVC) plastic. "Window envelopes" used istances restricted by RoHS in Microchip Technol lief, as of the date listed in this form. Microchip Te on the ranges provided in Material Safety Data Si ration may not have been provided by subcontrac rerage weight of anticipated significant toxic meta devices (silicon IC) in the finished parts.	e and, to the bes oncentration of t ses to obtain a tr to hold the pack ogy Incorporated chnology Incorp eets provided b t assemblers an Is components.	t of Microchip the chemical s est report at ting slip on the d's semicondu orated canno y raw material These estimat clusive, limite	Technology substance, if e outer box ctor devices guarantee suppliers. suppliers. es do not d product		(mg) Total Doped Gold (mg) Total Nickel	Total Wire Bond 7440-57-5 Total Plating on external leads (pins) 7440-02-0	100.00 % of Total Weight 100 % of Total Weight 94.50	
	ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive opliance with the above EU Directives has been verifie themical substance is absent from the list above, the rporated's knowledge and belief as of the date of this is not below the threshold of regulatory concern for ling compounds used by Microchip meet the UL94 V/ //ul.com/global/eng/pages/offerings/industries/chem protective "tubes" in which the specific product is sl certain "reels" may be made from PVC plastic. ochip Technology Incorporated believes the informa eir original packing materials is true and correct to th completeness and accuracy of data in this form beca plier information is often protected from disclosure a mation is provided only as estimates of the average de trace levels of dopants, metals, and non-metal m ochip Technology Incorporated does not provide any anties provided by Microchip Technology Incorpora- ochip dusclaims any duty to notify users of updates of rwise, suffered by users or third parties as a result o	e). e). e) via internal design controls, chemical substance is NOT an s document, there is no credible any regulatory scheme world-w 0 flammability standard for plas- icals/plastics/ hipped are made from polyvinyl tion in this form concerning sut he best of its knowledge and be use it has been compiled based s trade secrets and some inforr weight of these parts and the ar aterials contained within silicon y warranty, express or implied, y ed and its subsidiaries are cont nd invoices. or changes to Material Content I f the users' reliance on the infor	supplier declarations, and /or analytical test data. intentional ingredient in the semiconductor device reason to believe that the unavoidable impurity of ide. ics. You can access the UL iQTM family of databa chloride (PVC) plastic. "Window envelopes" used stances restricted by RoHS in Microchip Technol ief, as of the date listed in this form. Microchip Te on the ranges provided in Material Safety Data Si nation may not have been provided by subcontrac rerage weight of anticipated significant toxic meta devices (silicon IC) in the finished parts. with respect to the information provided in this de ained in Microchip's standard terms and condition Declarations and shall not be liable for any damage	e and, to the bes oncentration of i ses to obtain a tr to hold the pack begy Incorporated chnology Incorp tests provided b t assemblers an Is components. ⁻ claration. The ex s of sale. These	t of Microchip the chemical s est report at ting slip on the d's semicondu orated canno y raw materia d raw materia These estimat clusive, limite are provided rect, conseque	Technology ubstance, if e outer box ctor devices guarantee suppliers. es do not d product in ential or		(mg) Total Doped Gold (mg) Total Nickel Palladium	Total Wire Bond 7440-57-5 Total Plating on external leads (pins) 7440-02-0 7440-05-3	100.00 % of Total Weight 100 % of Total Weight 94.50 5.00	

Semiconductor Device T	vne: QDE 24 (Lead) W(2FN 4x4x0.75 mm (QW)		ination Base opper Alloy				geneous Materials: . pc boards, displays)	JEDEC 97 Product Marking and/or Pkg. Labeling e3
Basic Substance	CAS Number	"Contained In" Sub-Component	% I otal Weight	mg/part	ppm	17.88	(mg) Total	Mold Compound	% ot Total Weight	45.6
Silica, fused	60676-86-0	Mold Compound	41.040	16.088	410.400		Oiling forest	60676-86-0	90.00	
Epoxy Resin (NLP # 500-033-5)	Trade Secret	Mold Compound	2.212	0.867	22.116	En	Silica, fused oxy Resin (NLP # 500-033-5)	Trade Secret	4.85	
Phenolic Resin	Trade Secret	Mold Compound	2.212	0.867	22,116	Lp	Phenolic Resin	Trade Secret	4.85	
Carbon Black	1333-86-4	Mold Compound	0.137	0.054	1,368		Carbon Black	1333-86-4	0.30	
Copper	7440-50-8	Lead Frame	47.559	18.643	475,586			Total	100.00	9
Iron	7439-89-6	Lead Frame	1.170	0.459	11,698	19.51	(mg) Total	Lead Frame	% of Total Weight	49.78
Silver	7440-22-4	Lead Frame	0.948	0.372	9,483		Copper	7440-50-8	95.54	
Zinc	7440-66-6	Lead Frame	0.062	0.024	622		Iron	7439-89-6	2.35	
Phosphorous	7723-14-0	Lead Frame	0.041	0.016	411		Silver	7440-22-4	1.91	
Silver	7440-22-4	Die Attach	0.858	0.336	8,580		Zinc	7440-66-6	0.13	
Acrylate resins Proprietary	Trade Secret	Die Attach	0.198	0.078	1,980		Phosphorous	7723-14-0	0.08	
Treated silica	Trade Secret	Die Attach	0.022	0.009	220			Total	100.00	-
Heterocyclic organic compound	Trade Secret	Die Attach	0.022	0.009	220	0.43	(mg) Total	Die Attach	% of Total Weight	1.1
Gallium arsenide (GaAs)	1303-00-0	Chip (Die)	0.870	0.341	8,700		Silver	7440-22-4	78	
Doped Gold	7440-57-5	Wire Bond	0.380	0.149	3,800		Acrylate resins Proprietary	Trade Secret	18	
Tin	7440-31-5 Plating on	external leads (pins) - Matte Tin / annealed at 150°C for 1 h	our 2.270	0.890	22,700		Treated silica	Trade Secret	2	
		ΤΟΤΑ	LS: 100.000	39.200	1,000,000	He	terocyclic organic compound	Trade Secret	2	
	0.0392 g Tot	al Mass						Total	100.00	-
s semiconductor device and its homogenous materials comp ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). npliance with the above EU Directives has been verified via i				2		0.34	(mg) Total Gallium arsenide (GaAs)	Chip (Die) 1303-00-0	% of Total Weight	0.87
chemical substance is absent from the list above, the chemi prporated's knowledge and belief as of the date of this docur , is not below the threshold of regulatory concern for any reg ding compounds used by Microchip meet the UL94 V0 flamn ://ul.com/global/eng/pages/offerings/industries/chemicals/0	ment, there is no credible reaso gulatory scheme world-wide. mability standard for plastics. Y	n to believe that the unavoidable impurity	concentration of	the chemical	substance, if	0.15	(mg) Total	Total Wire Bond	100.00 % of Total Weight	
protective "tubes" in which the specific product is shipped certain "reels" may be made from PVC plastic.	are made from polyvinyl chlori	de (PVC) plastic. "Window envelopes" use	d to hold the pac	king slip on t	he outer box		Doped Gold	7440-57-5	100.00	
rochip Technology Incorporated believes the information in reir original packing materials is true and correct to the best completeness and accuracy of data in this form because it h	t of its knowledge and belief, as has been compiled based on the	of the date listed in this form. Microchip T e ranges provided in Material Safety Data S may not have been provided by subcontra	echnology Incor heets provided b act assemblers a	porated canno by raw materia nd raw materi	ot guarantee al suppliers. al suppliers.			Total	100.00	-
plier information is often protected from disclosure as trade rmation is provided only as estimates of the average weight ude trace levels of dopants, metals, and non-metal materials			ais components							
mation is provided only as estimates of the average weight	s contained within silicon devic anty, express or implied, with re d its subsidiaries are contained	es (silicon IC) in the finished parts. spect to the information provided in this d	eclaration. The e	xclusive, limit	ted product	0.89	(mg) Total	Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	% of Total Weight	2.27
rmation is provided only as estimates of the average weight ude trace levels of dopants, metals, and non-metal materials rochip Technology Incorporated does not provide any warra ranties provided by Microchip Technology Incorporated and	s contained within silicon devic anty, express or implied, with re I its subsidiaries are contained olces. nges to Material Content Declar. sers' reliance on the informatio	es (silicon IC) in the finished parts. spect to the information provided in this d in Microchip's standard terms and conditio ations and shall not be liable for any damat	eclaration. The e ons of sale. Thes ges, direct or ind	xclusive, limit e are provideo irect, consequ	ted product 1 in uential or	0.89	(mg) Total Tin	leads (pins) - Matte Tin / annealed at 150°C for 1	% of Total Weight	2.27

Semiconductor Device Type: QR 16 (Lead) QSOP (H) Basic Substance CAS Number Silica, vitreous 60676-86-0 Epoxy Resin (No bromine, No diantimony trioxide) Trade Secret Phenolic Resin (No bromine, No diantimony trioxide) Trade Secret Epoxy, Cresol Novolac 29600-82-2 Carbon Black 1333-86-4 Copper 7440-50-8 Iron 7439-89-6 Zinc 7440-66-6 Phosphorous 7723-14-0 Silver 7440-22-4 Epoxy resin Trade Secret Metal oxide Trade Secret Gold 7440-21-3 Gold 7440-57-5 Tin 7440-57-5 Silicon 7440-57-5 Gold 7440-57-5 Ocold 7440-57-5 Oranta-butyrolactone 96-48-0 Silicon 7440-57-5 Tin 7440-57-5 Directive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). Compliance with the above EU Directives has been verified via internal design controls, supplier of a semiconduct) "Contained In" Sub-Component Mold Compound Mold Compound Mold Compound Mold Compound Lead Frame Lead Frame Lead Frame Lead Frame Lead Frame Lead Frame	% lotal Weight 49.300 3.553 3.553 1.421 0.174 0.174 35.893 0.883 0.716	mg/part 41.225 2.971 2.971 1.188 0.145 30.014	ppm 493,000 35,525 35,525	48.50	(mg) Total Silica, vitreous	Mold Compound		e3
Silica, vitreous 60676-86-0 Epoxy Resin (No bromine, No diantimony trioxide) Trade Secret Phenolic Resin (No B / CL SbO3, No diantimony trioxide) Trade Secret Epoxy, Cresol Novolac 29690-82-2 Carbon Black 1333-86-4 Copper 7440-50-8 Iron 7439-89-6 Silver 7440-22-4 Zinc 7440-66-6 Phosphorous 7723-14-0 Silver 7440-22-4 Epoxy resin Trade Secret Metal oxide Trade Secret Garma-butyrolactone 96-48-0 Silicon 7440-27-5 Tin 7440-67-5 Plaing on exter Gold Silicon 7440-67-5 Tin 7440-37-5 Plaing on exter Silicon Old 7440-67-5 Tin 7440-37-5 Plaing on exter 0.0836 g Total N his semiconductor device and its homogenous materials comply with EU Directive 2002/95/EC (F birective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). compliance w	Sub-Component Mold Compound Mold Compound Mold Compound Mold Compound Lead Frame Lead Frame Lead Frame Lead Frame	Weight 49.300 3.553 3.553 1.421 0.174 35.893 0.883 0.716	41.225 2.971 2.971 1.188 0.145	493,000 35,525	48.50		Mold Compound		
Silica, vitreous 60676-86-0 Epoxy Resin (No bromine, No diantimony trioxide) Trade Secret Phenolic Resin (No B / CL SbO3, No diantimony trioxide) Trade Secret Epoxy, Cresol Novolac 29690-82-2 Carbon Black 1333-86-4 Copper 7440-50-8 Iron 7439-89-6 Silver 7440-22-4 Zinc 7440-66-6 Phosphorous 7723-14-0 Silver 7440-22-4 Epoxy resin Trade Secret Metal oxide Trade Secret Garma-butyrolactone 96-48-0 Silicon 7440-27-5 Tin 7440-67-5 Plaing on exter Gold Silicon 7440-67-5 Tin 7440-37-5 Plaing on exter Silicon Old 7440-67-5 Tin 7440-37-5 Plaing on exter 0.0836 g Total N his semiconductor device and its homogenous materials comply with EU Directive 2002/95/EC (F birective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). compliance w	Mold Compound Mold Compound Mold Compound Mold Compound Lead Frame Lead Frame Lead Frame Lead Frame Lead Frame	49.300 3.553 3.553 1.421 0.174 35.893 0.883 0.716	41.225 2.971 2.971 1.188 0.145	493,000 35,525		Cilico viterese		% ot Total Weight	58
Epoxy Resin (No Br/CL SbO3, No diantimony trioxide) Trade Secret Phenolic Resin (No Br/CL SbO3, No diantimony trioxide) Trade Secret Epoxy, Cresol Nevolac 29690-82-2 Carbon Black 1333-86-4 Copper 7440-50-8 Iron 7439-89-6 Silver 7440-66-6 Phosphorous 77723-14-0 Silver 7440-62-4 Epoxy resin Trade Secret Metal oxide Trade Secret Metal oxide Trade Secret Gald 7440-21-3 Gold 7440-21-5 Tin 7440-21-5 Depoxy resin Trade Secret Silicon 7440-21-3 Gold 7440-21-3 G	Mold Compound Mold Compound Mold Compound Lead Frame Lead Frame Lead Frame Lead Frame Lead Frame	3.553 3.553 1.421 0.174 35.893 0.883 0.716	2.971 2.971 1.188 0.145	35,525			60676-86-0	85.00	
Phenolic Resin (No Br / CL SbO3, No diantimony trioxide) Trade Secret Epoxy, Cresol Novolac 29690-682-2 Carbon Black 1333-86-4 Copper 7440-50-8 Iron 7439-89-6 Silver 7440-50-8 Zinc 7440-60-8 Phosphorous 7723-14-0 Silver 7440-66-6 Phosphorous 7723-14-0 Silver 7440-22-4 Epoxy resin Trade Secret Metal oxide Trade Secret Gold 7440-21-3 Gold 7440-57-5 Tin 7440-57-5 Old 7440-57-5 Tin 7440-57-5 Tin 7440-57-5 Tin 7440-57-5 Old 7440-57-5 Tin 7440-57-5 Tin 7440-57-5 Tin 7440-57-5 Tin 7440-57-5 Old 7440-57-5 Tin 7440-57-5 Tin 7440-57-5 Tin	Mold Compound Mold Compound Lead Frame Lead Frame Lead Frame Lead Frame Lead Frame	3.553 1.421 0.174 35.893 0.883 0.716	2.971 1.188 0.145			Epoxy Resin	Trade Secret	6.13	1
Epoxy, Cresol Novolac 29690-82-2 Carbon Black 1333-86-4 Copper 7440-60-8 Iron 7439-89-6 Silver 7440-66-6 Phosphorous 7723-14-0 Silver 7440-22-4 Epoxy resin Trade Secret Metal oxide Trade Secret Gamma-butyrolactone 96-48-0 Silicon 7440-21-3 Gold 7440-21-5 Tin 7440-31-5 Plang on exter 0.0836 g Total N s semiconductor device and its homogenous materials comply with EU Directive 2002/95/EC (R ective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). mpliance with the above EU Directives has been verified via internal design controls, supplier d chemical substance is absent from the list above, the chemical substance is NOT an intentiona orpoparted's knowledge and belief as of the date of this document, there is no credible reason to r, is not below the threshold of regulatory concern for any regulatory scheme world-wide. Iding compounds used by Microchip meet the UL94 V0 flammability standard for plastics. You solution/global/eng/pages/offerings/industries/chemicals/plastics/ e protective "tubes" in which the specific product is shipped are made from po	Mold Compound Mold Compound Lead Frame Lead Frame Lead Frame Lead Frame	1.421 0.174 35.893 0.883 0.716	1.188 0.145			Phenolic Resin	Trade Secret	6.13	1
Carbon Black 1333-86-4 Copper 7440-50-8 Iron 7439-89-6 Silver 7440-66-6 Phosphorous 7723-14-0 Silver 7440-66-6 Phosphorous 7723-14-0 Silver 7440-66-6 Phosphorous 7723-14-0 Silver 7440-21-4 Epoxy resin Trade Secret Metal oxide Trade Secret Gamma-butyrolactone 96-48-0 Silicon 7440-21-3 Gold 7440-21-3 <td>Mold Compound Lead Frame Lead Frame Lead Frame Lead Frame</td> <td>35.893 0.883 0.716</td> <td>0.145</td> <td>14,210</td> <td></td> <td>Epoxy, Cresol Novolac</td> <td>29690-82-2</td> <td>2.45</td> <td>1</td>	Mold Compound Lead Frame Lead Frame Lead Frame Lead Frame	35.893 0.883 0.716	0.145	14,210		Epoxy, Cresol Novolac	29690-82-2	2.45	1
Iron 7439-89-6 Silver 7440-22-4 Zinc 7440-66-6 Phosphorous 7723-14-0 Silver 7440-22-4 Epoxy resin Trade Secret Metal oxide Trade Secret Gamma-butyrolactone 96-48-0 Silicon 7440-21-3 Gold 7440-21-5 Gold 7440-21-5 Gold 7440-21-5 Gold 7440-31-5 Plating on exter 0.0836 g Total N s semiconductor device and its homogenous materials comply with EU Directive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). mpliance with the above EU Directives has been verified via internal design controls, supplier d chemical substance is absent from the list above, the chemical substance is NOT an intentiona orporated's knowledge and belief as of the date of this document, there is no credible reason to t, is not below the threshold of regulatory concern for any regulatory scheme world-wide. Iding compounds used by Microchip meet the UL94 V0 flammability standard for plastics. You output-global/eng/pages/offerings/industries/chemicals/plastics/ e protective "tubes" in which the specific product is shipped are made from polyvinyl chloride (tain "reels" may be made from PVC plastic.	Lead Frame Lead Frame Lead Frame	0.883 0.716	20.014	1,740		Carbon Black	1333-86-4	0.30	1
Silver 7440-22-4 Zinc 7440-66-6 Phosphorous 7723-14-0 Silver 7440-66-6 Phosphorous 7723-14-0 Silver 7440-22-4 Epoxy resin Trade Secret Metal oxide Trade Secret Gamma-butyrolactone 96-48-0 Silicon 7440-21-3 Gold 7440-21-3 Gold 7440-31-5 Tin 7440-31-5 Plating on exter 0.0836 g Cold 7440-31-5 Plating on exter 0.0836 g Cold 7440-31-5 Plating on exter 0.0836 g Cold 7440-57-5 Tin 7440-57-5 Plating on exter 0.0836 g Dock/53/EC (End-of-Life Vehicles (ELV) Directive). mpliance with the above EU Directives has been verified via internal design controls, supplier d chemical substance is absent from the list above, the chemical substance is NOT an intention orporated's knowledge and belief as of the date of this document, there is no credible reason to r, is not below the threshold of r	Lead Frame Lead Frame	0.716	30.014	358,934			Total	100.00	
Zinc 7440-66-6 Phosphorous 7723-14-0 Silver 7740-22-4 Epoxy resin Trade Secret Metal oxide Trade Secret Gamma-butyrolactone 96-48-0 Silicon 7440-27-3 Gold 7440-27-5 Tin 7440-27-5 Tin 7440-37-5 Oold 7440-37-5 Tin 7440-31-5 Plating on exter 0.0836 g Total M s semiconductor device and its homogenous materials comply with EU Directive 2002/55/EC (Rective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). mpliance with the above EU Directives has been verified via internal design controls, supplier d chemical substance is absent from the list above, the chemical substance is NOT an intentiona orporated's knowledge and belief as of the date of this document, there is no credible reason to vi, is not below the threshold of regulatory concern for any regulatory scheme world-wide. Uding compounds used by Microchip meet the UL94 V0 flammability standard for plastics. You out/ul.com/global/eng/pages/offerings/industries/chemicals/plastics/ e protective "tubes" in which the specific product is shipped are made from polyvinyl chloride (tain "reels" may be mad	Lead Frame		0.738	8,829	31.42	(mg) Total	Lead Frame	% of Total Weight	37.57
Phosphorous 7723-14-0 Silver 7740-22-4 Epoxy resin Trade Secret Metal oxide Trade Secret Gamma-butyrolactone 96-48-0 Silicon 7440-21-3 Gold 7440-21-3 Gold 7440-21-3 Gold 7440-21-3 Gold 7440-31-5 Plating on exter 0.0836 g Total N s semiconductor device and its homogenous materials comply with EU Directive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). mpliance with the above EU Directives has been verified via internal design controls, supplier d chemical substance is absent from the list above, the chemical substance is NOT an intentiona orporated's knowledge and belief as of the date of this document, there is no credible reason to r, is not below the threshold of regulatory concern for any regulatory scheme world-wide. Iding compounds used by Microchip meet the UL94 V0 flammability standard for plastics. You 's/ul.com/global/eng/pages/offerings/industries/chemicals/plastics/ e protective "tubes" in which the specific product is shipped are made from polyvinyl chloride (tai "reels" may be made from PVC plastic. errochip Technology Incorporated believes the information in this form concerning substances r ir original packing mate			0.598	7,157		Copper	7440-50-8	95.54	1
Silver 7440-22-4 Epoxy resin Trade Secret Metal oxide Trade Secret Gamma-butyrolactone 96-48-0 Silicon 7440-21-3 Gold 7440-27-5 Tim 7440-21-3 Gold 7440-27-5 Tin 7440-27-5 Tin 7440-27-5 Silicon 7440-31-5 Plating on exter 0.0836 g Total M s semiconductor device and its homogenous materials comply with EU Directive 2002/55/EC (Factive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). mpliance with the above EU Directives has been verified via internal design controls, supplier d chemical substance is absent from the list above, the chemical substance is NOT an intentiona orporated's knowledge and belief as of the date of this document, there is no credible reason to , is not below the threshold of regulatory concern for any regulatory scheme world-wide. diding compounds used by Microchip meet the UL94 V0 flammability standard for plastics. You to op/lul.com/global/eng/pages/offerings/industries/chemicals/plastics/ e protective "tubes" in which the specific product is shipped are made from polyvinyl chloride (tain "reels" may be made from PVC plastic. <	Lead Frame	0.047	0.039	470		Iron	7439-89-6	2.35	1
Epoxy resin Trade Secret Metal oxide Trade Secret Gamma-butyrolactone 96-48-0 Silicon 7440-21-3 Gold 7440-21-3 Gold 7440-31-5 Tin 7440-31-5 Plating on exter 0.0836 g Total N semiconductor device and its homogenous materials comply with EU Directive 2002/95/EC (R settive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). mpliance with the above EU Directives has been verified via internal design controls, supplier d chemical substance is absent from the list above, the chemical substance is NOT an intentiona orporated's knowledge and belief as of the date of this document, there is no credible reason to r, is not below the threshold of regulatory concern for any regulatory scheme world-wide. Iding compounds used by Microchip meet the UL94 V0 flammability standard for plastics. You solution/global/eng/pages/offerings/industries/chemicals/plastics/ e protective "tubes" in which the specific product is shipped are made from polyvinyl chloride (tain "reels" may be made from PVC plastic. crochip Technology Incorporated believes the information in this form concerning substances r ir original packing materials is true and correct to the best of its knowledge and belief, as of the npleteness and accuracy of data in this form because it has been compiled based on the range ormation is often protecte	Loau I Iailie	0.031	0.026	310		Silver	7440-22-4	1.91	1
Metal oxide Trade Secret Gamma-butyrolactone 96-48-0 Silicon 7440-21-3 Gold 7440-21-3 Gold 7440-57-5 Tin 7440-31-5 Plating on exter 0.0836 g semiconductor device and its homogenous materials comply with EU Directive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). mpliance with the above EU Directives has been verified via internal design controls, supplier d chemical substance is absent from the list above, the chemical substance is NOT an intentions orporated's knowledge and belief as of the date of this document, there is no credible reason to r, is not below the threshold of regulatory concern for any regulatory scheme world-wide. iding compounds used by Microchip meet the UL94 V0 flammability standard for plastics. You us/ul.com/global/eng/pages/offerings/industries/chemicals/plastics/ protective "tubes" in which the specific product is shipped are made from polyvinyl chloride (tain "reels" may be made from PVC plastic. rochip Technology Incorporated believes the information in this form concerning substances r rignal packing materials is true and correct to the best of its knowledge and belief, as of the	Die Attach	0.222	0.186	2,220		Zinc	7440-66-6	0.13	1
Gamma-butyrolactone 96-48-0 Silicon 7440-21-3 Gold 7440-57-5 Tin 7440-57-5 Output 7440-57-5 Tin 7440-57-5 Output 0.0836 g Total M is semiconductor device and its homogenous materials comply with EU Directive 2002/53/EC (Ed-of-Life Vehicles (ELV) Directive). 0.0836 g total M mpliance with the above EU Directives has been verified via internal design controls, supplier d chemical substance is absent from the list above, the chemical substance is NOT an intentional orporated's knowledge and belief as of the date of this document, there is no credible reason to t, is not below the threshold of regulatory concern for any regulatory scheme world-wide. Iding compounds used by Microchip meet the UL94 V0 flammability standard for plastics. You or plul.com/global/eng/pages/offerings/industries/chemicals/plastics/ a protective "tubes" in which the specific product is shipped are made from polyvinyl chloride (tain "reels" may be made from PVC plastic. crochip Technology Incorporated believes the information in this form concerning substances r if original packing materials is true and correct to the best of its knowledge and belief, as of the protected from disclosure as trade secrets and some information may not has	Die Attach	0.060	0.050	600		Phosphorous	7723-14-0	0.08	1
Silicon 7440-21-3 Gold Gold 7440-57-5 Tin Plating on exter 0.0836 g Total N 0.0836 g Total N s semiconductor device and its homogenous materials comply with EU Directive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). 0.0836 g Total N mpliance with the above EU Directives has been verified via internal design controls, supplier d chemical substance is absent from the list above, the chemical substance is NOT an intentiona orporated's knowledge and belief as of the date of this document, there is no credible reason to t, is not below the threshold of regulatory concern for any regulatory scheme world-wide. Iding compounds used by Microchip meet the UL94 V0 flammability standard for plastics. You collulow/global/eng/pages/offerings/industries/chemicals/plastics/ e protective "tubes" in which the specific product is shipped are made from polyvinyl chloride (tain "reels" may be made from PVC plastic. crochip Technology Incorporated believes the information in this form concerning substances r ir original packing materials is true and correct to the best of its knowledge and belief, as of the mpleteness and accuracy of data in this form because it has been compiled based on the range ormation is often protected from disclosure as trade secrets and some information may not has	Die Attach	0.009	0.008	90			Total	100.00	
Gold 7440-57-5 Plating on exter 0.0836 g Total N s semiconductor device and its homogenous materials comply with EU Directive 2002/55/EC (Rective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). mpliance with the above EU Directives has been verified via internal design controls, supplier d chemical substance is absent from the list above, the chemical substance is NOT an intentiona or readible reason to orporated's knowledge and belief as of the date of this document, there is no credible reason to is not below the threshold of regulatory concern for any regulatory scheme world-wide. Iding compounds used by Microchip meet the UL94 V0 flammability standard for plastics. You op://ul.com/global/eng/pages/offerings/industries/chemicals/plastics/ e protective "tubes" in which the specific product is shipped are made from polyvinyl chloride (tain "reels" may be made from PVC plastic. crochip Technology Incorporated believes the information in this form concerning substances r crochip Technology Incorporated believes the information in this dome information specific, as of the protected from disclosure as trade secrets and some information may not has	Die Attach	0.009	0.008	90	0.25	(mg) Total	Die Attach	% of Total Weight	0.3
Tin 7440-31-5 Plating on exter 0.0836 g Total N s semiconductor device and its homogenous materials comply with EU Directive 2002/53/EC (Edd-of-Life Vehicles (ELV) Directive). Internal design controls, supplier d mpliance with the above EU Directives has been verified via internal design controls, supplier d chemical substance is absent from the list above, the chemical substance is NOT an intentional orporated's knowledge and belief as of the date of this document, there is no credible reason to r, is not below the threshold of regulatory concern for any regulatory scheme world-wide. Iding compounds used by Microchip meet the UL94 V0 flammability standard for plastics. You re/Jul.com/global/eng/pages/offerings/industries/chemicals/plastics/ e protective "tubes" in which the specific product is shipped are made from polyvinyl chloride (tain "reels" may be made from PVC plastic. errochip Technology Incorporated believes the information in this form concerning substances r ir original packing materials is true and correct to the best of its knowledge and belief, as of the mpleteness and accuracy of data in this form because it has been compiled based on the range ormation is often protected from disclosure as trade screts and some information may not has	Chip (Die)	1.760	1.472	17,600		Silver	7440-22-4	74	
0.0836 g Total N is semiconductor device and its homogenous materials comply with EU Directive 2002/95/EC (F ective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). mpliance with the above EU Directives has been verified via internal design controls, supplier d is chemical substance is absent from the list above, the chemical substance is NOT an intentional orporated's knowledge and belief as of the date of this document, there is no credible reason to y, is not below the threshold of regulatory concern for any regulatory scheme world-wide. Iding compounds used by Microchip meet the UL94 V0 flammability standard for plastics. You re <i>J/ULcom/global/eng/pages/offerings/industries/chemicals/plastics/</i> e protective "tubes" in which the specific product is shipped are made from polyvinyl chloride (tain "reels" may be made from PVC plastic. crochip Technology Incorporated believes the information in this form concerning substances r ir original packing materials is true and correct to the best of its knowledge and belief, as of the mpleteness and accuracy of data in this form because it has been compiled based on the range ormation is often protected from disclosure as trade secrets and some information may not has	Wire Bond	0.600	0.502	6,000		Epoxy resin	Trade Secret	20	1
is semiconductor device and its homogenous materials comply with EU Directive 2002/95/EC (R ective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). mpliance with the above EU Directives has been verified via internal design controls, supplier d chemical substance is absent from the list above, the chemical substance is NOT an intentional orporated's knowledge and belief as of the date of this document, there is no credible reason to <i>t</i> , is not below the threshold of regulatory concern for any regulatory scheme world-wide. Iding compounds used by Microchip meet the UL94 V0 flammability standard for plastics. You op://ul.com/global/eng/pages/offerings/industries/chemicals/plastics/ a protective "tubes" in which the specific product is shipped are made from polyvinyl chloride (tain "reels" may be made from PVC plastic.	nal leads (pins) - Matte Tin / annealed at 150°C for 1 hour	1.770	1.480	17,700		Metal oxide	Trade Secret	3	1
s semiconductor device and its homogenous materials comply with EU Directive 2002/53/EC (F active 2002/53/EC (End-of-Life Vehicles (ELV) Directive). mpliance with the above EU Directives has been verified via internal design controls, supplier d chemical substance is absent from the list above, the chemical substance is NOT an intentional orporated's knowledge and belief as of the date of this document, there is no credible reason to r, is not below the threshold of regulatory concern for any regulatory scheme world-wide. Iding compounds used by Microchip meet the UL94 V0 flammability standard for plastics. You fo cull.com/global/eng/pages/offerings/industries/chemicals/plastics/ e protective "tubes" in which the specific product is shipped are made from polyvinyl chloride (tain "reels" may be made from PVC plastic. crochip Technology Incorporated believes the information in this form concerning substances ra ir original packing materials is true and correct to the best of its knowledge and belief, as of the npleteness and accuracy of data in this form because it has been compiled based on the range ormation is often protected from disclosure as trade secrets and some information may not has	TOTALS:	100.000	83.620	1,000,000		Gamma-butyrolactone	96-48-0	3	1
active 2002/53/EC (End-of-Life Vehicles (ELV) Directive). mpliance with the above EU Directives has been verified via internal design controls, supplier d chemical substance is absent from the list above, the chemical substance is NOT an intentional orporated's knowledge and belief as of the date of this document, there is no credible reason to i, is not below the threshold of regulatory concern for any regulatory scheme world-wide. Iding compounds used by Microchip meet the UL94 V0 flammability standard for plastics. You <i>cylul.com/global/eng/pages/offerings/industries/chemicals/plastics/</i> protective "tubes" in which the specific product is shipped are made from polyvinyl chloride (tain "reels" may be made from PVC plastic. prochip Technology Incorporated believes the information in this form concerning substances r ir original packing materials is true and correct to the best of its knowledge and belief, as of the npleteness and accuracy of data in this form because it has been compiled based on the range ormation is often protected from disclosure as trade secrets and some information may not has	ass						Total	100.00	
chemical substance is absent from the list above, the chemical substance is NOT an intentiona orporated's knowledge and belief as of the date of this document, there is no credible reason to <i>y</i> , is not below the threshold of regulatory concern for any regulatory scheme world-wide. Iding compounds used by Microchip meet the UL94 V0 flammability standard for plastics. You <i>p</i> ://ul.com/global/eng/pages/offerings/industries/chemicals/plastics/ a protective "tubes" in which the specific product is shipped are made from polyvinyl chloride (tain "reels" may be made from PVC plastic. crochip Technology Incorporated believes the information in this form concerning substances r ir original packing materials is true and correct to the best of its knowledge and belief, as of the mpleteness and accuracy of data in this form because it has been compiled based on the range ormation is often protected from disclosure as trade secrets and some information may not hav	HS Directive), EU Directive 2011/65/EU (Rol	HS Recast Direc	tive) and with	EU	1.47	Total (mg)	Chip (Die)	% of Total Weight	1.76
corporated's knowledge and belief as of the date of this document, there is no credible reason to y, is not below the threshold of regulatory concern for any regulatory scheme world-wide. olding compounds used by Microchip meet the UL94 V0 flammability standard for plastics. You in p//ul.com/global/eng/pages/offerings/industries/chemicals/plastics/ e protective "tubes" in which the specific product is shipped are made from polyvinyl chloride (tain "reels" may be made from PVC plastic. crochip Technology Incorporated believes the information in this form concerning substances r pir original packing materials is true and correct to the best of its knowledge and belief, as of the mpleteness and accuracy of data in this form because it has been compiled based on the range ormation is often protected from disclosure as trade secrets and some information may not hav	clarations, and /or analytical test data.					Doped Silicon	7440-21-3	100	1
e protective "tubes" in which the specific product is shipped are made from polyvinyl chloride (tain "reels" may be made from PVC plastic. crochip Technology Incorporated believes the information in this form concerning substances r ir original packing materials is true and correct to the best of its knowledge and belief, as of the mpleteness and accuracy of data in this form because it has been compiled based on the range ormation is often protected from disclosure as trade secrets and some information may not hav	believe that the unavoidable impurity conce	entration of the	chemical subs		0.50	(Win David	0/ -6 T-4-1 W-3-1-4	
tain "reels" may be made from PVC plastic. rochip Technology Incorporated believes the information in this form concerning substances r roriginal packing materials is true and correct to the best of its knowledge and belief, as of the apleteness and accuracy of data in this form because it has been compiled based on the range ormation is often protected from disclosure as trade secrets and some information may not hav			•		0.50	(mg) Total	Wire Bond	% of Total Weight	0.6
r original packing materials is true and correct to the best of its knowledge and belief, as of the pleteness and accuracy of data in this form because it has been compiled based on the range rmation is often protected from disclosure as trade secrets and some information may not hav	VC) plastic. "Window envelopes" used to h	old the packing	slip on the ou	iter box and		Doped Gold	7440-57-5	100	l
dopants, metals, and non-metal materials contained within silicon devices (silicon IC) in the fini	date listed in this form. Microchip Technolo provided in Material Safety Data Sheets pro	gy Incorporated vided by raw m and raw materi	l cannot guara aterial supplie al suppliers. Ir	antee the ers. Supplier nformation is			Total	100.00	
crochip Technology Incorporated does not provide any warranty, express or implied, with respe rranties provided by Microchip Technology Incorporated and its subsidiaries are contained in N otations, sales order acknowledgement, and invoices.					1.48	(mg) Total	Plating on external eads (pins) - Matte Tin / annealed at 150°C for 1 our	% of Total Weight	1.77
crochip disclaims any duty to notify users of updates or changes to Material Content Declaratio rerwise, suffered by users or third parties as a result of the users' reliance on the information in this Certificate of Compliance for semiconductor products.	shed parts.					Tin	7440-31-5	100.00	
	shed parts. It to the information provided in this declara icrochip's standard terms and conditions of Is and shall not be liable for any damages, d		arty test repor				Total	100.00	1

		2000		nation Base opper Alloy ((•	geneous Materials: g. pc boards, display:	s)	JEDEC 97 Product Marki and/or Pkg. Labeling e3
Semiconductor Device	e Type: OA, SN, TC, SAE U	8 (Lead) (SOIC) (Small Outline -150mil) (C2/CC)								es
De la Ocharana		"Contained In" Sub-Component	% I otal Weight			62.24	(mg) Total	Mold Compound	% ot Total Weigh	t 79.8
Basic Substance	CAS Number	•	•	mg/part	ppm					7
Silica, vitreous Epoxy Resin	60676-86-0	Mold Compound	69.354	54.096 4.774	693,542 61,207		Silica, vitreous	60676-86-0	86.91	
Phenolic Resin	Trade Secret Trade Secret	Mold Compound Mold Compound	6.121 4.078	3.181	40,778		Epoxy Resin Phenolic Resin	Trade Secret Trade Secret	7.67 5.11	-
Carbon Black	1333-86-4	Mold Compound	0.247	0.193	2.474		Carbon Black	1333-86-4	0.31	-
Copper	7440-50-8	Lead Frame	10.031	7.825	100.314		Carbon Black	Total		1
Iron	7439-89-6	Lead Frame	0.247	0.192	2.468	8.19	(mg) Total	Lead Frame	% of Total Weight	
Silver	7439-89-6	Lead Frame	0.200	0.192	2,408	8.19	(mg) Total Copper	7440-50-8	95.54	10.5
Zinc	7440-22-4 7440-66-6	Lead Frame	0.200	0.156	2,000		Iron	7439-89-6	2.35	-
Phosphorous	7723-14-0	Lead Frame	0.009	0.007	87		Silver	7439-89-6	2.35	-
Silver (Ag)	7440-22-4	Die Attach	0.563	0.439	5.625		Zinc	7440-22-4	0.13	
Modified Epoxy Resin	13561-08-5	Die Attach	0.105	0.082	1,050		Phosphorous	7723-14-0	0.08	-
Diglycidylether of bisphenol-F	54208-63-8	Die Attach	0.056	0.044	563		Thesphorous	Total		
Modified Amine	827-43-0	Die Attach	0.026	0.020	263	0.59	(mg) Total	Die Attach	% of Total Weight	
Silicon	7440-21-3	Chip (Die)	7.500	5.850	75.000	0.59	Silver (Ag)	7440-22-4	75	0.75
Doped Gold	7440-21-3	Wire Bond	0.200	0.156	2,000		Modified Epoxy Resin	13561-08-5	14	
Tin		external leads (pins) - Matte Tin / annealed at 150°C for 1 h		0.975	12,500		Diglycidylether of bisphenol-F	54208-63-8	8	
1111	7440-51-5 Flating of	TOTA		78.000	1,000,000		Modified Amine	827-43-0	4	-
	0.0780 g Total		100.000	70.000	1,000,000		Woollied Amilie	Total		-
chemical substance is absent from the list above, the ch		al ingredient in the semiconductor device and to	he heat of Miere.	ala bar Tarahan ala	CIV.					
prporated's knowledge and belief as of the date of this do								Total	100.00)
prorated's knowledge and belief as of the date of this do below the threshold of regulatory concern for any regula ding compounds used by Microchip meet the UL94 V0 fl	latory scheme world-wide. lammability standard for plastics. You	to believe that the unavoidable impurity concentra	ion of the chemi	cal substance		0.16	(mg) Total	Wire Bond	100.00 % of Total Weigh	t 0.2
orporated's knowledge and belief as of the date of this do below the threshold of regulatory concern for any regula Iding compounds used by Microchip meet the UL94 VO fli s://ul.com/global/eng/pages/offerings/industries/chemical protective "tubes" in which the specific product is shipp	latory scheme world-wide. ilammability standard for plastics. You als/plastics/	to believe that the unavoidable impurity concentra can access the UL iQTM family of databases to of	tion of the chemic stain a test report	cal substance at	, if any, is	0.16	(mg) Total	-		t 0.2
oroproated's knowledge and belief as of the date of this do to enporated's knowledge and belief as of the date of this do below the threshold of regulatory concern for any regula lding compounds used by Microchip meet the UL94 V0 [f p://ul.com/global/eng/pages/offerings/industries/chemical a protective "tubes" in which the specific product is ship tain "reels" may be made from PVC plastic. crochip Technology Incorporated believes the information ginal packing materials is true and correct to the best of i d accuracy of data in this form because it has been comp tected from disclosure as trade secrets and some inform imates of the average weight of these parts and the avera-	latory scheme world-wide. 'lammability standard for plastics. You als/plastics/ oped are made from polyvinyl chloride on in this form concerning substances its knowledge and belief, as of the dat biled based on the ranges provided in nation may not have been provided is nation geg weight of anticipated significant t	to believe that the unavoidable impurity concentra can access the UL iQTM family of databases to of (PVC) plastic. "Window envelopes" used to hold to restricted by RoHS in Microchip Technology Incorp Material Safety Data Sheets provided by raw mater subcontract assemblers and raw material supplie	tion of the chemi tain a test report he packing slip o porated's semico prated cannot gu ial suppliers. Sup rs. Information is	at n the outer bo onductor devic arantee the co oplier informa provided onl	, if any, is ox and ces in their ompleteness tion is often y as	0.16		Wire Bond	% of Total Weigh	
orporated's knowledge and belief as of the date of this do below the threshold of regulatory concern for any regula lding compounds used by Microchip meet the UL94 V0 fit p://ul.com/global/eng/pages/offerings/industries/chemical a protective "tubes" in which the specific product is ship tain "reels" may be made from PVC plastic. crochip Technology Incorporated believes the information ginal packing materials is true and correct to the best of i a accuracy of data in this form because it has been comp tected from disclosure as trade secrets and some inform imates of the average weight of these parts and the average	latory scheme world-wide. 'lammability standard for plastics. You als/plastics/ oped are made from polyvinyl chloride on in this form concerning substances its knowledge and belief, as of the dat olied based on the ranges provided in nation may not have been provided by rage weight of anticipated significant t on IC) in the finished parts. varranty, express or implied, with resp	to believe that the unavoidable impurity concentra can access the UL iQTM family of databases to of (PVC) plastic. "Window envelopes" used to hold f restricted by RoHS in Microchip Technology Incor e listed in this form. Microchip Technology Incorp Material Safety Data Sheets provided by raw mater subcontract assemblers and raw material supplie oxic metals components. These estimates do not i ect to the information provided in this declaration.	tion of the chemi tain a test report he packing slip o porated's semico orated cannot gu ial suppliers. Sup rs. Information is nclude trace leve The exclusive, li	at at n the outer bo onductor devii arantee the co oplier informa provided onl Is of dopants, mited produc:	, if any, is ex and ces in their mpleteness tion is often y as metals, and c warranties	0.16		Wire Bond 7440-57-5	% of Total Weigh]
orporated's knowledge and belief as of the date of this de below the threshold of regulatory concern for any regula lding compounds used by Microchip meet the UL94 V0 ft, p://ul.com/global/eng/pages/offerings/industries/chemical e protective "tubes" in which the specific product is ship tain "reels" may be made from PVC plastic. crochip Technology Incorporated believes the information ginal packing materials is true and correct to the best of i a accuracy of data in this form because it has been comp tected from disclosure as trade secrets and some inform imates of the average weight of these parts and the avera -metal materials contained within silicon devices (silicon crochip Technology Incorporated does not provide any w vvided by Microchip Technology Incorporated and its sub	latory scheme world-wide. 'lammability standard for plastics. You als/plastics/ oped are made from polyvinyl chloride on in this form concerning substances its knowledge and belief, as of the dat bield based on the ranges provided in nation may not have been provided by age weight of anticipated significant t on IC) in the finished parts. varranty, express or implied, with resp bsidiaries are contained in Microchip's changes to Material Content Declarati	to believe that the unavoidable impurity concentra can access the UL iQTM family of databases to of (PVC) plastic. "Window envelopes" used to hold to restricted by RoHS in Microchip Technology Incore Material Safety Data Sheets provided by raw mater subcontract assemblers and raw material supplie oxic metals components. These estimates do not i ect to the information provided in this declaration. s standard terms and conditions of sale. These are pons and shall not be liable for any damages, direct	ion of the chemi tain a test report he packing slip o porated's semicc orated cannot gu ial suppliers. Su ros. Information is nclude trace leve The exclusive, li provided in Micro or indirect, cons	at n the outer bo onductor devic arantee the co oplier informa provided onl is of dopants, mited produc opchip's quota equential or o	, if any, is ox and ces in their mpleteness tion is often y as metals, and warranties tions, sales therwise,		Doped Gold	Wire Bond 7440-57-5 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1	% of Total Weigh 100 100.00]
rporated's knowledge and belief as of the date of this de below the threshold of regulatory concern for any regula ding compounds used by Microchip meet the UL94 V0 fit .//ul.com/global/eng/pages/offerings/industries/chemical protective "tubes" in which the specific product is shipp ain "reels" may be made from PVC plastic. 'oochip Technology Incorporated believes the information inal packing materials is true and correct to the best of i accuracy of data in this form because it has been comp ected from disclosure as trade secrets and some inform mates of the average weight of these parts and the avera- metal materials contained within silicon devices (silicor ochip Technology Incorporated does not provide any w vided by Microchip Technology Incorporated and its sub er acknowledgement, and invoices. 'oochip disclaims any duty to notify users of updates or c ered by users or third parties as a result of the users' rel	latory scheme world-wide. 'lammability standard for plastics. You als/plastics/ oped are made from polyvinyl chloride on in this form concerning substances its knowledge and belief, as of the dat bield based on the ranges provided in nation may not have been provided by age weight of anticipated significant t on IC) in the finished parts. varranty, express or implied, with resp bsidiaries are contained in Microchip's changes to Material Content Declarati	to believe that the unavoidable impurity concentra can access the UL iQTM family of databases to of (PVC) plastic. "Window envelopes" used to hold to restricted by RoHS in Microchip Technology Incore Material Safety Data Sheets provided by raw mater subcontract assemblers and raw material supplie oxic metals components. These estimates do not i ect to the information provided in this declaration. s standard terms and conditions of sale. These are pons and shall not be liable for any damages, direct	ion of the chemi tain a test report he packing slip o porated's semicc orated cannot gu ial suppliers. Su ros. Information is nclude trace leve The exclusive, li provided in Micro or indirect, cons	at n the outer bo onductor devic arantee the co oplier informa provided onl is of dopants, mited produc opchip's quota equential or o	, if any, is ox and ces in their mpleteness tion is often y as metals, and warranties tions, sales therwise,		Doped Gold (mg) Total	Wire Bond 7440-57-5 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	% of Total Weight 100 100.00 % of Total Weight 100.00	1.25

Semiconductor Device Typ	ре: SAF 08(цеза)) SOIC 3.90mm(.150in) (3B)		ination Base opper Alloy (Package Homoge 8.1 Electronics (e.g.		ys)	JEDEC 97 Produc Marking and/or Pkg. Labeling e4
		"Contained In"	% Total			45.00	(m m) T = (= 1	Mold Compound	% ot Total	60
Basic Substance	CAS Number	Sub-Component	Weight	mg/part	ppm	45.00	(mg) Total		Weight	60
Silica, vitreous	60676-86-0	Mold Compound	51.000	38.250	510,000		Silica, vitreous		85.0000	
Epoxy Resin (No bromine, No diantimony trioxide) Phenolic Resin (No Br / CL SbO3, No diantimony trioxide)	Trade Secret Trade Secret	Mold Compound Mold Compound	3.675 3.675	2.756 2.756	36,750 36,750		Epoxy Resin Phenolic Resin	Trade Secret Trade Secret	6.1250 6.1250	
Epoxy. Cresol Novolac	29690-82-2	Mold Compound	1.470	1.103	14,700		Epoxy, Cresol Novolac		2.4500	
Carbon Black	1333-86-4	Mold Compound	0.180	0.135	1,800		Carbon Black		0.3000	
Copper	7440-50-8	Lead Frame	30.572	22.929	305,720			Total	100.00	
Iron	7439-89-6	Lead Frame	0.752	0.564	7,520	24.00	(mg) Total	Lead Frame	% of Total Weight	32
Silver	7440-22-4	Lead Frame	0.610	0.457	6.096		Copper	7440-50-8	95.54	
Zinc	7440-66-6	Lead Frame	0.040	0.030	400		Iron	7439-89-6	2.35	
Phosphorous	7723-14-0	Lead Frame	0.026	0.020	264		Silver	7440-22-4	1.91	
Silver	7440-22-4	Die Attach	0.059	0.044	592		Zinc	7440-66-6	0.13	
Epoxy resin	Trade Secret	Die Attach	0.016	0.012	160		Phosphorous	7723-14-0	0.08	
Metal oxide	Trade Secret	Die Attach	0.002	0.002	24			Total	100.00	
Gamma-butyrolactone	96-48-0	Die Attach	0.002	0.002	24	0.06	(mg) Total	Die Attach	% of Total Weight	0.08
Silicon	7440-21-3	Chip (Die)	4.820	3.615	48,200		Silver	7440-22-4	74	
Doped Gold	7440-57-5	Wire Bond	0.100	0.075	1,000		Epoxy resin	Trade Secret	20	
Nickel	7440-02-0	Plating on external leads (pins)	2.835	2.126	28,350		Metal oxide	Trade Secret	3	
Palladium	7440-05-03	Plating on external leads (pins)	0.150	0.113	1,500		Gamma-butyrolactone	96-48-0 Total	3 100.00	
Gold	7440-57-5	Plating on external leads (pins)	0.015	0.011	150			Total	% of Total	
		TOTALS:				0.00				
			100.000	75.000	1,000,000	3.62	(mg) Total	Chip (Die)	Weight	4.82
semiconductor device and its homogenous materials comp with EU Directive 2002/53/EC (End-of-Life Vehicles (ELV) Dir	ly with EU Directive 2	g Total Mass	100.000			3.62	(mg) Total Doped Silicon	Chip (Die) 7440-21-3 Total		4.82
with EU Directive 2002/53/EC (End-of-Life Vehicles (ELV) Dir pliance with the above EU Directives has been verified via i	ly with EU Directive 2 ective). nternal design control	J Total Mass 002/95/EC (RoHS Directive), EU Directi Is, supplier declarations, and /or analy	ive 2011/65/E	U (RoHS Reca a.	ast Directive)	0.08		7440-21-3	Weight 100	0.1
with EU Directive 2002/53/EC (End-of-Life Vehicles (ELV) Dir	ly with EU Directive 2 ective). nternal design control cal substance is NOT : f the date of this docu	g Total Mass 002/95/EC (RoHS Directive), EU Directi Is, supplier declarations, and /or analy an intentional ingredient in the semico iment, there is no credible reason to b	tical test data nductor devi	U (RoHS Reca a. ce and, to the e unavoidable	ast Directive)		Doped Silicon	7440-21-3 Total Wire Bond 7440-57-5	Weight 100 100.00 % of Total	
with EU Directive 2002/53/EC (End-of-Life Vehicles (ELV) Dir pliance with the above EU Directives has been verified via i chemical substance is absent from the list above, the chemic ochip Technology Incorporated's knowledge and belief as o	ly with EU Directive 2 ective). nternal design control al substance is NOT : f the date of this docu threshold of regulato ability standard for p	J Total Mass 0002/95/EC (RoHS Directive), EU Directi is, supplier declarations, and /or analy an intentional ingredient in the semico iment, there is no credible reason to b bry concern for any regulatory scheme	tical test data nductor devi elieve that th	U (RoHS Reca a. ce and, to the e unavoidable	ast Directive) e best of e impurity		Doped Silicon (mg) Total	7440-21-3 Total Wire Bond	Weight 100 100.00 % of Total Weight	
with EU Directive 2002/53/EC (End-of-Life Vehicles (ELV) Dir pliance with the above EU Directives has been verified via in chemical substance is absent from the list above, the chemic ochip Technology Incorporated's knowledge and belief as o centration of the chemical substance, if any, is not below the ting compounds used by Microchip meet the UL94 V0 flamm	ly with EU Directive 2 ective). aternal design control al substance is NOT : f the date of this docu threshold of regulato ability standard for p micals/plastics/ are made from polyvin	J Total Mass 0002/95/EC (RoHS Directive), EU Directi is, supplier declarations, and /or analy an intentional ingredient in the semico imment, there is no credible reason to b bry concern for any regulatory scheme lastics. You can access the UL iQTM fa	tical test data inductor devi elieve that th world-wide.	U (RoHS Reca a. ce and, to the e unavoidable bases to obtai	ast Directive) e best of e impurity in a test		Doped Silicon (mg) Total	7440-21-3 Total Wire Bond 7440-57-5	Weight 100 100.00 % of Total Weight 100.00	
with EU Directive 2002/53/EC (End-of-Life Vehicles (ELV) Dir pliance with the above EU Directives has been verified via in chip Technology Incorporated's knowledge and belief as o centration of the chemical substance, if any, is not below the ling compounds used by Microchip meet the UL94 V0 flamm rt at http://ul.com/global/eng/pages/offerings/industries/che protective "tubes" in which the specific product is shipped	ly with EU Directive 2 ective). Internal design control al substance is NOT if the date of this doct. Intreshold of regulated ability standard for pl micals/plastics/ are made from polyving stic. his form concerning if and correct to the be d accuracy of data in Supplier information i erial suppliers. Inform nents. These estimate	g Total Mass 002/95/EC (RoHS Directive), EU Directi ls, supplier declarations, and /or analy an intentional ingredient in the semico ment, there is no credible reason to b ory concern for any regulatory scheme lastics. You can access the UL iQTM fa nyl chloride (PVC) plastic. "Window er substances restricted by RoHS in Micr ist of its knowledge and belief, as of th this form because it has been compile soften protected from disclosure as t hation is provided only as estimates of	ive 2011/65/E tical test data inductor devi elieve that th world-wide. amily of datal ivelopes" use ochip Technice date listed ad based on t rade secrets i the average	U (RoHS Reca a. ce and, to the e unavoidable bases to obtai ad to hold the blogy Incorpo in this form. I the ranges pro and some interprotection	ast Directive) best of bimpurity in a test packing slip rated's Microchip ovided in ormation may se parts and	0.08	(mg) Total Doped Gold	7440-21-3 Total Wire Bond 7440-57-5 Total Plating on external	Weight 100 100.00 % of Total 100.00 100.00 % of Total	0.1
with EU Directive 2002/53/EC (End-of-Life Vehicles (ELV) Dir pliance with the above EU Directives has been verified via in chemical substance is absent from the list above, the chemical ochip Technology Incorporated's knowledge and belief as o centration of the chemical substance, if any, is not below the ling compounds used by Microchip meet the UL94 V0 flamm rt at http://ul.com/global/eng/pages/offerings/industries/che protective "tubes" in which the specific product is shipped he outer box and certain "reels" may be made from PVC plan ochip Technology Incorporated believes the information in to icconductor devices in their original packing materials is true nology Incorporated cannot guarantee the completeness an rial Safety Data Sheets provided by raw material suppliers. have been provided by subcontract assemblers and raw mat	ly with EU Directive 2 ective). Internal design control al substance is NOT if the date of this doct. threshold of regulate ability standard for pi micals/plastics/ are made from polyvin stic. his form concerning e and correct to the be id accuracy of data in Supplier information i erial suppliers. Inform nents. These estimate hty, express or implie corporated and its su	g Total Mass 002/95/EC (RoHS Directive), EU Directi is, supplier declarations, and /or analy an intentional ingredient in the semico iment, there is no credible reason to b ory concern for any regulatory scheme lastics. You can access the UL iQTM fa nyl chloride (PVC) plastic. "Window er substances restricted by RoHS in Micr st of its knowledge and belief, as of th this form because it has been compile s often protected from disclosure as t tation is provided only as estimates of as do not include trace levels of dopar d, with respect to the information prov bisdiaries are contained in Microchip'	ive 2011/65/E tical test data anductor devi elieve that th world-wide. amily of datal avelopes" use ochip Techni te date listed ad based on t rade secrets the average ths, metals, an ided in this c	U (RoHS Reca a. ce and, to the e unavoidable bases to obtai ed to hold the blogy Incorpo in this form. I the ranges pro- and some info- weight of the nd non-metal leclaration. Th	ast Directive) ast Directive) best of impurity in a test packing slip vided in bornation may se parts and materials he exclusive,	0.08	Coped Silicon (mg) Total (mg) Total (mg) Total	7440-21-3 Total Wire Bond 7440-57-5 Total Plating on external leads (pins)	Weight 100 100.00 % of Total 100.00 100.00 % of Total Weight	0.1
with EU Directive 2002/53/EC (End-or-Life Vehicles (ELV) Dir pliance with the above EU Directives has been verified via in hemical substance is absent from the list above, the chemic ochip Technology Incorporated's knowledge and belief as o entration of the chemical substance, if any, is not below the ing compounds used by Microchip meet the UL94 V0 flamm t at http://ul.com/global/eng/pages/offerings/industries/che protective "tubes" in which the specific product is shipped e outer box and certain "reels" may be made from PVC plan ochip Technology Incorporated believes the information in to conductor devices in their original packing materials is true nology Incorporated cannot guarantee the completeness an rial Safety Data Sheets provided by raw material suppliers. ave been provided by subcontract assemblers and raw mat verage weight of anticipated significant toxic metals compor ained within silicon devices (silicon IC) in the finished parts pachip Technology Incorporated does not provide any warranted product warranties provided by Microchip Technology Incorporated provided by Subcontract aster and the finished parts	ly with EU Directive 2 ective). Internal design control al substance is NOT : f the date of this docu- threshold of regulator ability standard for pi micals/plastics/ are made from polyvin stic. his form concerning : and correct to the be d accuracy of data in Supplier information i rial suppliers. Inform nents. These estimate hty, express or implier corporated and its su acknowledgement, an ges to Material Conter a result of the users'	g Total Mass 002/95/EC (RoHS Directive), EU Directi ls, supplier declarations, and /or analy an intentional ingredient in the semico iment, there is no credible reason to b ory concern for any regulatory scheme lastics. You can access the UL iQTM fa nyl chloride (PVC) plastic. "Window er substances restricted by RoHS in Micr st of its knowledge and belief, as of th this form because it has been compile s often protected from disclosure as ti ation is provided only as estimates of as do not include trace levels of dopar d, with respect to the information prov bsidiaries are contained in Microchip' d invoices.	ive 2011/65/E tical test data enductor devi elieve that th world-wide. amily of datal velopes" use ochip Techne e date listed ad based on t rade secrets i the average tts, metals, ar ided in this o s standard te for any dama	U (RoHS Reca a. ce and, to the e unavoidable bases to obtai ed to hold the ology Incorpo in this form. I the ranges pre and some inft weight of the nd non-metal leclaration. TI rms and conce uges, direct or	ast Directive) e best of e impurity in a test packing slip rated's Microchip ovided in ormation may se parts and materials he exclusive, litions of indirect,	0.08	(mg) Total (mg) Total (mg) Total Nickel	7440-21-3 Total Wire Bond 7440-57-5 Total Plating on external leads (pins) 7440-02-0	Weight 100 100.00 % of Total Weight 100.00 % of Total Weight 94.50	0.1

Basic Substance CAS Number Sul Silica, vitreous 60676-86-0 Mr Epoxy Resin Trade Secret Mr Phenolic Resin Trade Secret Mr Carbon Black 1333-86-4 Mr Carbon Black 1333-86-4 Mr Carbon Black 1333-86-4 Mr Carbon Silver 7440-50-8 Trade Secret Iron 7439-89-6 Silver Silver 7440-66-6 Trade Secret Zinc 7440-66-6 Trade Secret Wodffied Epoxy Resin 13561-08-5 Silver (Ag) Silver (Ag) 7440-22-4 Silver (Ag) Modffied Epoxy Resin 13561-08-5 Silver (Ag) Diglycidylether of bisphenol-F 54208-63-8 Mr Modified Amine 827-43-0 Silicon Silicon 7440-21-3 Doped Gold	ns, and /or analytical test data.	% Total Weight 69.354 6.121 4.078 0.247 0.247 0.200 0.013 0.009 0.563 0.105 0.056 0.026 7.500 0.200 1.250 100.000	mg/part 99.315 8.765 5.839 0.354 0.353 0.286 0.019 0.012 0.806 0.150 0.081 0.038 10.740 0.286 1.790 143.200	ppm 693,542 61,207 40,778 2,474 100,314 2,468 2,000 131 87 5,625 1,050 563 263 75,000 2,000 12,500 1,000,000 d with EU	114.27 15.04 1.07 10.74	(mg) Total Silica, vitreous Epoxy Resin Phenolic Resin Carbon Black (mg) Total Copper Iron Silver Zinc Phosphorous (mg) Total Silver (Ag) Modified Epoxy Resin Diglycidylether of bisphenol Modified Amine (mg) Total	Mold Compound 60676-86-0 Trade Secret 1333-86-4 Total Lead Frame 7440-50-8 7439-89-6 7440-22-4 7440-22-4 7440-22-4 7561-08-5 54208-63-8 827-43-0 Total Chip (Die)	% of Total Weight 96.54 2.35 1.91 0.13 0.03 100.00 % of Total Weight 75.00 14.00 7.50 3.60 3.60	79.8 10.5 0.75 7.5
Silica, vitreous 60676-86-0 Md Epoxy, Resin Trade Secret Md Phenolic Resin Trade Secret Md Carbon Black 1333-86-4 Md Copper 7440-50-8 Md Iron 7439-89-6 Md Silver 7440-22-4 Md Zinc 7440-66-6 Md Phosphorous 7723-14-0 Md Silver (Ag) 7440-22-4 Md Modified Epoxy Resin 13361-08-5 Md Diglycidylether of bisphenol-F 54208-63-8 Md Modified Amine 827-43-0 Silicon 7440-21-3 Diglycidylether of bisphenol-F 54208-63-8 Md Md Modified Amine 827-43-0 Silicon 7440-31-5 Plating on external leads (pin This semiconductor device and its homogenous materials comply with EU Directive 2002/95/EC (RoHS Direc Directive 2002/95/EC (RoHS Direc Directive 2002/95/EC (RoHS Direc Directive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). Compliance with the above EU Directives has been verified via internal design controls, supplier declaration f a chemical substance is absent from the list above, the	lold Compound lold Compound lold Compound lold Compound Lead Frame Lead Frame Lead Frame Lead Frame Lead Frame Die Attach Die Attach Die Attach Die Attach Die Attach Die Attach Die Attach Die Attach Sie Attach Chip (Die) Wire Bond rotals: Ctive), EU Directive 2011/65/EU (For 1 hour TOTALS:	69.354 6.121 4.078 0.247 0.200 0.013 0.009 0.563 0.105 0.056 0.026 0.026 0.200 1.250 100.000	99.315 8.765 5.839 0.354 14.365 0.353 0.286 0.019 0.012 0.806 0.150 0.081 0.038 10.740 0.286 1.790 143.200	693,542 61,207 40,778 2,474 100,314 2,468 2,000 131 87 5,625 1,050 563 263 263 75,000 2,000 12,500	15.04	Silica, vitreous Epoxy Resin Phenolic Resin Carbon Black (mg) Total Iron Silver Zinc Phosphorous (mg) Total Silver (Ag) Modified Epoxy Resin Diglycidylether of bisphenol Modified Amine	60676-86-0 Trade Secret Trade Secret 1333-86-4 Total Read Frame 7440-50-8 7440-22-4 7440-66-6 7723-14-0 Die Attach 7440-22-4 13561-08-5 54202-63-8 827-43-0 Total	86.91 7.67 5.11 0.31 95.54 2.35 1.91 0.13 0.08 % of Total Weight 75.00 14.00 7.50 3.50 100.00	0.75
Epoxy Resin Trade Secret Mr Phenolic Resin Trade Secret Mr Carbon Black 1333-86-4 Mr Copper 7440-50-8 Mr Iron 7439-89-6 Mr Silver 7440-22-4 Mr Zinc 7440-66-6 Mr Phosphorous 7723-14-0 Mr Silver (Ag) 7440-22-4 Mr Modified Epoxy Resin 13561-08-5 Diglycidylether of bisphenol-F Silver (Ag) 7440-21-3 Mr Modified Arnine 827-43-0 Silicon Silicon 7440-31-5 Plating on external leads (pin Tin 7440-31-5 Plating on external leads (pin Modified Arnine 827-43-0 Mr Tin 7440-31-5 Plating on external leads (pin Tin 7440-31-5 Plating on external leads (pin Tin 7440-31-5 Plating on external leads (pin Silicon 7440-31-5 Plating on external leads (pin Trin 7440-31-5 Platin	loid Compound loid Compound loid Compound Lead Frame Lead Frame Lead Frame Lead Frame Lead Frame Die Attach Die Attach Die Attach Die Attach Die Attach Die Attach Die Attach Die Attach Chip (Die) Wire Bond ms) - Matte Tin / annealed at 150°C for 1 hour TOTALS: ctive), EU Directive 2011/65/EU (F	6.121 4.078 0.247 10.031 0.247 0.200 0.013 0.009 0.563 0.105 0.056 0.026 7.500 0.200 1.250 100.000	8.765 5.839 0.354 14.365 0.353 0.286 0.019 0.012 0.806 0.150 0.081 0.038 10.740 0.286 1.790 143.200	61,207 40,778 2,474 100,314 2,468 2,000 131 87 5,625 1,050 563 263 75,000 2,000 12,500 1,000,000	1.07	Epoxy Resin Phenolic Resin Carbon Black (mg) Total Copper Iron Silver Zinc Phosphorous (mg) Total Silver (Ag) Modified Epoxy Resin Diglycidylether of bisphenol Modified Amine	Trade Secret Trade Secret Trade Secret Total Total Total T40-50-8 7439-89-6 7440-50-8 7440-22-4 Total Die Attach 7440-22-4 Total Total Die Attach 7440-22-4 13561-08-5 542026-63-8 827-43-0 Total	7.67 5.11 0.31 100.00 % of Total Weight 95.54 2.35 1.91 0.13 0.08 100.00 % of Total Weight 75.00 14.00 7.50 3.50 100.00	0.75
Phenolic Resin Trade Secret Mr. Carbon Black 1333-86-4 Mr. Copper 7440-50-8 Mr. Iron 7439-89-6 Mr. Silver 7440-50-8 Mr. Zinc 7440-22-4 Zinc Zinc 7440-66-6 Mr. Silver (Ag) 7440-22-4 Silver (Ag) Silver (Ag) 7440-22-4 Silver (Ag) Modified Amine 827-43-0 Silicon Silicon 7440-21-3 Silicon Deped Gold 7440-31-5 Ptating on external leads (pin Triang Cold Silicon Tin 7440-31-5 Ptating on external leads (pin Cold Silicon Cold Silicon Silicon 7440-31-5 Ptating on external leads (pin Cold Silicon Cold	lold Compound lold Compound Lead Frame Lead Frame Lead Frame Lead Frame Lead Frame Die Attach Die Attach Die Attach Die Attach Die Attach Chip (Die) Wire Bond ms) - Matte Tin / annealed at 150°C for 1 hour TOTALS: ctive), EU Directive 2011/65/EU (for ns, and /or analytical test data.	4.078 0.247 10.031 0.247 0.200 0.013 0.009 0.563 0.105 0.056 0.026 7.500 0.200 1.250 100.000	5.839 0.354 14.365 0.353 0.286 0.019 0.012 0.806 0.150 0.081 0.081 0.038 10.740 0.286 1.790 143.200	40,778 2,474 100,314 2,468 2,000 131 87 5,625 1,050 563 263 75,000 2,000 12,500 1,000,000	1.07	Phenolic Resin Carbon Black (mq) Total Copper Iron Silver Zinc Phosphorous (mg) Total (mg) Total Silver (Ag) Modified Epoxy Resin Diglycidylether of bisphenol Modified Amine	Trade Secret 1333-86-4 Total Lead Frame 7440-50-8 7439-89-6 7440-22-4 7440-22-4 7440-66-6 7723-14-0 Total Die Attach 7440-22-4 13561-08-5 54208-63-8 827-43-0 Total	5.11 0.31 100.00 % of Total Weight 95.54 2.35 1.91 0.13 0.08 100.00 % of Total Weight 75.00 14.00 7.50 3.50 100.00	0.75
Carbon Black 1333-86-4 Mt Copper 7440-50-8 1 Iron 7439-89-6 1 Silver 7440-62-4 2 Zinc 7440-66-6 1 Phosphorous 7723-14-0 1 Silver (Ag) 7440-62-4 1 Modified Epoxy Resin 13561-08-5 1 Diglycidylether of bisphenol-F 54208-63-8 1 Modified Amine 827-43-0 1 Silicon 7440-67-5 1 Tin 7440-31-5 1 Doped Gold 7440-71-3 0 Doped Gold 7440-31-5 1 Tin 7440-61-5 1 Silicon 7440-61-5 1 Oped Gold 7440-71-3 0 Doped Gold 7440-71-5 1 Tin 7440-61-5 1 Silicon 7440-61-5 1 Tin 7440-71-5 1 Tin 7440-71-5 1 Silicon 7440-71-5 1 Tin 7440-31-5 <t< td=""><td>lold Compound Lead Frame Lead Frame Lead Frame Lead Frame Lead Frame Die Attach Die Attach Die Attach Die Attach Die Attach Chip (Die) Wire Bond ns) - Mate Tin / annealed at 150°C for 1 hour TOTALS: ctive), EU Directive 2011/65/EU (F</td><td>0.247 10.031 0.247 0.200 0.013 0.009 0.563 0.105 0.056 0.026 7.500 0.200 1.250 100.000</td><td>0.354 14.365 0.353 0.286 0.019 0.012 0.806 0.150 0.081 0.038 10.740 0.286 1.790 143.200</td><td>2,474 100,314 2,468 2,000 131 87 5,625 1,050 563 263 75,000 2,000 12,500 1,000,000</td><td>1.07</td><td>Carbon Black (mq) Total Copper Iron Silver Zinc Phosphorous (mg) Total Silver (Ag) Modified Epoxy Resin Diglycidylether of bisphenol Modified Amine</td><td>1333-86-4 Total Lead Frame 7440-50-8 7439-89-6 7440-22-4 7440-66-6 7723-14-0 Die Attach Total 7440-22-4 13561-08-5 542028-63-8 827-43-0 Total</td><td>0.31 100.00 % of Total Weight 95.54 2.35 1.91 0.13 0.08 100.00 % of Total Weight 75.00 14.00 7.50 3.50 100.00</td><td>0.75</td></t<>	lold Compound Lead Frame Lead Frame Lead Frame Lead Frame Lead Frame Die Attach Die Attach Die Attach Die Attach Die Attach Chip (Die) Wire Bond ns) - Mate Tin / annealed at 150°C for 1 hour TOTALS: ctive), EU Directive 2011/65/EU (F	0.247 10.031 0.247 0.200 0.013 0.009 0.563 0.105 0.056 0.026 7.500 0.200 1.250 100.000	0.354 14.365 0.353 0.286 0.019 0.012 0.806 0.150 0.081 0.038 10.740 0.286 1.790 143.200	2,474 100,314 2,468 2,000 131 87 5,625 1,050 563 263 75,000 2,000 12,500 1,000,000	1.07	Carbon Black (mq) Total Copper Iron Silver Zinc Phosphorous (mg) Total Silver (Ag) Modified Epoxy Resin Diglycidylether of bisphenol Modified Amine	1333-86-4 Total Lead Frame 7440-50-8 7439-89-6 7440-22-4 7440-66-6 7723-14-0 Die Attach Total 7440-22-4 13561-08-5 542028-63-8 827-43-0 Total	0.31 100.00 % of Total Weight 95.54 2.35 1.91 0.13 0.08 100.00 % of Total Weight 75.00 14.00 7.50 3.50 100.00	0.75
Copper 7440-50-8 Iron 7439-89-6 Silver 7440-22-4 Zinc 7440-66-6 Phosphorous 7723-14-0 Silver (Ag) 7440-22-4 Modified Epoxy Resin 13561-08-5 Diglycidylether of bisphenol-F 54208-63-8 Modified Amine 827-43-0 Silicon 7440-21-3 Doped Gold 7440-57-5 Tin 7440-31-5 Plating on external leads (pin 0.1432 g Total Mass is semiconductor device and its homogenous materials comply with EU Directive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). Impliance with the above EU Directives has been verified via internal design controls, supplier declaration a chemical substance is NOT an intentional ingredie chonology Incorporated's knowledge and belief as of the date of this document, there is no credible reason emical substance, if any, is not below the threshold of regulatory concern for any regulatory scheme worl	Lead Frame Lead Frame Lead Frame Lead Frame Lead Frame Die Attach Die Attach Die Attach Die Attach Chip (Die) Wire Bond ns) - Matte Tin / annealed at 150°C for 1 hour TOTALS: ctive), EU Directive 2011/65/EU (F ns, and /or analytical test data.	10.031 0.247 0.200 0.013 0.009 0.563 0.105 0.056 0.026 7.500 0.200 1.250 100.000	14.365 0.353 0.286 0.019 0.012 0.806 0.150 0.081 0.038 10.740 0.286 1.790 143.200	100,314 2,468 2,000 131 87 5,625 1,050 563 263 75,000 2,000 12,500 1,000,000	1.07	(mg) Total Copper Iron Silver Zinc Phosphorous (mg) Total Silver (Ag) Modified Epox Resin Diglycidylether of bisphenol Modified Amine	Total Lead Frame 7440-50-8 7439-80-6 7440-22-4 7440-66-6 7723-14-0 Die Attach 7440-22-4 13561-08-5 542026-63-8 827-43-0 Total	100.00 % of Total Weight 96.554 2.35 1.91 0.13 0.08 % of Total Weight 75.00 14.00 7.50 3.50 100.00	0.75
Iron 7439-89-6 Silver 7440-22-4 Zinc 7440-66-6 Phosphorous 7723-14-0 Silver (Ag) 7440-22-4 Modified Epoxy Resin 13561-08-5 Diglycidylether of bisphenol-F 54208-63-8 Modified Amine 827-43-0 Silicon 7440-21-3 Doped Gold 7440-57-5 Tin 7440-31-5 Plating on external leads (pin cettive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). mpliance with the above EU Directives has been verified via internal design controls, supplier declaration i chemical substance is absent from the list above, the chemical substance is NOT an intentional ingredie chnology Incorporated's knowledge and belief as of the date of this document, there is no credible reason emical substance, if any, is not below the threshold of regulatory concern for any regulatory scheme worl viding compounds used by Microchip meet the UL94 V0 flammability standard for plastics. You can access	Lead Frame Lead Frame Lead Frame Die Attach Die Attach Die Attach Die Attach Chip (Die) Wire Bond ns) - Matte Tin / annealed at 150°C for 1 hour TOTALS: ctive), EU Directive 2011/65/EU (find the second sec	0.247 0.200 0.013 0.009 0.563 0.105 0.056 0.026 7.500 0.220 1.250 100.000	0.353 0.286 0.019 0.012 0.806 0.150 0.081 0.038 10.740 0.286 1.790 143.200	2,468 2,000 131 87 5,625 1,050 563 263 75,000 2,000 1,500 1,000,000	1.07	Copper Iron Silver Zinc Phosphorous (mg) Total Silver (Ag) Modified Epoxy Resin Diglycidylether of bisphenol Modified Amine	Lead Frame 7440-50-8 7439-89-6 7440-22-4 7440-66-6 7723-14-0 Total Die Attach 7440-22-4 7440-22-4 73561-08-5 54208-63-8 827-43-0 Total	% of Total Weight 95.54 2.35 1.91 0.13 0.08 100.00 % of Total Weight 75.00 7.50 3.50 100.00 100.00	0.75
Silver 7440-22-4 Zinc 7440-62-4 Zinc 7440-62-4 Phosphorous 7723-14-0 Silver (Ag) 7440-62-4 Modified Epoxy Resin 13561-08-5 Diglycidylether of bisphenol-F 54208-63-8 Modified Amine 827-43-0 Silicon 7440-57-5 Doped Gold 7440-57-5 Tin 7440-31-5 Plating on external leads (pin 0.1432 g Total Mass is semiconductor device and its homogenous materials comply with EU Directive 2002/95/EC (RoHS Directective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). mpliance with the above EU Directives has been verified via internal design controls, supplier declaration a chemical substance is absent from the list above, the chemical substance is NOT an intentional ingredie chonology Incorporated's knowledge and belief as of the date of this document, there is no credible reasor emical substance, if any, is not below the threshold of regulatory concern for any regulatory scheme worl	Lead Frame Lead Frame Die Attach Die Attach Die Attach Die Attach Die Attach Die Attach Chip (Die) Wire Bond solution of the attach TOTALS: ctive), EU Directive 2011/65/EU (For state) state attach TOTALS:	0.200 0.013 0.009 0.563 0.105 0.026 7.500 0.200 1.250 100.000	0.286 0.019 0.806 0.150 0.081 0.038 10.740 0.286 1.790 143.200	2,000 131 87 5,625 1,050 563 263 75,000 2,000 12,500 1,000,000	1.07	Copper Iron Silver Zinc Phosphorous (mg) Total Silver (Ag) Modified Epoxy Resin Diglycidylether of bisphenol Modified Amine	7440-50-8 7439-89-6 7440-22-4 7440-66-6 7723-14-0 Total Die Attach 7440-22-4 13561-08-5 54208-63-8 827-43-0 Total	95.54 2.35 1.91 0.03 100.00 % of Total Weight 75.00 14.00 7.50 3.50 100.00	0.75
Zinc 7440-66-6 Phosphorous 7723-14-0 Silver (Ag) 77440-22-4 Modified Epoxy Resin 13561-08-5 Diglycidylether of bisphenol-F 54208-63-8 Modified Amine 827-43-0 Silicon 7440-21-3 Doped Gold 7440-57-5 Tin 7440-57-5 Oped Gold 7440-57-5 Tin 7440-31-5 Plating on external leads (pin 0.1432 g Total Mass is semiconductor device and its homogenous materials comply with EU Directive 2002/95/EC (RoHS Directerive). mpliance with the above EU Directives has been verified via internal design controls, supplier declaration i chemical substance is absent from the list above, the chemical substance is NOT an intentional ingredie chnology Incorporated's knowledge and belief as of the date of this document, there is no credible reason emical substance, if any, is not below the threshold of regulatory concern for any regulatory scheme worl viding compounds used by Microchip meet the UL94 V0 flammability standard for plastics. You can access	Lead Frame Lead Frame Die Attach Die Attach Die Attach Die Attach Chip (Die) Wire Bond ns) - Matte Tin / annealed at 150°C for 1 hour TOTALS: ctive), EU Directive 2011/65/EU (F	0.013 0.009 0.563 0.105 0.056 0.026 7.500 0.200 1.250 100.000	0.019 0.012 0.806 0.150 0.081 0.038 10.740 0.286 1.790 143.200	131 87 5,625 1,050 563 263 75,000 2,000 12,500 1,000,000		Iron Silver Zinc Phosphorous (mg) Total Silver (Ag) Modified Epoxy Resin Diglycidylether of bisphenol Modified Amine	7439-80-6 7440-22-4 7440-68-6 7723-14-0 Total Die Attach 7440-22-4 13561-08-5 542026-63-8 827-43-0 Total	2.35 1.91 0.13 0.08 * of Total Weight 75.00 14.00 7.50 3.50 100.00	
Phosphorous 7723-14-0 Silver (Ag) 7440-22-4 Modified Epoxy Resin 13561-08-5 Diglycidylether of bisphenol-F 54208-63-8 Modified Amine 827-43-0 Silicon 7440-21-3 Doped Gold 7440-21-3 Doped Gold 7440-21-5 Tin 7440-31-5 Plating on external leads (pin 0.1432 g Total Mass is semiconductor device and its homogenous materials comply with EU Directive 2002/95/EC (RoHS Directive). mpliance with the above EU Directives has been verified via internal design controls, supplier declaration i chemical substance is absent from the list above, the chemical substance is NOT an intentional ingredie chonlogy Incorporated's knowledge and belief as of the date of this document, there is no credible reasor emical substance, if any, is not below the threshold of regulatory concern for any regulatory scheme worl viding compounds used by Microchip meet the UL94 V0 flammability standard for plastics. You can access	Lead Frame Die Attach Die Attach Die Attach Die Attach Chip (Die) Wire Bond ns) - Matte Tin / annealed at 150°C for 1 hour TOTALS: ctive), EU Directive 2011/65/EU (fins, and /or analytical test data.	0.009 0.563 0.105 0.026 7.500 0.200 1.250 100.000	0.012 0.806 0.150 0.081 0.038 10.740 0.286 1.790 143.200	87 5,625 1,050 263 75,000 2,000 12,500 1,000,000		Silver Zinc Phosphorous (mg) Total Silver (Ag) Modified Epoxy Resin Diglycidylether of bisphenol Modified Amine	7440-22-4 7440-66-6 7723-14-0 Total Die Attach 7440-22-4 13561-08-5 54208-63-8 827-43-0 Total	1.91 0.13 100.00 % of Total Weight 75.00 14.00 7.50 3.50 100.00	
Modified Epoxy Resin 13561-08-5 Diglycidylether of bisphenol-F 54208-63-8 Modified Amine 827-43-0 Silicon 7440-21-3 Doped Gold 7440-57-5 Tin 7440-57-5 Open Gold 7440-57-5 Tin 7440-57-5 With EU Directive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). mpliance with the above EU Directives has been verified via internal design controls, supplier declaration chnology Incorporated's knowledge and belief as of the date of this document, there is no credible reason emical substance, if any, is not below the threshold of regulatory concern for any regulatory scheme worl Iding compounds used by Microchip meet the UL94 V0 flammability standard for plastics. You can access	Die Attach Die Attach Die Attach Chip (Die) Wire Bond ns) - Matte Tin / annealed at 150°C for 1 hour TOTALS: Ctive), EU Directive 2011/65/EU (F ns, and /or analytical test data.	0.105 0.056 0.026 7.500 0.200 1.250 100.000	0.150 0.081 0.038 10.740 0.286 1.790 143.200	1,050 563 263 75,000 2,000 12,500 1,000,000		Phosphorous (mg) Total Silver (Ag) Modified Epoxy Resin Diglycidylether of bisphenol Modified Amine	7723-14-0 Total Die Attach 7440-22-4 13561-08-5 54208-63-8 827-43-0 Total	0.08 100.00 % of Total Weight 75.00 14.00 7.50 3.50 100.00	
Diglycidylether of bisphenol-F 54208-63-8 Modified Amine 827-43-0 Silicon 7440-21-3 Doped Gold 7440-57-5 Tin 7440-31-5 Plating on external leads (pin 0.1432 g Total Mass is semiconductor device and its homogenous materials comply with EU Directive 2002/95/EC (RoHS Directective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). mpliance with the above EU Directives has been verified via internal design controls, supplier declaration is chemical substance is absent from the list above, the chemical substance is NOT an intentional ingredie chnology incorporated's knowledge and belief as of the date of this document, there is no credible reasonemical substance, if any, is not below the threshold of regulatory concern for any regulatory scheme worlding compounds used by Microchip meet the UL94 V0 flammability standard for plastics. You can access	Die Attach Die Attach Chip (Die) Wire Bond ns) - Matte Tin / annealed at 150°C for 1 hour TOTALS : ctive), EU Directive 2011/65/EU (F ns, and /or analytical test data.	0.056 0.026 7.500 0.200 1.250 100.000	0.081 0.038 10.740 0.286 1.790 143.200	563 263 75,000 2,000 12,500 1,000,000		(mg) Total Silver (Ag) Modified Epoxy Resin Diglycidylether of bisphenol Modified Amine	Total Die Attach 7440-22-4 13561-08-5 54208-63-8 827-43-0 Total	100.00 % of Total Weight 75.00 14.00 7.50 3.50 100.00	
Modified Amine 827-43-0 Silicon 7440-21-3 Doped Gold 7440-57-5 Tin 7440-31-5 Plating on external leads (pin 0.1432 g Total Mass is semiconductor device and its homogenous materials comply with EU Directive 2002/95/EC (RoHS Directive) mpliance with the above EU Directives has been verified via internal design controls, supplier declaration a chemical substance is absent from the list above, the chemical substance is NOT an intentional ingredie chnology Incorporated's knowledge and belief as of the date of this document, there is no credible reasor emical substance, if any, is not below the threshold of regulatory concern for any regulatory scheme worl viding compounds used by Microchip meet the UL94 V0 flammability standard for plastics. You can access	Die Attach Chip (Die) Wire Bond sp Matte Tin / annealed at 150°C for 1 hour TOTALS: ctive), EU Directive 2011/65/EU (F ns, and /or analytical test data.	0.026 7.500 0.200 1.250 100.000	0.038 10.740 0.286 1.790 143.200	263 75,000 2,000 12,500 1,000,000		Silver (Ag) Modified Epoxy Resin Diglycidylether of bisphenol- Modified Amine	Die Attach 7440-22-4 13561-08-5 54208-63-8 827-43-0 Total	% of Total Weight 75.00 14.00 7.50 3.50 100.00	
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Doped Gold 7440-57-5 Tin 7440-31-5 Plating on external leads (pin 0.1432 g Total Mass 0.1432 g Total Mass is semiconductor device and its homogenous materials comply with EU Directive 2002/95/EC (RoHS Directective 2002/95/EC (End-of-Life Vehicles (ELV) Directive). 0.1432 g Total Mass mpliance with the above EU Directives has been verified via internal design controls, supplier declaration in chemical substance is absent from the list above, the chemical substance is NOT an intentional ingredie chnology incorporated's knowledge and belief as of the date of this document, there is no credible reasonemical substance, if any, is not below the threshold of regulatory concern for any regulatory scheme worlding compounds used by Microchip meet the UL94 V0 flammability standard for plastics. You can access	Wire Bond ns) - Matte Tin / annealed at 150°C for 1 hour TOTALS: ctive), EU Directive 2011/65/EU (F ns, and /or analytical test data.	0.200 1.250 100.000	0.286 1.790 143.200	2,000 12,500 1,000,000		Modified Epoxy Resin Diglycidylether of bisphenol- Modified Amine	13561-08-5 54208-63-8 827-43-0 Total	14.00 7.50 3.50 100.00	7.5
Tin 7440-31-5 Plating on external leads (pin 0.1432 g Total Mass is semiconductor device and its homogenous materials comply with EU Directive 2002/95/EC (RoHS Directive). rective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). ompliance with the above EU Directives has been verified via internal design controls, supplier declaration a chemical substance is absent from the list above, the chemical substance is NOT an intentional ingredie chonology Incorporated's knowledge and belief as of the date of this document, there is no credible reason emical substance, if any, is not below the threshold of regulatory concern for any regulatory scheme worlding compounds used by Microchip meet the UL94 V0 flammability standard for plastics. You can access	ns) - Matte Tin / annealed at 150°C for 1 hour TOTALS: ctive), EU Directive 2011/65/EU (F ns, and /or analytical test data.	1.250 100.000	1.790 143.200	12,500 1,000,000		Diglycidylether of bisphenol Modified Amine	54208-63-8 827-43-0 Total	7.50 3.50 100.00	7.5
0.1432 g Total Mass is semiconductor device and its homogenous materials comply with EU Directive 2002/95/EC (RoHS Direc rective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). mpliance with the above EU Directives has been verified via internal design controls, supplier declaration i chemical substance is absent from the list above, the chemical substance is NOT an intentional ingredie chnology Incorporated's knowledge and belief as of the date of this document, there is no credible reason emical substance, if any, is not below the threshold of regulatory concern for any regulatory scheme worl viding compounds used by Microchip meet the UL94 V0 flammability standard for plastics. You can access	TOTALS: ctive), EU Directive 2011/65/EU (F ns, and /or analytical test data.	100.000	143.200	1,000,000		Modified Amine	827-43-0 Total	3.50 100.00	7.5
is semiconductor device and its homogenous materials comply with EU Directive 2002/95/EC (RoHS Direct ective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). mpliance with the above EU Directives has been verified via internal design controls, supplier declaration in chemical substance is absent from the list above, the chemical substance is NOT an intentional ingredie chnology Incorporated's knowledge and belief as of the date of this document, there is no credible reason emical substance, if any, is not below the threshold of regulatory concern for any regulatory scheme worl olding compounds used by Microchip meet the UL94 V0 flammability standard for plastics. You can access	ctive), EU Directive 2011/65/EU (F ns, and /or analytical test data.			,,	10.74		Total	100.00	7.5
is semiconductor device and its homogenous materials comply with EU Directive 2002/95/EC (RoHS Direct ective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). mpliance with the above EU Directives has been verified via internal design controls, supplier declaration chemical substance is absent from the list above, the chemical substance is NOT an intentional ingredie chnology Incorporated's knowledge and belief as of the date of this document, there is no credible reasor emical substance, if any, is not below the threshold of regulatory concern for any regulatory scheme worl lding compounds used by Microchip meet the UL94 V0 flammability standard for plastics. You can access	ns, and /or analytical test data.	oHS Recast	Directive) and	d with EU	10.74	(mg) Total			7.5
ective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). mpliance with the above EU Directives has been verified via internal design controls, supplier declaration chemical substance is absent from the list above, the chemical substance is NOT an intentional ingredie chnology incorporated's knowledge and belief as of the date of this document, there is no credible reason emical substance, if any, is not below the threshold of regulatory concern for any regulatory scheme worl lding compounds used by Microchip meet the UL94 V0 flammability standard for plastics. You can access	ns, and /or analytical test data.	oHS Recast	Directive) and	d with EU	10.74	(mg) Total	Chip (Die)	% of Total Weight	7.5
hnology Incorporated's knowledge and belief as of the date of this document, there is no credible reasor mical substance, if any, is not below the threshold of regulatory concern for any regulatory scheme worl ding compounds used by Microchip meet the UL94 V0 flammability standard for plastics. You can access	ent in the semiconductor device a					Doped Silicon	7440-21-3	100	1
	n to believe that the unavoidable						Total	100.00	
	ss the UL iQTM family of database	s to obtain a	test report at	t	0.29	(mg) Total	Wire Bond	% of Total Weight	0.2
e protective "tubes" in which the specific product is shipped are made from polyvinyl chloride (PVC) plas x and certain "reels" may be made from PVC plastic.	stic. "Window envelopes" used to	hold the pac	king slip on t	the outer		Doped Gold	7440-57-5	100	
crochip Technology Incorporated believes the information in this form concerning substances restricted I vices in their original packing materials is true and correct to the best of its knowledge and belief, as of th arantee the completeness and accuracy of data in this form because it has been compiled based on the r. aterial suppliers. Supplier information is often protected from disclosure as trade secrets and some inform w material suppliers. Information is provided only as estimates of the average weight of these parts and th uses estimates do not include trace levels of dopants, metals, and non-metal materials contained within sil	he date listed in this form. Microc ranges provided in Material Safet nation may not have been provid he average weight of anticipated	hip Technolo Data Sheets d by subcon significant to	gy Incorpora provided by tract assemb	ited cannot / raw plers and			Total	100.00	
crochip Technology Incorporated does not provide any warranty, express or implied, with respect to the in arranties provided by Microchip Technology Incorporated and its subsidiaries are contained in Microchip's icrochip's quotations, sales order acknowledgement, and invoices.	•				1.79	(mg) I otal	Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	% of Total Weight	1.25
crochip disclaims any duty to notify users of updates or changes to Material Content Declarations and sha nerwise, suffered by users or third parties as a result of the users' reliance on the information in Material (GS) or of this Certificate of Compliance for semiconductor products.						Tin	7440-31-5	100.00	

Basic Substance CAS Number "Contained in" % Total gond	MICROCHIP Semiconductor Device Typ	e: TF, F, OE, S(D, SL 16 (Lead) SOIC (Wide Outline - 300mil) (D9 / [nation Base A pper Alloy (C		٤	Package Homoge 3.1 Electronics (e.g. p			JEDEC 9 Product Marking and/or Pk Labeling e3
Sites Image: Second Base Mode Compound 4.590 Total Second Base	Basic Substance	CAS Number			mg/part	nnm	307.43	(mg) Total	Mold Compound		70 19
Egong Yeam (No Exormics, No distingtory mode) Trade Secont Model Compound 4.299 18.50 42.991 Exory Rean Trade Secont 6.13 Handle Kenning, No diatingtory model) Trade Secont Model Compound 4.299 18.80 42.991 Image Note:							-	Cilico vitroque	60676.96.0	Ŭ,	1
Primalic Resin (No Br /CL 2503): No distint/mony (noise) Task Sector Modd Compound 4.269 16.80 4.269 Image: Component of the sector of the sect											
EpoxyCostal Modale 29800-82-2 Mold Compound 1.720 7.532 17.187 PERFORMANT 2.168 PERFORMANT											
Catton Black1333 864Mold Compound0.2110.9222.100Cathon Black100.84100.854Copper7440505Laad Frame0.6272.7.476.27.2116.90(m) TotalLead Frame0.6272.7.476.27.2116.90(m) TotalLead Frame0.6272.7.476.27.2116.90(m) TotalLead Frame0.6272.7.476.27.2116.90116.9555.442.82.87.420.666Lasd Frame0.0130.146324116.95100.97 <td></td>											
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$											
Image: construction 7438-89-6 Lead Frame 0.627 2.747 6.772 116.90 (mg) Total Lead Frame %0 of Total 28 Born 7440-224 Laad Frame 0.508 2.227 6.504 0.508 2.227 6.504 0.508 2.227 6.504 0.508 2.237 6.504 0.508 2.237 6.504 0.508 2.237 6.504 0.508 2.237 6.504 0.508 2.237 6.504 0.508 2.237 6.504 0.508 2.237 6.504 0.505 0.505 2.37 7.440-254 0.058 10.500 0.056 150 0.056 150 0.066 150 0.066 150 0.066 150 0.06 150 0.066 150 0.06 150 0.067 100 0.060 100.00								Calbuit Black			<u>I</u>
Iron 7439-89-8 Lead Frame 0.627 2.727 116.00 (mp) (mp) </td <td>Coppei</td> <td>7440-50-6</td> <td>Leau Flaille</td> <td>25.499</td> <td>111.005</td> <td>234,990</td> <td></td> <td></td> <td>Total</td> <td></td> <td></td>	Coppei	7440-50-6	Leau Flaille	25.499	111.005	234,990			Total		
Silver 7440-22.4 Lead Frame 0.538 2.227 5.084 Image: Section of the section the section of the section din	Iron	7420 90 6	Lood Fromo	0.627	2 747	6 272	116.90	(mg) Total	Lead Frame		26.69
Zinc 7440-86-6 Lead Frame 0.033 0.146 334 Pholophologia 7723-14-0 Lead Frame 0.022 0.066 220 Stream 7440-22-4 Dis Attach 0.076 0.026 200 Metal oxido Trado Seconi Dio Attach 0.076 0.066 150 Stream Trado Seconi Dio Attach 0.016 0.066 150 Gamma-burg/valactorie 48-48-0 Die Attach 0.016 0.066 150 Giod 7440-22-4 Die Attach 0.016 0.066 150 Giod 7440-22-4 Die Attach 0.016 0.066 150 Cidd 7440-22-4 Die Attach 0.016 0.066 150 Cidd 7440-22-4 Die Masso 100.00 304 OLA380 g Total Mass Total 108.00 303 146.00 304 300 300 300 300 300 300 300 300 300 300 300 300 300 300 300 304											1
Phosphorous 772-14-0 Lead Frame 0.022 0.096 220 Billowr 740-22-4 Die Attach 0.370 1621 3/00 Epory relin Trade Secret Die Attach 0.101 0.481 1,000 Gamma-butyrolactone 96-48-0 Die Attach 0.015 0.066 150 2.19 (m) Total Die Attach 0.015 0.066 150 2.19 (m) Total Die Attach 0.015 0.066 150 2.19 (m) Total Die Attach w.016 Die 163 156.00 150 2.19 (m) Total Die Attach w.016 Die 163 156.00 150 2.19 (m) Total Die Attach w.017 Die 100.00 340.00 100.00 340.00 100.00 1											
Silver 7440-22-4 Die Attach 0.370 1.621 3.700 2.700 7440-66-6 0.13 Metal oxide Trade Secret Die Attach 0.015 0.066 150											1
Epoxy resin Trade Secret Die Attach 0.100 0.438 1.000 7723-14-0 0.08 Gamma-butyrolactone 0648.0 Die Attach 0.015 0.066 150 2.19 (mg) Total Die Attach 0.015 0.066 150 740 <td></td> <td>1</td>											1
Meal axis Trade Server Die Attach 0.015 0.006 150 2.19 (mg) Total Weeker 400.00 Gamma-butyrloactone 364-8-0 Die Attach 0.015 0.066 150 2.19 (mg) Total Die Attach % of Total Weeker Wee											1
Gamma-butyrolactone 96-48-0 Die Attach 0.015 0.066 150 2.19 (mg) Total Die Attach % of Total 0 Gidd 7440-271-3 Chip D(b) 1.850 8.103 18.500 Silver 7440-224-74 74 Tin 7440-271-5 Patego meterial labs pinz- Lase To // mage at 100° C to 1 have 0.0800 2.375 Silver 7440-224-74 74 Option 0.4380 g Total Mass Tot ALS: 1000-04 38.000 1.000,000 Silver 7440-24-74 74 Silver 7440-224-74 74 Silver 740-224-74 74 Silver 740-224-74 74 Silver 740-221-3 0.000 Silver 740-21-3 0.000 Silver 740-21-3 0.000 Silver 740-21-3 0.000 Silver 740-21-3 0.00 Silver 740-21-3 0.00 Silver 740-21-3 </td <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>Phosphorous</td> <td></td> <td></td> <td></td>								Phosphorous			
Gamma-bulyrolactone 96-64-0 Die Attach 0.015 0.066 150 2.19 (ing) rolai Ole Attach Weight 0 Gold 7440-21-3 Chip (Die) 1850 61:03 18:800 7440-21-3 Chip (Die) 18:50 61:03 18:800 7440-21-3 Chip (Die) 7440-21-3 Chip (Die) 7440-21-3 Chip (Die) 7440-21-3 Chip (Die) 7440-21-3	Metal oxide	Trade Secret	Die Attach	0.015	0.066	150			Total	100.00	_
Silicon 7440-21-3 Chip (Die) 1.850 8.103 19.500 Silver 7440-27-4 74 Gold 7440-57-5 Wire Bond 0.039 2.978 6.800 Enzyment Trade Secret 20 Tin 7440-315 Plang on environment webs (prig) - Main Tri / envi/ e	Gamma-buttyrelactone	96-48-0	Die Attach	0.015	0.066	150	2.19	(mg) Total	Die Attach		
Gold 7440 57:5 Write Bord 0.090 0.394 900 Tin 7440 31:5 Proving on external leads (prot). Mettin Tri answered at 10° (tor 1 hour 0.880 2.978 6,300 Toda Soco 0.4380 g Total Mass Total Soco 30 30 0.4380 g Total Mass Semicoductor device and its homogenous materials comply with EU Directive 2002/95/EC (RoHS Directive), EU Directive 2011/65/EU (RoHS Recast Directive) and with EU 8.10 Total (mg) Chip (Die) % of Total weight 10 pilance with the above EU Directives has been verified via liternal design controls, supplier declarations, and /or analytical test data. Total (mg) Chip (Die) % of Total weight 10 mical substance is absent from the list above, the chemical substance is NOT an intentional ingredient in the semiconductor device and, to the best of Microchip meet the UL44 V0 fammability standard for plastics. You can access the UL iQTM family of databases to obtain a test report at .//ul.con/global/eng/sgacs/offerings/industries/chemicals/plastics/ 0.39 (mg) Total Wire Bond Wire Bond Weight 0.39 uica material is true and correct to the best of its howledge and belief, as of the date listed in this form moneytopy incorporated cannot in this form concerning substances erest and some mericing industries/chemicals/plastics/ 0.39 (mg) Total Wire Bond Weight 0.30 <								Cityre	7440.00.4		
Tin 7440-31-5 Puetry on external tasks (proj Metria Tr. / weekeld at 100°C to 11au / TOTALS: 0.0.800 2.978 6.800 Million Control of the second											
Order TotALS: 100.00 438.000 1,000,000 0.4380 g Total Mass Total Mass Total Mass Total Moso Total Moso 1 semiconductor device and its homogenous materials comply with EU Directive 2002/95/EC (RoHS Directive), EU Directive 2011/65/EU (RoHS Recast Directive) and with EU 8.10 Total (mg) Chip (Die) % of Total Mass pilance with the above EU Directives has been werified via internal design controls, supplier declarations, and /or analytical test data. Doped Silicon 7440-21-3 100.00 trial substance is absent from the list above, the chemical substance is NOT an Intentional ingredient in the semiconductor device and, to the best of Microchip method of regulatory concern for any regulatory scheme world-wide. 0.39 (mg) Total Weight 0.39 ding compounds used by Microchip meet the UL94 V0 Imamability standard for plastics. You can access the UL IQTM family of databases to obtain a test report at //uL.com/global/eng/sindustries/chemicals/plastics/ 0.39 (mg) Total Wire Bond % of Total Weight 0.39 protective "tubes" in which the specific protoctuce is hole or detains is the specific protoctuce is hole or detains is the specific protoctuce is the order of the detain files at the addire data is the specific protoctuce is the order of the dest of this device and the absert is Knowledge and belief as of the date lists or mains undered and the absert is Knowledge and belief as of the date lists test and theabert is Knowledge and belief as of the da											
0.4380 g Total Mass Total 100.00 ² is semiconductor device and its honogenous matrials comply with EU Directive 2002/SS/EC (RoHS Directive). EU Directive 2011/65/EU (RoHS Reast Directive) and with EU citive 2002/SS/EC (End-of-Life Vehicles (ELV) Directive). No.00 ² is pair conductor device and its honogenous matrials comply with EU Directive 2002/SS/EC (RoHS Directive). EU Directive 2011/65/EU (RoHS Reast Directive) and with EU citive 2002/SS/EC (End-of-Life Vehicles (ELV) Directive). 8.10 Total (mg) Chip (Die) % of Total Weight 100.00 inclose with the above EU Directives has been verified via internal design controls, supplier declarations, and /or analytical test data. Doped Silcon 7440-21-3 100 inclose with the above EU Directive shas been verified via internal design controls, supplier declarations, and /or analytical test data. Doped Silcon 7440-21-3 100.00 inclose with device and its above fue thereshold of regulatory concern for any regulatory scheme world-wide. 0.39 (mg) Total Wire Bond % of Total Weight 0.39 ing compounds used by Microchip meet the UL-94 V0 flammability standard for plastics. You an access the UL IQTM family of databases to obtain a test report at and errain "reats" may be made from PVC plastic. 0.39 (mg) Total Wire Bond % of Total Weight 0.30 cochip Technology Incorporated believes the information is provided by last restricted by ROHS in Microchip Technology Incorporated's swelleshers and material suppliers. Information is providect on base of thes werag	lin	7440-31-5									
semiconductor device and its homogenous materials comply with EU Directive 2002/55/EC (End-of-Life Vehicles (ELV) Directive). pliance with the above EU Directives has been verified via internal design controls, supplier declarations, and /or analytical test data. pliance with the above EU Directives has been verified via internal design controls, supplier declarations, and /or analytical test data. themical substance is absent from the list above, the chemical substance is NOT an intentional ingredient in the semiconductor device and, to the best of Microchip mology hncorporated's knowledge and belief as of the date of this document, there is no credible reason to believe that the unavoidable impurity concentration of the incla substance, if any, is not below the threshold of regulatory concern for any regulatory scheme world-wide. Ifing compounds used by Microchip meet the UL94 V0 flammability standard for plastics. You can access the UL iQTM family of databases to obtain a test report at ////Loom/global/eng/pages/offerings/industries/chemicals/plastics/ protective "tubbes" in which the specific product is shipped are made from polyvinyl chloride (PVC) plastic. "Window envelopes" used to hold the packing slip on the outer and certain "reels" may be made from PVC plastic. Total 100.00 Total 100.00 Total 00.00 100.00			TOTALS:	100.000	438.000	1,000,000		Gamma-butyrolactone		÷	
the mean substance is a base in formation in the fact above in the	nliance with the above EU Directives has been verified via in	ernal design contro	In a supplier dealers there and the supplicit set date.								
://ul.com/global/eng/pages/offerings/industries/chemicals/plastics/ 033 (mg) Total Wire Bond Weight 0. protective "tubes" in which the specific product is shipped are made from polyvinyl chloride (PVC) plastic. Window envelopes" used to hold the packing slip on the outer and certain "reels" may be made from PVC plastic. Image: Doped Gold 7440-57-5 100 ochip Technology Incorporated believes the information in this form concerning substances restricted by RoHS in Microchip Technology Incorporated cannot rantee the completeness and accuracy of data in this form because it has been compiled based on the ranges provided in Material Safety Data Sa	ipitance with the above LO Directives has been verified via m		ois, supplier declarations, and for analytical test data.					Doped Silicon			
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ochip Technology Incorporated believes the information in this form concerning substances restricted by RoHS in Microchip Technology Incorporated's semiconductor ces in their original packing materials is true and correct to the best of its knowledge and belief, as of the date listed in this form. Microchip Technology Incorporated cannot rantee the completeness and accuracy of data in this form because it has been compiled based on the ranges provided by subcontract assemblers and material suppliers. Supplier information is provided only as estimates of the average weight of these parts and the average weight of anticipated significant toxic metals components. see estimates do not include trace levels of dopants, metals, and non-metal materials contained within silicon devices (silicon IC) in the finished parts. ochip Technology Incorporated does not provide any warranty, express or implied, with respect to the information provided in this declaration. The exclusive, limited product ranties provided by Microchip Technology Incorporated and its subsidiaries are contained in Microchip's standard terms and conditions of sale. These are provided in orbit, sales order acknowledgement, and invoices. ochip disclaims any duty to notify users of updates or changes to Material Content Declarations in Material Content Declarations (MCD) or independent third party test reports S) or of this Certificate of Compliance for semiconductor products.	chemical substance is absent from the list above, the chemica nnology Incorporated's knowledge and belief as of the date o nical substance, if any, is not below the threshold of regulato ding compounds used by Microchip meet the UL94 V0 flamma	al substance is NOT f this document, the ory concern for any r ability standard for p	an intentional ingredient in the semiconductor devic re is no credible reason to believe that the unavoidal regulatory scheme world-wide.	e and, to the b ble impurity co	ncentration of	the	0.39		Total	100.00 % of Total	0.09
external leads (pins) - Matter Tin variaties provided by Microchip Technology Incorporated and its subsidiaries are contained in Microchip's standard terms and conditions of sale. These are provided in rochip's quotations, sales order acknowledgement, and invoices. The exclusive, initiated product (pins) - Matter Tin / annealed at S) or of this Certificate of Compliance for semiconductor products.	chemical substance is absent from the list above, the chemical hnology incorporated's knowledge and belief as of the date o mical substance, if any, is not below the threshold of regulate ding compounds used by Microchip meet the UL94 V0 flamma ://ul.com/global/eng/pages/offerings/industries/chemicals/pla protective "tubes" in which the specific product is shipped a	al substance is NOT f this document, the rry concern for any r ability standard for p stics/	an intentional ingredient in the semiconductor devic re is no credible reason to believe that the unavoidal regulatory scheme world-wide. plastics. You can access the UL iQTM family of datab	e and, to the b ble impurity co ases to obtain	ncentration of a test report a	the It	0.39	(mg) Total	Total Wire Bond 7440-57-5	100.00 % of Total Weight 100	0.09
errochip disclaims any duty to notify users of updates or changes to Material Content Declarations and shall not be liable for any damages, direct or indirect, consequential or erwise, suffered by users or third parties as a result of the users' reliance on the information in Material Content Declarations (MCD) or independent third party test reports Tin 7440-31-5 100.00	chemical substance is absent from the list above, the chemical chemical substance is absent from the list above, the chemical substance, if any, is not below the threshold of regulato lding compounds used by Microchip meet the UL94 V0 flamma o://ul.com/global/eng/pages/offerings/industries/chemicals/pla e protective "tubes" in which the specific product is shipped at a and certain "reels" may be made from PVC plastic. erochip Technology Incorporated believes the information in th rices in their original packing materials is true and correct to the arantee the completeness and accuracy of data in this form be terial suppliers. Supplier information is often protected from do ar material suppliers. Information is provided only as estimates	al substance is NOT f this document, the rry concern for any r ability standard for p stics/ re made from polyvi his form concerning he best of its knowle cause it has been co isclosure as trade s	an intentional ingredient in the semiconductor devic re is no credible reason to believe that the unavoidal egulatory scheme world-wide. blastics. You can access the UL iQTM family of datab inyl chloride (PVC) plastic. "Window envelopes" used substances restricted by RoHS in Microchip Techno adge and belief, as of the date listed in this form. Mic pompiled based on the ranges provided in Material Sa ecrets and some information may not have been pro- ht of these parts and the average weight of anticipat	e and, to the b ole impurity co ases to obtain I to hold the pa ogy Incorporat rochip Techno iety Data Sheel vided by subcc ad significant t	ncentration of a test report a acking slip on ted's semicon logy Incorpore s provided by nutract assemi oxic metals cc	the t the outer ductor tted cannot raw olers and	0.39	(mg) Total	Total Wire Bond 7440-57-5	100.00 % of Total Weight 100	0.09
Total 100.00	chemical substance is absent from the list above, the chemical schoology incorporated's knowledge and belief as of the date o smical substance, if any, is not below the threshold of regulato lding compounds used by Microchip meet the UL94 V0 flamma p://ul.com/global/eng/pages/offerings/industries/chemicals/pla e protective "tubes" in which the specific product is shipped a a and certain "reels" may be made from PVC plastic. Trochip Technology Incorporated believes the information in the rices in their original packing materials is true and correct to the tranete the completeness and accuracy of data in this form be terial suppliers. Supplier information is often protected from data material suppliers. Information is provided only as estimates are estimates do not include trace levels of dopants, metals, a prochip Technology Incorporated does not provide any warran tranties provided by Microchip Technology Incorporated and i	al substance is NOT f this document, the rry concern for any r ability standard for p stics/ re made from polyvi his form concerning he best of its knowle cause it has been cr isclosure as trade s of the average weig nd non-metal materi ty, express or implie ts subsidiaries are c	an intentional ingredient in the semiconductor devic re is no credible reason to believe that the unavoidal egulatory scheme world-wide. blastics. You can access the UL iQTM family of datab inyl chloride (PVC) plastic. "Window envelopes" used substances restricted by RoHS in Microchip Techno adge and belief, as of the date listed in this form. Mic compiled based on the ranges provided in Material Sa ecrets and some information may not have been pro- ht of these parts and the average weight of anticipat- ials contained within silicon devices (silicon IC) in the ed, with respect to the information provided in this definition of the set of the	e and, to the b ole impurity co ases to obtain I to hold the pa ogy Incorporat rochip Techno iety Data Sheet vided by subcc ed significant t e finished parts cclaration. The	ncentration of a test report a acking slip on ted's semicon logy Incorpora s provided by nutract assemi oxic metals co s. exclusive, lim	the t the outer ductor ted cannot raw olers and omponents.		(mg) Total	Total Wire Bond 7440-57-5 Total Plating on external leads (pins) - Matte Tin	100.00 % of Total Weight 100 100.00 % of Total	0.09
	chemical substance is absent from the list above, the chemical hnology Incorporated's knowledge and belief as of the date o mical substance, if any, is not below the threshold of regulated ding compounds used by Microchip meet the UL94 V0 flamma ://ul.com/global/eng/pages/offerings/industries/chemicals/pla protective "tubes" in which the specific product is shipped a and certain "reels" may be made from PVC plastic. Tochip Technology Incorporated believes the information in th ices in their original packing materials is true and correct to the rantee the completeness and accuracy of data in this form be erial suppliers. Supplier information is often protected from d material suppliers. Information is provided only as estimates se estimates do not include trace levels of dopants, metals, a "cochip Technology Incorporated does not provide any warran ranties provided by Microchip Technology Incorporated and i "cochip's quotations, sales order acknowledgement, and invoir prochip disclaims any duty to notify users of updates or chang perwise, suffered by users or third parties as a result of the use	al substance is NOT f this document, the rry concern for any r ability standard for p stics/ re made from polyvi his form concerning he best of its knowle cause it has been co isclosure as trade s of the average weig nd non-metal materi ty, express or implie ts subsidiaries are o ces. es to Material Conte prs' reliance on the i	an intentional ingredient in the semiconductor device re is no credible reason to believe that the unavoidal regulatory scheme world-wide. Dastics. You can access the UL iQTM family of datab inyl chloride (PVC) plastic. "Window envelopes" used substances restricted by RoHS in Microchip Techno edge and belief, as of the date listed in this form. Mic compiled based on the ranges provided in Material Sat ecrets and some information may not have been pro th of these parts and the average weight of anticipat ials contained within silicon devices (silicon IC) in th ed, with respect to the information provided in this de- contained in Microchip's standard terms and conditio ent Declarations and shall not be liable for any damage	e and, to the b ole impurity co ases to obtain I to hold the pa ogy Incorporat rochip Techno rety Data Sheet vided by subcc ad significant t claration. The ns of sale. The	ncentration of a test report a acking slip on logy Incorpora is provided by intract assemi oxic metals co s. exclusive, lim se are provide direct, consec	the the outer ductor ated cannot raw olers and omponents. ited product ed in quential or		(mg) Total Doped Gold (mg) Total	Total Wire Bond 7440-57-5 Total Plating on external leads (pins) - Matte Tin / annealed at	100.00 % of Total Weight 100 100.00 % of Total Weight	0.09

AICROCHIP Semiconductor Device Type	e: SL 16 (Lead) SOIC	; (Small Outline - 150mil) (D7 / DV)		nation Base A pper Alloy (C	-		•	nogeneous Materials: e.g. pc boards, displa		JEDEC 97 Product Markin and/or Pkg. Labeling e3
		"Contained In"	% Total				() T		A	00.40
Basic Substance	CAS Number	Sub-Component	Weight	mg/part	ppm	60.00	(mg) Total	Mold Compound	% ot Total Weight	38.12
Silica, vitreous	60676-86-0	Mold Compound	32.402	51.001	324,020		Silica, vitreous	60676-86-0	85.00	
Epoxy Resin (No bromine, No diantimony trioxide)	Trade Secret	Mold Compound	2.335	3.675	23,349		Epoxy Resin	Trade Secret	6.13	
Phenolic Resin (No Br / CL SbO3, No diantimony trioxide)	Trade Secret	Mold Compound	2.335	3.675	23,349		Phenolic Resin	Trade Secret	6.13	
Epoxy, Cresol Novolac	29690-82-2	Mold Compound	0.934	1.470	9,339		Epoxy, Cresol Novolac	29690-82-2	2.45	
Carbon Black	1333-86-4	Mold Compound	0.114	0.180	1,144		Carbon Black	1333-86-4	0.30	
Copper	7440-50-8	Lead Frame	24.276	38.211	242,761			Total	100.00	•
Iron	7439-89-6	Lead Frame	0.597	0.940	5,971	40.00	(mg) Total	Lead Frame	% of Total Weight	25.41
Silver	7440-22-4	Lead Frame	0.484	0.762	4,841		Copper	7440-50-8	95.54	
Zinc	7440-66-6	Lead Frame	0.032	0.050	318		Iron	7439-89-6	2.35	
Phosphorous	7723-14-0	Lead Frame	0.021	0.033	210		Silver	7440-22-4	1.91	
Silver	7440-22-4	Die Attach	2.618	4,120	26,175		Zinc	7440-66-6	0.13	
Diester Resin	94-80-4	Die Attach	0.524	0.824	5,235		Phosphorous	7723-14-0	0.08	
Functionalized Urethane Resin	72869-86-4	Die Attach	0.175	0.275	1,745			Total	100.00	
Epoxy Resin	9003-36-5	Die Attach	0.087	0.137	873	5.49	(mg) Total	Die Attach	% of Total Weight	3.49
Epoxy Resin	13561-08-5	Die Attach	0.087	0.137	873	3.45	(ing) rotal Silver	7440-22-4	75	3.49
Silicon	7440-21-3		3.180	5.005	31,800			94-80-4		
		Chip (Die)				F	Diester Resin		15	
Gold	7440-57-5	Wire Bond	1.210	1.905	12,100	Fun	ctionalized Urethane Resin	72869-86-4	5	
Tin	7440-31-5 Plating	on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	28.590	45.001 157.400	285,900 1.000.000		Epoxy Resin	9003-36-5 13561-08-5	3	
		TOTALS:	100.000	157.400	1,000,000		Epoxy Resin		3	
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive).		tal Mass /EC (RoHS Directive), EU Directive 2011/65/EU (RoHS Recast	Directive) and	with EU	5.01	Total (mg)	Total Chip (Die)	100.00 % of Total Weight	3.18
semiconductor device and its homogenous materials comply ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). upliance with the above EU Directives has been verified via int chemical substance is absent from the list above, the chemical	with EU Directive 2002/95 ernal design controls, sup I substance is NOT an inte	tal Mass /EC (RoHS Directive), EU Directive 2011/65/EU (plier declarations, and /or analytical test data. entional ingredient in the semiconductor device	and, to the be	est of Microchi	p	5.01		Total	% of Total Weight	3.18
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). apliance with the above EU Directives has been verified via inter- chemical substance is absent from the list above, the chemical hnology Incorporated's knowledge and belief as of the date of stance, if any, is not below the threshold of regulatory concern ding compounds used by Microchip meet the UL94 V0 flammal //ul.com/global/eng/pages/offerings/industries/chemicals/plas	with EU Directive 2002/95 ernal design controls, supp I substance is NOT an inte this document, there is no 1 for any regulatory schem billity standard for plastics.	tal Mass /EC (RoHS Directive), EU Directive 2011/65/EU (plier declarations, and /or analytical test data. entional ingredient in the semiconductor device o credible reason to believe that the unavoidable le world-wide. You can access the UL iQTM family of database	and, to the be impurity con es to obtain a	est of Microchi acentration of f test report at	p :he chemical	5.01	Total (mg)	Total Chip (Die) 7440-21-3	% of Total Weight	3.18
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ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). apliance with the above EU Directives has been verified via inter- chemical substance is absent from the list above, the chemical hnology Incorporated's knowledge and belief as of the date of stance, if any, is not below the threshold of regulatory concern ding compounds used by Microchip meet the UL94 V0 flammal ://ul.com/global/eng/pages/offerings/industries/chemicals/plas protective "tubes" in which the specific product is shipped ar certain "reels" may be made from PVC plastic. Tochip Technology Incorporated believes the information in thi cos in their original packing materials is true and correct to the rantee the completeness and accuracy of data in this form be pliers. Supplier information is often protected from disclosure pliers. Information is provided only as estimates of the average mates do not include trace levels of dopants, metals, and non-	with EU Directive 2002/95 ernal design controls, supp I substance is NOT an inte this document, there is no n for any regulatory schem bility standard for plastics. tics/ e made from polyvinyl chlo is form concerning substat e best of its knowledge an cause it has been compiler as trade secrets and some weight of these parts and metal materials contained	tal Mass /EC (RoHS Directive), EU Directive 2011/65/EU (plier declarations, and /or analytical test data. untional ingredient in the semiconductor device o credible reason to believe that the unavoidable te world-wide. . You can access the UL iQTM family of database pride (PVC) plastic. "Window envelopes" used to neces restricted by RoHS in Microchip Technolog d belief, as of the date listed in this form. Microc d based on the ranges provided in Material Safe a information may not have been provided by sud if the average weight of anticipated significant to within silicon devices (silicon IC) in the finished	and, to the be b impurity con es to obtain a o hold the pac gy Incorporate hip Technolo y Data Shea bcontract ass oxic metals co parts.	est of Microchi contration of t test report at cking slip on tl ed's semicond gy Incorporat s provided semblers and n mponents. Th	p the chemical ne outer box uctor ed cannot raw material raw material lese		Total (mg) Doped Silicon (mg) Total	Total Chip (Die) 7440-21-3 Total Wire Bond 7440-57-5 Total	% of Total Weight 100 100.00 % of Total Weight	
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). apliance with the above EU Directives has been verified via inter- chemical substance is absent from the list above, the chemical hnology Incorporated's knowledge and belief as of the date of stance, if any, is not below the threshold of regulatory concern ding compounds used by Microchip meet the UL94 V0 flammal ://ul.com/global/eng/pages/offerings/industries/chemicals/plas protective "tubes" in which the specific product is shipped ar certain "reels" may be made from PVC plastic. the information in the ices in their original packing materials is true and correct to the rantee the completeness and accuracy of data in this form berg pliers. Information is provided only as estimates of the average	with EU Directive 2002/95 ernal design controls, suppl I substance is NOT an inter this document, there is no n for any regulatory schem bility standard for plastics. tics/ e made from polyvinyl chk is form concerning substat e best of its knowledge an cause it has been compiled as trade secrets and some e weight of these parts and e wetal materials contained y, express or implied, with s subsidiaries are contained	tal Mass //EC (RoHS Directive), EU Directive 2011/65/EU (plier declarations, and /or analytical test data. entional ingredient in the semiconductor device occedible reason to believe that the unavoidable world-wide. You can access the UL iQTM family of database oride (PVC) plastic. "Window envelopes" used to nees restricted by RoHS in Microchip Technolog d belief, as of the date listed in this form. Microc b based on the ranges provided in Material Safe e information may not have been provided by sud the average weight of anticipated significant to within silicon devices (silicon IC) in the finished respect to the information provided in this decl	and, to the be e impurity con es to obtain a o hold the pac ship Technolo ty Data Sheets biccontract ass oxic metals co parts. aration. The e	est of Microchi acentration of f test report at cking slip on ti ad's semicond gy Incorporat s provided by smobiles and i omponents. Th exclusive, limit	p the chemical ne outer box uctor ed cannot raw material ese ed product		Total (mg) Doped Silicon (mg) Total	Total Chip (Die) 7440-21-3 Total Wire Bond 7440-57-5	% of Total Weight 100 100.00 % of Total Weight 100	
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). apliance with the above EU Directives has been verified via inter- chemical substance is absent from the list above, the chemical hnology Incorporated's knowledge and belief as of the date of stance, if any, is not below the threshold of regulatory concern ding compounds used by Microchip meet the UL94 V0 flammal ://ul.com/global/eng/pages/offerings/industries/chemicals/plass protective "tubes" in which the specific product is shipped ar certain "reels" may be made from PVC plastic. rochip Technology Incorporated believes the information in thi rantee the completeness and accuracy of data in this form bec- pliers. Supplier information is often protected from disclosure pliers. Supplier information is often protected from disclosure pliers. Information is provided only as estimates of the averagy mates do not include trace levels of dopants, metals, and non- rochip Technology Incorporated does not provide any warrant ranties provided by Microchip Technology Incorporated and it	with EU Directive 2002/95 ernal design controls, supp I substance is NOT an inte this document, there is no n for any regulatory schem bility standard for plastics. tics/ e made from polyvinyl chlo is form concerning substat e best of its knowledge an ause it has been compiled as trade secrets and some e weight of these parts and metal materials contained y, express or implied, with s subsidiaries are containe es. is to Material Content Decl rs' reliance on the informar	tal Mass /EC (RoHS Directive), EU Directive 2011/65/EU (plier declarations, and /or analytical test data. untional ingredient in the semiconductor device oredible reason to believe that the unavoidable is world-wide. You can access the UL iQTM family of database oride (PVC) plastic. "Window envelopes" used to nees restricted by RoHS in Microchip Technolog d belief, as of the date listed in this form. Micro- d based on the ranges provided in Material Safe information may not have been provided by su d the average weight of anticipated significant to within silicon devices (silicon IC) in the finished respect to the information provided in this decl ad in Microchip's standard terms and conditions arations and shall not be liable for any damages	and, to the be impurity con es to obtain a o hold the pac gy Incorporate chip Technolo up Data Sheets bcontract ass oxic metals co parts. aration. The e is of sale. Thes s, direct or ind	est of Microchi icentration of t test report at cking slip on tl ed's semicond s provided by semblers and to mponents. Th exclusive, limit se are provideo direct, consequ	p the chemical ne outer box ed cannot raw material rese ed product d in uential or	1.90	Total (mg) Doped Silicon (mg) Total Doped Gold	Total Chip (Die) 7440-21-3 Total Wire Bond 7440-57-5 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for	% of Total Weight 100 100.00 % of Total Weight 100 100.00	1.21

ICROCHIP Semiconductor Device Typ	ne: SO 18 (Lead) SOI	C (Wide Outline - 300mil) (F2 / FJ)		nation Base A oper Alloy (C	-		-	ogeneous Materials: a.g. pc boards, displa		JEDEC 97 Product Markin and/or Pkg. Labeling e3
		"Contained In"	% Total			383.84	(mg) Total	Mold Compound	% ot Total Weight	79.8
Basic Substance	CAS Number	Sub-Component	Weight	mg/part	ppm	303.04	(ing) Totai	word compound	% of Total Weight	/9.0
Silica, vitreous	60676-86-0	Mold Compound	67.830	326.262	678,300		Silica, vitreous	60676-86-0	85.00	
Epoxy Resin (No bromine, No diantimony trioxide)	Trade Secret	Mold Compound	4.888	23.510	48,878		Epoxy Resin	Trade Secret	6.13	
Phenolic Resin (No Br / CL SbO3, No diantimony trioxide)	Trade Secret	Mold Compound	4.888	23.510	48,878		Phenolic Resin	Trade Secret	6.13	
Epoxy, Cresol Novolac	29690-82-2	Mold Compound	1.955	9.404	19,551		Epoxy, Cresol Novolac	29690-82-2	2.45	
Carbon Black	1333-86-4	Mold Compound	0.239	1.152	2,394		Carbon Black	1333-86-4	0.30	
Copper	7440-50-8	Lead Frame	10.031	48.251	100,314			Total	100.00	
Iron	7439-89-6	Lead Frame	0.247	1.187	2,468	50.51	(mg) Total	Lead Frame	% of Total Weight	10.5
Silver	7440-22-4	Lead Frame	0.200	0.962	2,000		Copper	7440-50-8	95.54	
Zinc	7440-66-6	Lead Frame	0.013	0.063	131		Iron	7439-89-6	2.35	
Phosphorous	7723-14-0	Lead Frame	0.009	0.042	87		Silver	7440-22-4	1.91	
Silver (Ag)	7440-22-4	Die Attach	0.563	2.706	5,625		Zinc	7440-66-6	0.13	
Modified Epoxy Resin	13561-08-5	Die Attach	0.105	0.505	1,050		Phosphorous	7723-14-0	0.08	
Diglycidylether of bisphenol-F	54208-63-8	Die Attach	0.056	0.271	563			Total	100.00	
Modified Amine	827-43-0	Die Attach	0.026	0.126	263	3.61	(mg) Total	Die Attach	% of Total Weight	0.75
Silicon	7440-21-3	Chip (Die)	7.500	36.075	75,000		Silver (Ag)	7440-22-4	75	
Gold	7440-57-5	Wire Bond	0.200	0.962	2,000		Modified Epoxy Resin	13561-08-5	14	
Tin	7440-31-5 Plati	ng on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	1.250	6.013	12,500	Dig	lycidylether of bisphenol-F	54208-63-8	8	
		TOTALS:	100.000	481.000	1,000,000		Modified Amine	827-43-0	4	
		otal Mass 95/EC (RoHS Directive), EU Directive 2011/65/EU (R	OHS Recast D	Directive) and	with EU	36.08	Total (mg)	Total Chip (Die)	100.00 % of Total Weight	7.5
emiconductor device and its homogenous materials comp tive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). Iliance with the above EU Directives has been verified via in nemical substance is absent from the list above, the chemic nology Incorporated's knowledge and belief as of the date c	y with EU Directive 2002/ ternal design controls, su al substance is NOT an ir f this document, there is	95/EC (RoHS Directive), EU Directive 2011/65/EU (R upplier declarations, and /or analytical test data. ntentional ingredient in the semiconductor device a no credible reason to believe that the unavoidable	nd, to the bes	t of Microchip		36.08	Total (mg) Doped Silicon			7.5
tive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). Nance with the above EU Directives has been verified via in nemical substance is absent from the list above, the chemic hology Incorporated's knowledge and belief as of the date of ance, if any, is not below the threshold of regulatory conce ng compounds used by Microchip meet the UL94 V0 flamm ul.com/global/eng/pages/offerings/industries/chemicals/pla	y with EU Directive 2002/ ternal design controls, su al substance is NOT an ir f this document, there is rn for any regulatory sche ability standard for plastic stics/	95/EC (RoHS Directive), EU Directive 2011/65/EU (R upplier declarations, and /or analytical test data. Intentional ingredient in the semiconductor device a no credible reason to believe that the unavoidable ame world-wide. IS. You can access the UL iQTM family of database	nd, to the bes impurity conc s to obtain a t	et of Microchip centration of the est report at	ne chemical	36.08 0.96		Chip (Die) 7440-21-3	% of Total Weight	0.2
ive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). Iliance with the above EU Directives has been verified via in remical substance is absent from the list above, the chemic ology Incorporated's knowledge and belief as of the date c ance, if any, is not below the threshold of regulatory conce ng compounds used by Microchip meet the UL94 V0 flamm	y with EU Directive 2002/ ternal design controls, su al substance is NOT an ir f this document, there is rn for any regulatory sche ability standard for plastic stics/	95/EC (RoHS Directive), EU Directive 2011/65/EU (R upplier declarations, and /or analytical test data. Intentional ingredient in the semiconductor device a no credible reason to believe that the unavoidable ame world-wide. IS. You can access the UL iQTM family of database	nd, to the bes impurity conc s to obtain a t	et of Microchip centration of the est report at	ne chemical		Doped Silicon	Chip (Die) 7440-21-3 Total Wire Bond 7440-57-5	% of Total Weight 100 100.00 % of Total Weight 100	0.2
ive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). liance with the above EU Directives has been verified via in semical substance is absent from the list above, the chemic lology Incorporated's knowledge and belief as of the date of ance, if any, is not below the threshold of regulatory conce ng compounds used by Microchip meet the UL94 V0 flamm. 'ul.com/global/eng/pages/offerings/industries/chemicals/pla rotective "tubes" in which the specific product is shipped a	y with EU Directive 2002/ ternal design controls, su al substance is NOT an ir f this document, there is rn for any regulatory sche ability standard for plastic stics/ re made from polyvinyl c his form concerning subs he best of its knowledge iccause it has been compil a as trade secrets and so ge weight of these parts a	95/EC (RoHS Directive), EU Directive 2011/65/EU (R upplier declarations, and /or analytical test data. Intentional ingredient in the semiconductor device a no credible reason to believe that the unavoidable arme world-wide. S. You can access the UL iQTM family of database: hloride (PVC) plastic. "Window envelopes" used to tances restricted by RoHS in Microchip Technology and belief, as of the date listed in this form. Microcl led based on the ranges provided in Material Safety me information may not have been provided by sub mot the average weight of anticipated significant to	nd, to the bes impurity conc s to obtain a t hold the pack y Incorporated hip Technolog y Data Sheets ccontract asse cic metals con	t of Microchip entration of th est report at king slip on th d's semicondu gy Incorporate provided by r mblers and ra	e outer box ictor d cannot aw material aw material		Doped Silicon (mg) Total	Chip (Die) 7440-21-3 Total Wire Bond	% of Total Weight 100 100.00 % of Total Weight	0.2
ive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). Iliance with the above EU Directives has been verified via in memical substance is absent from the list above, the chemic ology Incorporated's knowledge and belief as of the date of ance, if any, is not below the threshold of regulatory conce ing compounds used by Microchip meet the UL94 V0 flamm. 'ul.com/global/eng/pages/offerings/industries/chemicals/pla rotective "tubes" in which the specific product is shipped a ertain "reels" may be made from PVC plastic. chip Technology Incorporated believes the information in th as in their original packing materials is true and correct to to the the completeness and accuracy of data in this form be iers. Supplier information is often protected from disclosur- iers. Information is provided only as estimates of the averagi	y with EU Directive 2002/ ternal design controls, su al substance is NOT an ir f this document, there is rn for any regulatory sche ability standard for plastic stics/ re made from polyvinyl c his form concerning subs he best of its knowledge is as trade secrets and so use weight of these parts a -metal materials containe ty, express or implied, wi ts subsidiaries are contai	95/EC (RoHS Directive), EU Directive 2011/65/EU (R upplier declarations, and /or analytical test data. Intentional ingredient in the semiconductor device a no credible reason to believe that the unavoidable arme world-wide. S. You can access the UL iQTM family of database: hloride (PVC) plastic. "Window envelopes" used to tances restricted by RoHS in Microchip Technology and belief, as of the date listed in this form. Microcl led based on the ranges provided in Material Safety me information may not have been provided by sub ind the average weight of anticipated significant too ad within silicon devices (silicon IC) in the finished provided in this decla	nd, to the bes impurity conc s to obtain a to hold the pack y Incorporated hip Technolog y Data Sheets contract asse kic metals con parts. ration. The ex	t of Microchip entration of th est report at king slip on th d's semicondu gy Incorporate provided by r emblers and ra mponents. The clusive, limite	e outer box ictor d cannot aw material aw material se d product		(mg) Total	Chip (Die) 7440-21-3 Total Wire Bond 7440-57-5	% of Total Weight 100 100.00 % of Total Weight 100	0.2
ive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). Iliance with the above EU Directives has been verified via in memical substance is absent from the list above, the chemic nology Incorporated's knowledge and belief as of the date of ance, if any, is not below the threshold of regulatory conce ng compounds used by Microchip meet the UL94 V0 flamm. 'ul.com/global/eng/pages/offerings/industries/chemicals/pla rotective "tubes" in which the specific product is shipped a ertain "reels" may be made from PVC plastic. chip Technology Incorporated believes the information in th as in their original packing materials is true and correct to to the the completeness and accuracy of data in this form be iers. Supplier information is often protected from disclosur- iers. Information is provided only as estimates of the averag- ates do not include trace levels of dopants, metals, and nor chip Technology Incorporated does not provide any warrar nties provided by Microchip Technology Incorporated and i	y with EU Directive 2002/ ternal design controls, su al substance is NOT an ir f this document, there is rn for any regulatory sche ability standard for plastic stics/ re made from polyvinyl c his form concerning subs he best of its knowledge thas been compi e as trade secrets and so ge weight of these parts a i-metal materials contained ty, express or implied, wi ts subsidiaries are contai ces.	95/EC (RoHS Directive), EU Directive 2011/65/EU (R upplier declarations, and /or analytical test data. Intentional ingredient in the semiconductor device a no credible reason to believe that the unavoidable sme world-wide. cs. You can access the UL iQTM family of database hloride (PVC) plastic. "Window envelopes" used to tances restricted by RoHS in Microchip Technology and belief, as of the date listed in this form. Microcl led based on the ranges provided in Material Safety me information may not have been provided by sub ind the average weight of anticipated significant too ad within silicon devices (silicon IC) in the finished if th respect to the information provided in this decla ined in Microchip's standard terms and conditions of the clarations and shall not be liable for any damages,	nd, to the bes impurity conc s to obtain a t hold the pack y Incorporated hip Technolog / Data Sheets contract asse xic metals con parts. ration. The ex of sale. These direct or indir	at of Microchip entration of the est report at and sing slip on the d's semicondu gy Incorporate provided by r emblers and ra mponents. The clusive, limite e are provided rect, consequi	e outer box ictor d cannot aw material aw material ise in ential or	0.96	Coped Silicon (mg) Total Doped Gold	Chip (Die) 7440-21-3 Total Wire Bond 7440-57-5 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for	% of Total Weight 100 100.00 % of Total Weight 100 100.00	0.2

Semiconductor Device Type: S.O. 20 (Lead) SOIC (mix comm: scene) (K.T. Gall		oi 50 - 20 //			nation Base A pper Alloy (C				nogeneous Materials: e.g. pc boards, displa		JEDEC 97 Product Marking and/or Pkg. Labeling
Basic substanceCAS NumberSub-ComponentWeight Mund CompoundPpmMB27(mg) TotalMod Compound (1.64) Mod Compound (1.64) (1.64) Mod Compound (1.64) <t< th=""><th>Semiconductor Device Typ</th><th>e: 50 20 (Lea</th><th>, , , , ,</th><th>0/ Total</th><th></th><th></th><th></th><th></th><th></th><th>1</th><th>e3</th></t<>	Semiconductor Device Typ	e: 50 20 (Lea	, , , , ,	0/ Total						1	e3
Enclose Instrument in the borning base in the borning baseand to be borning base in th	Basic Substance	CAS Number			mg/part	ppm	389.37	(mg) Total	Mold Compound	% ot Total Weight	71.84
Phone (keen (h ber / C, 1933), ko daminory (note) Tada Secter Mod Compound 1400 23.84 44.002 Exponence 24804.023 Mod Compound 1.760 1.760 1.760 2.63.41 1.760 2.63.41 1.760 2.65.41 2.65.71 2.66.71 <td>Silica, vitreous</td> <td>60676-86-0</td> <td>Mold Compound</td> <td>61.064</td> <td>330.967</td> <td>610,640</td> <td></td> <td>Silica, vitreous</td> <td>60676-86-0</td> <td>85.00</td> <td></td>	Silica, vitreous	60676-86-0	Mold Compound	61.064	330.967	610,640		Silica, vitreous	60676-86-0	85.00	
Epsor, Creat Nervise 28808-852 Mod Compound 1760 6.540 17.801 Chron Biock 1733-864 Mod Compound 0.276 17.801 Consert 1733-864 Mod Compound 0.276 17.801 Consert 1733-864 Mod Compound 0.276 17.801 Consert 1733-864 Mod Compound 0.276 17.801	Epoxy Resin (No bromine, No diantimony trioxide)	Trade Secret	Mold Compound	4.400	23.849	44,002		Epoxy Resin	Trade Secret	6.13	
$ \frac{1}{1000} \frac{1}{100$	Phenolic Resin (No Br / CL SbO3, No diantimony trioxide)	Trade Secret	Mold Compound	4.400	23.849	44,002		Phenolic Resin	Trade Secret	6.13	
$ \frac{1}{100} + 1$								Epoxy, Cresol Novolac		2.45	
Tion 7439-89-6 Lead Finme 0.6560 3.260 6.064 140.32 Image Team 5.60 7.400-24.0 6.60 7.400-24.0 6.60 7.400-24.0 6.60 7.400-24.0 6.60 7.400-24.0 6.60 7.400-24.0 6.60 7.400-24.0 6.60 7.400-24.0 6.60 7.400-24.0 6.60 7.400-24.0 6.60 7.400-24.0 6.60 7.400-24.0 6.60 7.400-24.0 6.60 7.400-24.0 6.60 7.400-24.0 0.60 7.400-24.0 0.60 7.400-24.0 0.60 7.400-24.0 0.60 7.400-24.0 0.60 7.400-24.0 0.60 7.400-24.0 0.60 7.400-24.0 0.60 7.400-24.0 0.60 7.400-24.0 0.60 7.400-24.0 0.60 7.400-24.0 0.60 7.400-24.0 0.60 7.400-24.0 0.60 7.400-24.0 0.60 0.60 0.600 7.400-24.0 0.60 0.600 0.600 0.600 0.600 0.600 0.600 0.600 0.600 0.600 0.600 0.600 0.60	Carbon Black	1333-86-4	Mold Compound	0.216	1.168	2,155		Carbon Black	1333-86-4	0.30	
Silver 7440-224 Lead Fame 0.433 2673 4.932 2673 4.932 2673 4.932 2673 4.932 2673 4.932 100 <	Copper	7440-50-8	Lead Frame	24.735	134.062	247,347			Total	100.00	
$ \frac{2 \text{ In } 1}{2 \text{ Houghbook}} \frac{7426 \text{ Hough Frame}}{7426 \text{ Hough Frame}} \frac{0.032}{1.15} \frac{1.175}{2.24} \frac{3.24}{1.15} \frac{1}{2.16} \frac{1}{1.15} \frac{1}{1.15} \frac{1}{2.24} \frac{1}{1.15} \frac{1}{1.$	Iron	7439-89-6	Lead Frame	0.608	3.298	6,084	140.32	(mg) Total	Lead Frame	% of Total Weight	25.89
Dire 7440-66-6 Lead Frame 0.032 0.175 324 Direction 7723-14-0 Lead Frame 0.232 0.185 214 Direction 7723-14-0 De Altach 0.023 0.185 214 Direction 7723-14-0 De Altach 0.023 0.195 214 Direction Total De Altach 0.010 0.055 102 Total De Altach 0.010 Gold 7440-21-3 Chip Diel 1.150 6.233 Total De Altach 9.010 0.254 1.600 5.82 1.600 0.890 0.990 <td>Silver</td> <td>7440-22-4</td> <td>Lead Frame</td> <td>0.493</td> <td>2.673</td> <td>4.932</td> <td></td> <td>Copper</td> <td>7440-50-8</td> <td>95.54</td> <td></td>	Silver	7440-22-4	Lead Frame	0.493	2.673	4.932		Copper	7440-50-8	95.54	
Silver 7440-22-4 Die Attach 0.282 1.384 2.516 Epoxy resin Trade Scrett Die Attach 0.08 0.356 1800 Mett oxide Trade Scrett Die Attach 0.016 0.055 102 1800 7440-95-6 0.03 0.000 Gimme Autority 7440-95-7 Die Attach 0.016 0.055 102 1800 7440-95-6 0.03 0.08 0.08 0.08 0.08 0.08 0.08 0.08 0.08 0.06 0.052 1.000 0.542 1.000 0.542 1.000 0.542 1.000 0.542 1.000 0.64 0.08 0.680 0.080 </td <td>Zinc</td> <td>7440-66-6</td> <td>Lead Frame</td> <td>0.032</td> <td>0.175</td> <td>324</td> <td></td> <td></td> <td>7439-89-6</td> <td>2.35</td> <td></td>	Zinc	7440-66-6	Lead Frame	0.032	0.175	324			7439-89-6	2.35	
Epony tesin Trade Secret Die Attach 0.088 0.589 6897 Trade Secret 0.08 Metal oxide Trade Secret Die Attach 0.010 0.055 102 1.44 (m) Trade Secret 0.68 Gamme buyrolizatione 96-480 Die Attach 0.010 0.055 102 1.44 (m) Trade Secret 7.440-24 7.44 0m 7.440-231-3 Die Attach 0.680 3.686 6.800 7.440-24 7.44 0.680 3.686 6.800 7.660-00 1.600.00 542.00 1.600.00 542.00 1.600.00 542.00 1.600.00 542.00 1.600.00 542.00 1.600.00 542.00 1.600.00 542.00 1.600.00 542.00 1.600.00 542.00 1.600.00 542.00 1.600.00 542.00 1.600.00 542.00 1.600.00 542.00 1.600.00 542.00 1.600.00 542.00 1.600.00 542.00 1.600.00 542.00 1.600.00 542.00 1.600.00 542.00 1.600.00 5	Phosphorous	7723-14-0	Lead Frame	0.021	0.116	214		Silver	7440-22-4	1.91	
Metal oxide Total Open Attach 0.010 0.055 102 Total Total 000.00 Gamma butyrolicorie 984.80 Die Attach 0.010 0.055 102 14.4 (mg) Total Die Attach 0.010 0.542 1.000 Gold 7440-21-3 Chip (Die) 1.500 6.323 11.500 Sker 740-22-4 74 Tim 7440-31-5 Paigo executable (peri, Mate Is anawaka t00-02 to 10.000 3.650 6.800 3.660 6.800 3.660 6.800 3.660 6.800 3.660 6.800 3.660 6.800 3.660 6.800 3.660 6.800 3.660 6.800 3.660 6.800 3.660 6.800 3.660 6.800 3.660 6.800 3.660 7.600 7.601 9.600 7.601 9.600 7.601 9.600 7.601 9.600 7.601 9.600 7.601 9.600 9.600 7.601 9.600 7.601 9.600 7.601 9.600 9.600 7.60	Silver	7440-22-4	Die Attach	0.252	1.364	2.516		Zinc	7440-66-6	0.13	
Metal oxide Trade Secret De Attach 0.010 0.055 102 Total Total 10000 Siltorn 7440-21-3 Chip (Die) 1.150 6.233 11,500 Siltorn 7440-22-4 74 740 <td>Epoxy resin</td> <td>Trade Secret</td> <td>Die Attach</td> <td>0.068</td> <td>0.369</td> <td>680</td> <td></td> <td>Phosphorous</td> <td>7723-14-0</td> <td>0.08</td> <td></td>	Epoxy resin	Trade Secret	Die Attach	0.068	0.369	680		Phosphorous	7723-14-0	0.08	
Gamma buyrrelatione 96-48-0 Die Attach 0.010 0.055 102 1.44 Imp Teal Die Attach % of Total Weight 0.34 Silicon 7440-271-3 Chip (Die) 1.150 6.233 11.500 Silicon 7440-372-4 74 Gold 7440-375-5 Wire Bond 0.080 3.886 6.800 3.886 6.800 3.886 6.800 3.886 6.800 3.886 6.800 3.886 6.800 3.886 6.800 3.886 6.800 7.000.000 Total Weight 0.1542 100.000 % of Total Weight 1.15 1.15 1.15 1.15 1.15 1.15 1.15 1.15 1.15	Metal oxide	Trade Secret	Die Attach	0.010	0.055	102		· · ·		100.00	9
Silicon 7440-21-3 Chip (Die) 1150 6.23 11.000 Silver 7440-22-4 74 74 Tin 7440-31-5 Paring meansation to the Bond 0.000 0.542 10.000 552.000 1.000 Ecover rein Tind \$2000 7440-22-4 20 Tin 7440-31-5 Paring meansation to the Bond 0.0000 1.0000 552.000 1.0000 542.000 1.0000 640-3 3 Object (End-of-Life Vehicles (ELV) Directive). Directive 2002/55/EC (RoHS Directive). EU Directive 2011/85/EU (RoHS Recast Directive) and with EU Ecov 6.23 Total 100.00 Total Total Total 100.00 1.15 Dope Silicon 7/46-21-3 100 Incord protective Total Intentional ingredient in the semiconductor device and, to the best of Microchip onologin necoprotective and the semiconductor device and, to the best of Microchip anologina totariad for plastice. You can access the UL iQTM family of databases to obtain a test report at the complexity of the specific product is shipped are made from polyrinyl choride (PVC) plastic. Wire Bond % of Total Weight 0.1 Uncord global masing abeabig as of the access and sone main three in an intentin	Gamma-butyrolactone		Die Attach		0.055		1 84	(mg) Total	Die Attach	% of Total Weight	0.34
Gold 7440-57-5 Write Bond 0.100 0.542 1,000 Tin 7440-57-5 Pategon entemal take genesity TOTALS: 10,000 542.000 1,000 64.50 On-5420 g Total Mass TOTALS: 100.000 542.000 1,0000 1,0000 1,0000 1,0000 1,0000 1,0000 1,0000 1,0000 1,0000 1,0000 1,0000						-					0.01
Tin 7440-315 Puesgion second lead grad. Addit Train disconder Control Contro Contre Contre <td></td>											
TOTALS:											
O.5420 g Total Mass Total	181	7440-31-3									
complexity in the specific product is shipped are made from polyinyl chloride (PVC) plastic. "Window envelopes" used to hold the packing silp on the outer box plance with the specific product is shipped are made from polyinyl chloride (PVC) plastic. "Window envelopes" used to hold the packing silp on the outer box planter with the specific product is shipped are made from polyinyl chloride (PVC) plastic. "Window envelopes" used to hold the packing silp on the outer box planter with the specific product is shipped are made from polyinyl chloride (PVC) plastic. "Window envelopes" used to hold the packing silp on the outer box planter with the specific product is shipped are made from polyinyl chloride (PVC) plastic. "Window envelopes" used to hold the packing silp on the outer box planter with or original packing materials is true and correct to the best of its knowledge and beliefs as of the average weight of a material Safety Data to the specific provided only as estimates of the average weight of these parts and the average weight of these parts. Total		0 5 400		100.000	542.000	1,000,000		Gamma-butyrolacione		9	
termical substance is absent from the list above, the chemical substance is NOT an intentional ingredible reason to believe that the unavoidable impurity concentration of the chemical ance, if any, is not below the threshold of regulatory concern for any regulatory scheme world-wide. ance, if any, is not below the threshold of regulatory concern for any regulatory scheme world-wide. ance, if any, is not below the threshold of regulatory concern for any regulatory scheme world-wide. ance, if any, is not below the threshold of regulatory concern for any regulatory scheme world-wide. and the chemical for the specific product is shipped are made from polyvinyl chloride (PVC) plastic. "Window envelopes" used to hold the packing slip on the outer box etain "reels" may be made from PVC plastic. the or oplical placking materials is true and correct to the best of its knowledge and belief, as of the date listed in this form. Microchip Technology Incorporated's semiconductor interest and correct to the best of its knowledge and belief, as of the date listed in this form. Microchip Technology Incorporated's provided by raw material list. Subplifient notices of the average weight of the expanse provided in Material Safety Data Sheets provide by raw material liers. Supplier information is provided only as estimates of the average weight of the expanse weight of the supplicant oxics, supplier information provided in Microchip's standard terms and conditions of sale. These are provided in chief as orchanges, direct or indirect, consequential or weight in the substance as a result of the users' reliance on the information in Material Content Declarations and shall not be liable for any damages, direct or indinect, consequential or wits exported in fourthice pror	liance with the above EU Directives has been verified via in	ernal design control	s, supplier declarations, and /or analytical test data.								
///l.com/global/eng/pages/offerings/industries/chemicals/plastics/ 0.54 (mg) 1 otal Wire Bond % of 1 otal Weight 0.1 ///l.com/global/eng/pages/offerings/industries/chemicals/plastics/ 0.54 (mg) 1 otal Wire Bond % of 1 otal Weight 0.1 protective "tubes" in which the specific product is shipped are made from polyvinyl chloride (PVC) plastic. Window envelopes" used to hold the packing slip on the outer box Dope Gold 7440-57-5 100 ochip Technology Incorporated believes the information in this form because it has been compiled based on the ranges provided in Material Safety Data Sheets provided by raw material pliers. Information is often protected from disclosure as trade secrets and some information may not have been provided by subcontract assemblers and raw material anterials components. These nates do not include trace levels of dopants, metals, and non-metal materials contained within silicon devices (silicon IC) in the finished parts. 3.69 (mg) Total Plating on external leads (pins) - Matter Tin / annealed at 150°C for / 1 hour ochip Technology Incorporated does not provide any warranty, express or implied, with respect to the information provided in Microchip's standard terms and conditions of sale. These are provided in continued trace levels of dopants, metals. 3.69 (mg) Total Plating on external leads (pins) - Matter Tin / annealed at 150°C for / 1 hour 0.68 ochip 's quotations, sales order acknowledgement, and invoices. 0.69 Tin 7440-31-5								Dope Silicon			
Certain "reels" may be made from PVC plastic. Dope Gold 7440-57-5 100 Dope Gold 7440-57-5 100	nology Incorporated's knowledge and belief as of the date o	f this document, the	an intentional ingredient in the semiconductor device re is no credible reason to believe that the unavoidable					Dope Silicon			
ochip Technology Incorporated believes the information in this form concerning substances restricted by ROHS in Microchip Technology Incorporated's semiconductor ces in their original packing materials is true and correct to the best of its knowledge and belief, as of the date listed in this form. Microchip Technology Incorporated cannot antee the completeness and accuracy of data in this form because it has been compiled based on the ranges provided by subcontract assemblers and raw material oliers. Supplier information is often protected from disclosure as trade secrets and some information may not have been provided by subcontract assemblers and raw material oliers. Information is provided only as estimates of the average weight of these parts and the average weight of anticipated significant toxic metals components. These nates the completeness are ont colude trace levels of dopants, metals, and non-metal materials contained within silicon devices (silicon IC) in the finished parts. ochip Technology Incorporated does not provide any warranty, express or implied, with respect to the information provided in this declaration. The exclusive, limited product 3.69 (mg) Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for / t hour % of Total Weight 0.68 ochip's quotations, sales ord the dusers or third parties as a result of the users' reliance on the information in Material Content Declarations (MCD) or independent third party test reports Tin 7440-31-5 100.00	nology Incorporated's knowledge and belief as of the date o tance, if any, is not below the threshold of regulatory concer ing compounds used by Microchip meet the UL94 V0 flamma	f this document, ther n for any regulatory ability standard for pl	an intentional ingredient in the semiconductor device e is no credible reason to believe that the unavoidabl scheme world-wide.	le impurity con	centration of t		0.54		Total	100.00	
Occupit rectinology incorporated does not provide any warranty, express or implied, with respect to the information provide in this declaration. The exclusive, infinited product any warranty, express or implied, with respect to the information provide in this declaration. The exclusive, infinited product any warranty, express or implied, with respect to the information provide in this declaration. The exclusive, infinited product any warranty, express or implied, with respect to the information provide in this declaration. The exclusive, infinited product any warranty, express or implied, with respect to the information provide in this declaration. The exclusive, infinited product any service in the information provide in this declaration. The exclusive, infinited product any service in the information provide in this declaration. The exclusive, infinited product any service in the information provide in this declaration. The exclusive, infinited product any service in the information provide in this declaration. The exclusive, infinited product any service in the information provide in this declaration in the exclusive, infinited product any service in the information provide in this declaration of sale. These are provided in this declaration and shall not be liable for any damages, direct or indirect, consequential or indirect, consequential or indirect provide any service in the users' reliance on the information in Material Content Declarations (MCD) or independent third party test reports 3.69 (mg) Total leads (pins) - Matte Tin / annealed at 150°C for i hour % of Total Weight 0.68 orchip service in the users' reliance on the information in Material Content Declarations (MCD) or independent third party test reports Tin 7440-31-5 100.00 S) or of this Certificate of Compliance for semiconductor products.	nology Incorporated's knowledge and belief as of the date o tance, if any, is not below the threshold of regulatory concer ling compounds used by Microchip meet the UL94 V0 flamma //ul.com/global/eng/pages/offerings/industries/chemicals/pla protective "tubes" in which the specific product is shipped a	f this document, ther n for any regulatory ability standard for pl stics/	an intentional ingredient in the semiconductor device re is no credible reason to believe that the unavoidabl scheme world-wide. astics. You can access the UL iQTM family of databas	le impurity con ses to obtain a	centration of t test report at	he chemical	0.54	(mg) Total	Total Wire Bond	100.00 % of Total Weight	
erwise, suffered by users or third parties as a result of the users' reliance on the information in Material Content Declarations (MCD) or independent third party test reports S) or of this Certificate of Compliance for semiconductor products.	nology Incorporated's knowledge and belief as of the date o tance, if any, is not below the threshold of regulatory concer ing compounds used by Microchip meet the UL94 V0 flamma //ul.com/global/eng/pages/offerings/industries/chemicals/pla protective "tubes" in which the specific product is shipped a certain "reels" may be made from PVC plastic. bochip Technology Incorporated believes the information in th ces in their original packing materials is true and correct to th antee the completeness and accuracy of data in this form be liers. Supplier information is often protected from disclosure pliers. Information is provided only as estimates of the average	f this document, ther in for any regulatory ability standard for pl stics/ re made from polyvir his form concerning s he best of its knowle cause it has been cc a as trade secrets an je weight of these pa	an intentional ingredient in the semiconductor device e is no credible reason to believe that the unavoidabl scheme world-wide. astics. You can access the UL iQTM family of databas nyl chloride (PVC) plastic. "Window envelopes" used substances restricted by RoHS in Microchip Technolo dge and belief, as of the date listed in this form. Micro mpiled based on the ranges provided in Material Saf d some information may not have been provided by s	le impurity con ses to obtain a to hold the pac opy Incorporate pohip Technolo ety Data Sheet: ubcontract ass toxic metals co	centration of f test report at king slip on th ed's semicond gy Incorporat s provided by semblers and i	he chemical he outer box uctor ed cannot raw material raw material	0.54	(mg) Total	Total Wire Bond 7440-57-5	100.00 % of Total Weight 100	0.1
Total 100.00	nology Incorporated's knowledge and belief as of the date o tance, if any, is not below the threshold of regulatory concer ing compounds used by Microchip meet the UL94 V0 flamme //ul.com/global/eng/pages/offerings/industries/chemicals/pla protective "tubes" in which the specific product is shipped a certain "reels" may be made from PVC plastic. Dochip Technology Incorporated believes the information in th ses in their original packing materials is true and correct to tl antee the completeness and accuracy of data in this form be liers. Supplier information is often protected from disclosure gliers. Information is provided only as estimates of the averag ates do not include trace levels of dopants, metals, and non bochip Technology Incorporated does not provide any warran anties provided by Microchip Technology Incorporated and i	f this document, their n for any regulatory ability standard for pl stics/ re made from polyvin his form concerning s he best of its knowle- cause it has been co a strade secrets an ge weight of these pa -metal materials con ty, express or implie ts subsidiaries are co	an intentional ingredient in the semiconductor device e is no credible reason to believe that the unavoidabl scheme world-wide. astics. You can access the UL iQTM family of databar nyl chloride (PVC) plastic. "Window envelopes" used substances restricted by RoHS in Microchip Technolo dge and belief, as of the date listed in this form. Micro mpiled based on the ranges provided in Material Saft d some information may not have been provided by s rts and the average weight of anticipated significant of tained within silicon devices (silicon IC) in the finishe d, with respect to the information provided in this dec	le impurity con ses to obtain a to hold the pac objective Technolo ety Data Sheet; ubcontract ass toxic metals co d parts.	centration of t test report at king slip on th ed's semicond gy Incorporat s provided by semblers and i imponents. Th ixclusive, limit	he chemical he outer box uctor ed cannot raw material aw material ese ed product		(mg) Total	Total Wire Bond 7440-57-5 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for	100.00 % of Total Weight 100 100.00	0.1
	nology Incorporated's knowledge and belief as of the date o tance, if any, is not below the threshold of regulatory concer ing compounds used by Microchip meet the UL94 V0 flamma //ul.com/global/eng/pages/offerings/industries/chemicals/pla portective "tubes" in which the specific product is shipped a certain "reels" may be made from PVC plastic. Suchip Technology Incorporated believes the information in the ses in their original packing materials is true and correct to the intee the completeness and accuracy of data in this form be liers. Supplier information is often protected from disclosure liers. Information is provided only as estimates of the averag nates do not include trace levels of dopants, metals, and non workip Technology Incorporated does not provide any warran anties provided by Microchip Technology Incorporated and i ochip's quotations, sales order acknowledgement, and invoid ochip disclaims any duty to notify users of updates or chang wise, suffered by users or third parties as a result of the use	f this document, ther in for any regulatory ability standard for pl stics/ re made from polyvir his form concerning s he best of its knowle cause it has been co a strade secrets an ge weight of these pa -metal materials cont ty, express or implie ts subsidiaries are co ces. es to Material Conter prs' reliance on the in	an intentional ingredient in the semiconductor device e is no credible reason to believe that the unavoidabl scheme world-wide. astics. You can access the UL iQTM family of database nyl chloride (PVC) plastic. "Window envelopes" used substances restricted by RoHS in Microchip Technolo dge and belief, as of the date listed in this form. Micro- mpiled based on the ranges provided in Material Safi d some information may not have been provided by s rts and the average weight of anticipated significant t tained within silicon devices (silicon IC) in the finishe d, with respect to the information provided in this dec ontained in Microchip's standard terms and condition at Declarations and shall not be liable for any damage	le impurity con ses to obtain a to hold the pac opy Incorporate pohip Technolo ety Data Sheet ubcontract ass toxic metals co d parts. claration. The e is of sale. Thes es, direct or ind	centration of t test report at king slip on th gy Incorporat s provided by semblers and i omponents. Th exclusive, limit e are provided	he chemical ne outer box uctor ed cannot raw material ese ed product i in uential or		(mg) Total Dope Gold (mg) Total	Total Wire Bond 7440-57-5 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	100.00 % of Total Weight 100 100.00 % of Total Weight	0.1

				nation Base A pper Alloy (C			•	ogeneous Materials: e.g. pc boards, displa	ys)	JEDEC 97 Produ Marking and/or Pkg. Labeling e3
Semiconductor Device Typ	e: OG 24 (Lea	d) SOIC (Wide Outline - 300mil) (K3 / KS)								65
Basic Substance	CAS Number	"Contained In" Sub-Component	% Total Weight	mg/part	ppm	462.27	(mg) Total	Mold Compound	% ot Total Weight	69.83
Silica, vitreous	60676-86-0	Mold Compound	59.356	392,933	593.555		Silica, vitreous	60676-86-0	85.00	
Epoxy Resin (No bromine, No diantimony trioxide)	Trade Secret	Mold Compound Mold Compound	4.277	28.314	42,771		Epoxy Resin	Trade Secret	6.13	
Phenolic Resin (No Br / CL SbO3, No diantimony trioxide)	Trade Secret	Mold Compound	4.277	28.314	42,771		Phenolic Resin	Trade Secret	6.13	
Epoxy, Cresol Novolac	29690-82-2	Mold Compound	1.711	11.326	17.108		Epoxy, Cresol Novolac	29690-82-2	2.45	
Carbon Black	1333-86-4	Mold Compound	0.209	1.387	2,095		Carbon Black	1333-86-4	0.30	
Copper	7440-50-8	Lead Frame	25.757	170.511	257,569			Total	100.00	1
Iron	7439-89-6	Lead Frame	0.634	4,194	6.336	178.48	(mg) Total	Lead Frame	% of Total Weight	26.96
Silver	7440-22-4	Lead Frame	0.514	3.400	5,136		Copper	7440-50-8	95.54	20.00
Zinc	7440-66-6	Lead Frame	0.034	0.223	337		Iron	7439-89-6	2.35	
Phosphorous	7723-14-0	Lead Frame	0.022	0.147	222		Silver	7440-22-4	1.91	
Silver	7440-22-4	Die Attach	0.326	2.155	3,256		Zinc	7440-66-6	0.13	
Epoxy resin	Trade Secret	Die Attach	0.088	0.583	880		Phosphorous	7723-14-0	0.08	
Metal oxide	Trade Secret	Die Attach	0.000	0.087	132		Thosphorous	Total		1
Gamma-butvrolactone	96-48-0	Die Attach	0.013	0.087	132	2.91	(mg) Total	Die Attach	% of Total Weight	0.44
					-	2.91				0.44
Silicon	7440-21-3	Chip (Die)	2.010	13.306	20,100		Silver	7440-22-4	74	
Gold	7440-57-5	Wire Bond	0.090	0.596	900		Epoxy resin	Trade Secret	20	
Tin	7440-31-5	Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	0.670	4.435 662.000	6,700 1.000.000		Metal oxide	Trade Secret	3	
		TOTALS:	100.000	662.000	1,000,000		Gamma-butyrolactone	96-48-0	3	
		g Total Mass 02/95/EC (RoHS Directive), EU Directive 2011/65/EU (Ro	HS Recast Di	rective) and w	ith EU	13.31	Total (mg)	Total Chip (Die)	100.00 % of Total Weight	2.01
semiconductor device and its homogenous materials comply tive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). pliance with the above EU Directives has been verified via inte	with EU Directive 20	02/95/EC (RoHS Directive), EU Directive 2011/65/EU (Ro , supplier declarations, and /or analytical test data.		·		13.31	Total (mg) Doped Silicon	Chip (Die) 7440-21-3	% of Total Weight	2.01
stive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). pliance with the above EU Directives has been verified via inte hemical substance is absent from the list above, the chemical porated's knowledge and belief as of the date of this documer is not below the threshold of regulatory concern for any regul	with EU Directive 20 mail design controls substance is NOT a nt, there is no credibi atory scheme world-	D2/95/EC (RoHS Directive), EU Directive 2011/65/EU (Ro , supplier declarations, and /or analytical test data. n intentional ingredient in the semiconductor device an le reason to believe that the unavoidable impurity conc wide.	d, to the best entration of th	of Microchip 1 be chemical su	Fechnology		Doped Silicon	Chip (Die) 7440-21-3 Total	% of Total Weight 100 100.00	
tive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). pliance with the above EU Directives has been verified via inte hemical substance is absent from the list above, the chemical porated's knowledge and belief as of the date of this documer	with EU Directive 20 ernal design controls substance is NOT a nt, there is no credib atory scheme world- illity standard for pla	D2/95/EC (RoHS Directive), EU Directive 2011/65/EU (Ro , supplier declarations, and /or analytical test data. n intentional ingredient in the semiconductor device an le reason to believe that the unavoidable impurity conc wide.	d, to the best entration of th	of Microchip 1 be chemical su	Fechnology	13.31 0.60	,	Chip (Die) 7440-21-3	% of Total Weight	2.01
tive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). pliance with the above EU Directives has been verified via inte hemical substance is absent from the list above, the chemical porated's knowledge and belief as of the date of this documer is not below the threshold of regulatory concern for any regul ing compounds used by Microchip meet the UL94 V0 flammab	with EU Directive 20 rnal design controls substance is NOT a n, there is no credibi atory scheme world- ility standard for pla ics/	D2/95/EC (RoHS Directive), EU Directive 2011/65/EU (Ro , supplier declarations, and /or analytical test data. n intentional ingredient in the semiconductor device an le reason to believe that the unavoidable impurity conc wide. stics. You can access the UL iQTM family of databases	d, to the best entration of th to obtain a te	of Microchip 1 le chemical su est report at	Fechnology bstance, if		Doped Silicon	Chip (Die) 7440-21-3 Total Wire Bond 7440-57-5	% of Total Weight 100 100.00 % of Total Weight 100	
tive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). pliance with the above EU Directives has been verified via inte hemical substance is absent from the list above, the chemical porated's knowledge and belief as of the date of this documer is not below the threshold of regulatory concern for any regul ing compounds used by Microchip meet the UL94 V0 flammab //ul.com/global/eng/pages/offerings/industries/chemicals/plast protective "tubes" in which the specific product is shipped are	with EU Directive 200 ernal design controls substance is NOT a nt, there is no credibi atory scheme world- illity standard for pla ics/ e made from polyviny s form concerning su s knowledge and beli en compiled based on crets and some infor these parts and the i	D2/95/EC (RoHS Directive), EU Directive 2011/65/EU (Ro poly 20295/EC (RoHS Directive), EU Directive 2011/65/EU (Ro supplier declarations, and /or analytical test data. In intentional ingredient in the semiconductor device an le reason to believe that the unavoidable impurity conc wide. stics. You can access the UL iQTM family of databases /I chloride (PVC) plastic. "Window envelopes" used to H ubstances restricted by RoHS in Microchip Technology ef, as of the date listed in this form. Microchip Technology n the ranges provided in Material Safety Data Sheets pr mation may not have been provided by subcontract as average weight of anticipated significant toxic metals c	d, to the best entration of th to obtain a te nold the packi Incorporated' ogy Incorpora ovided by raw semblers and	of Microchip T le chemical su ist report at ng slip on the s semiconduc ted cannot gui y material supp raw material	Fechnology bstance, if outer box tor devices in arantee the oliers. suppliers.		(mg) Total	Chip (Die) 7440-21-3 Total Wire Bond	% of Total Weight 100 100.00 % of Total Weight	
tive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). pliance with the above EU Directives has been verified via inter hemical substance is absent from the list above, the chemical porated's knowledge and belief as of the date of this documer is not below the threshold of regulatory concern for any regul ing compounds used by Microchip meet the UL94 V0 flammab //ul.com/global/eng/pages/offerings/industries/chemicals/plast protective "tubes" in which the specific product is shipped are certain "reels" may be made from PVC plastic. bochip Technology Incorporated believes the information in this original packing materials is true and correct to the best of its pleier information is often protected from disclosure as trade se mation is provided only as estimates of the average weight of	with EU Directive 200 straal design controls substance is NOT a nt, there is no credibi atory scheme world- ility standard for pla- ics/ a made from polyviny s form concerning su is knowledge and beli- en compiled based ou- crets and some infor these parts and the :- ontained within silico r, express or implied,	D2/95/EC (RoHS Directive), EU Directive 2011/65/EU (Ro p. supplier declarations, and /or analytical test data. In intentional ingredient in the semiconductor device an le reason to believe that the unavoidable impurity concr wide. stics. You can access the UL iQTM family of databases /I chloride (PVC) plastic. "Window envelopes" used to H ubstances restricted by RoHS in Microchip Technology ef, as of the date listed in this form. Microchip Technology ef, as of the date listed in this form. Microchip Technology ef, as of the date listed in this form. Microchip Technology ef, as of the date listed in this form. Microchip Technology ef, as of the date listed in this form. Microchip Technology ef, as of the date listed in this form. Microchip Technology ef, as of the date listed in this declar. with respect to the information provided in this declar.	d, to the best entration of th to obtain a te nold the packi Incorporated' ogy Incorpora ovided by raw semblers and omponents. T ation. The exc	of Microchip T le chemical su ist report at ng slip on the s semiconduc ted cannot guy material sup raw material hese estimate	Fechnology bstance, if outer box tor devices in arantee the oliers. suppliers. s do not		(mg) Total (mg) Total	Chip (Die) 7440-21-3 Total Wire Bond 7440-57-5	% of Total Weight 100 100.00 % of Total Weight 100	
tive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). bliance with the above EU Directives has been verified via inter hemical substance is absent from the list above, the chemical porated's knowledge and belief as of the date of this documer is not below the threshold of regulatory concern for any regul ing compounds used by Microchip meet the UL94 V0 flammab /ul.com/global/eng/pages/offerings/industries/chemicals/plast protective "tubes" in which the specific product is shipped are rertain "reels" may be made from PVC plastic. The protection of the protected from disclosure as trade se nation is provided only as estimates of the average weight of de trace levels of dopants, metals, and non-metal materials co- chip Technology Incorporated does not provide any warranty interprovide only as estimates of the average weight of the trace levels of dopants, metals, and non-metal materials co- schip Technology Incorporated does not provide any warranty interprovided by Microchip Technology Incorporated and its set the set of the protected and the set of the set of the set of the set of the provide any averanty interprovide of the protected from function is not and in the set of the trace levels of dopants, metals, and non-metal materials co- schip Technology Incorporated does not provide any warranty intices provided by Microchip Technology Incorporated and its	with EU Directive 20 wrnal design controls substance is NOT a nt, there is no credibi atory scheme world- ility standard for pla ics/ a made from polyviny s form concerning su k knowledge and beli- en compiled based of crets and some infor these parts and the i- bontained within silico r, express or implied, subsidiaries are cor s to Material Content	D2/95/EC (RoHS Directive), EU Directive 2011/65/EU (Ro supplier declarations, and /or analytical test data. In intentional ingredient in the semiconductor device an le reason to believe that the unavoidable impurity conc wide. stics. You can access the UL iQTM family of databases /I chloride (PVC) plastic. "Window envelopes" used to I bistances restricted by RoHS in Microchip Technology ef, as of the date listed in this form. Microchip Technology ef, as of the date listed in Material Safety Data Sheets pr rmation may not have been provided by subcontract as average weight of anticipated significant toxic metals c n devices (silicon IC) in the finished parts. with respect to the information provided in this declar- tained in Microchip's standard terms and conditions or Declarations and shall not be liable for any damages, of	d, to the best entration of th to obtain a te hold the packi ogy Incorporated' ogy Incorpora ovided by raw semblers and omponents. T ation. The exc f sale. These a direct or indire	of Microchip 1 te chemical su st report at ng slip on the s semiconduc ted cannot guy material supp raw material hese estimate susive, limited are provided ir ect, consequer	Fechnology bistance, if outer box tor devices in arantee the oliers. suppliers. s do not I product n Microchip's ntial or	0.60	(mg) Total (mg) Total	Chip (Die) 7440-21-3 Total Wire Bond 7440-57-5 Total Plating on external leads annealed at 150°C for 1	% of Total Weight 100 100.00 % of Total Weight 100 100.00	0.09

	e: SO & OI 28 /	Lead) SOIC (Wide Outline - 300mil) (N3 / NN)		nation Base A pper Alloy (C				ogeneous Materials: a.g. pc boards, display	rs)	JEDEC 97 Produ Marking and/or Pkg. Labeling e3
		"Contained In" Sub-Component	% Total Weight			614.78	(mg) Total	Mold Compound	% ot Total Weight	79.8
Basic Substance	CAS Number		U U	mg/part 522,562	ppm				-	1
Silica, vitreous Epoxy Resin (No bromine, No diantimony trioxide)	60676-86-0 Trade Secret	Mold Compound Mold Compound	67.830 4.888	37.655	678,300 48,878		Silica, vitreous Epoxy Resin	60676-86-0 Trade Secret	85.00 6.13	
Phenolic Resin (No Br / CL SbO3, No diantimony trioxide)	Trade Secret	Mold Compound	4.888	37.655	48,878		Phenolic Resin	Trade Secret	6.13	
Epoxy, Cresol Novolac	29690-82-2	Mold Compound	1.955	15.062	19.551		Epoxy, Cresol Novolac	29690-82-2	2.45	
Carbon Black	1333-86-4	Mold Compound	0.239	1.844	2.394		Carbon Black	1333-86-4	0.30	
Copper	7440-50-8	Lead Frame	10.031	77.282	100.314		Odibon Bidok	Total	100.00	1
Iron	7439-89-6	Lead Frame	0.247	1.901	2.468	80.89	(mg) Total	Lead Frame	% of Total Weight	10.5
Silver	7440-22-4	Lead Frame	0.200	1.541	2,000	00.03	Copper	7440-50-8	95.54	10.5
Zinc	7440-66-6	Lead Frame	0.013	0.101	131		Iron	7439-89-6	2.35	
Phosphorous	7723-14-0	Lead Frame	0.009	0.067	87		Silver	7440-22-4	1.91	
Silver (Ag)	7440-22-4	Die Attach	0.563	4.334	5.625		Zinc	7440-66-6	0.13	
Modified Epoxy Resin	13561-08-5	Die Attach	0.105	0.809	1.050		Phosphorous	7723-14-0	0.08	
Diglycidylether of bisphenol-F	54208-63-8	Die Attach	0.056	0.433	563		Theophorede	Total	100.00	l I
Modified Amine	827-43-0	Die Attach	0.026	0.202	263	5.78	(mg) Total	Die Attach	% of Total Weight	0.75
Silicon	7440-21-3	Chip (Die)	7.500	57.780	75,000	5.76	(ing) rotal Silver (Ag)	7440-22-4	75	0.75
Gold	7440-21-3	Wire Bond	0.200	1.541	2.000		Modified Epoxy Resin	13561-08-5	14	
Tin	7440-31-5	Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	1.250	9.630	12,500	Di	alvcidvlether of bisphenol-F	54208-63-8	8	
1111	7440-31-3	TOTALS:	100.000	770.400	1,000,000	DI	Modified Amine	827-43-0	4	
	0 7704	g Total Mass	100.000	110.400	1,000,000		Wodilled Amile	027-43-0 Total	4 100.00	J
		0	OHS Recast Di	rective) and wi	th EU	57.78	Total (mg)	Chip (Die)	% of Total Weight	7.5
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive).	with EU Directive 200	2/95/EC (RoHS Directive), EU Directive 2011/65/EU (R	oHS Recast Di	rective) and wi	th EU	57.78	Total (mg) Doped Silicon	Chip (Die) 7440-21-3	% of Total Weight	7.5
tive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). pliance with the above EU Directives has been verified via inte hemical substance is absent from the list above, the chemical rporated's knowledge and belief as of the date of this documen	with EU Directive 200 rnal design controls, substance is NOT ar it, there is no credible	2/95/EC (RoHS Directive), EU Directive 2011/65/EU (R supplier declarations, and /or analytical test data. h intentional ingredient in the semiconductor device a e reason to believe that the unavoidable impurity conv	nd, to the best	of Microchip T	echnology	57.78	,	Chip (Die)	% of Total Weight	7.5
tive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). pliance with the above EU Directives has been verified via inter hemical substance is absent from the list above, the chemical porated's knowledge and belief as of the date of this documen is not below the threshold of regulatory concern for any regula ling compounds used by Microchip meet the UL94 V0 flammab	with EU Directive 200 rnal design controls, substance is NOT ar t, there is no credibla atory scheme world-v ility standard for plas	2/95/EC (RoHS Directive), EU Directive 2011/65/EU (R supplier declarations, and /or analytical test data. In intentional ingredient in the semiconductor device a e reason to believe that the unavoidable impurity conv vide.	nd, to the best centration of th	of Microchip T le chemical su	echnology	57.78	,	Chip (Die) 7440-21-3	% of Total Weight	
semiconductor device and its homogenous materials comply or ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). pliance with the above EU Directives has been verified via inte- themical substance is absent from the list above, the chemical rporated's knowledge and belief as of the date of this documen is not below the threshold of regulatory concern for any regula ling compounds used by Microchip meet the UL94 V0 flammab //ul.com/global/eng/pages/offerings/industries/chemicals/plasti protective "tubes" in which the specific product is shipped are certain "reels" may be made from PVC plastic.	with EU Directive 200 rnal design controls, substance is NOT ar it, there is no credibla atory scheme world-v ility standard for plas ics/	2/95/EC (RoHS Directive), EU Directive 2011/65/EU (R supplier declarations, and /or analytical test data. In intentional ingredient in the semiconductor device a e reason to believe that the unavoidable impurity con- vide.	nd, to the best centration of th s to obtain a te	of Microchip T le chemical su st report at	echnology bstance, if		Doped Silicon	Chip (Die) 7440-21-3 Total	% of Total Weight 100 100.00	
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). pliance with the above EU Directives has been verified via inter- themical substance is absent from the list above, the chemical rporated's knowledge and belief as of the date of this documen is not below the threshold of regulatory concern for any regula- ling compounds used by Microchip meet the UL94 V0 flammabi //ul.com/global/eng/pages/offerings/industries/chemicals/plasti protective "tubes" in which the specific product is shipped are	with EU Directive 200 rnal design controls, substance is NOT ar t, there is no credibl atory scheme world-v illity standard for plas ics/ made from polyviny form concerning su knowledge and belie n compiled based on crets and some infor these parts and the a	2/35/EC (RoHS Directive), EU Directive 2011/65/EU (R supplier declarations, and /or analytical test data. Intentional ingredient in the semiconductor device a reason to believe that the unavoidable impurity convide. stics. You can access the UL iQTM family of database I chloride (PVC) plastic. "Window envelopes" used to bstances restricted by RoHS in Microchip Technology of, as of the date listed in this form. Microchip Technology theranges provided in Material Safety Data Sheets p mation may not have been provided by subcontract a verage weight of anticipated significant toxic metals i	nd, to the best centration of th s to obtain a te hold the packi y Incorporated' logy Incorpora rovided by raw ssemblers and	of Microchip T e chemical su st report at ng slip on the s semiconduct ted cannot gue material supp raw material supp	echnology bstance, if outer box tor devices in arantee the bliers.		(mg) Total	Chip (Die) 7440-21-3 Total Wire Bond	% of Total Weight 100 100.00 % of Total Weight	
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). pliance with the above EU Directives has been verified via inter- themical substance is absent from the list above, the chemical rporated's knowledge and belief as of the date of this documen- is not below the threshold of regulatory concern for any regula ling compounds used by Microchip meet the UL94 V0 flammabi //ul.com/global/eng/pages/offerings/industries/chemicals/plasti protective "tubes" in which the specific product is shipped are certain "reels" may be made from PVC plastic. ochip Technology Incorporated believes the information in this original packing materials is true and correct to the best of its pleteness and accuracy of data in this form because it has bee mation is provided only as estimates of the average weight of the material of the set of the second of the set of the protected only as estimates of the average weight of the material on the set of the se	with EU Directive 200 rnal design controls, substance is NOT ar t, there is no credibla atory scheme world-v ility standard for plas ics/ made from polyviny form concerning sul knowledge and belie n compiled based on crets and some infor these parts and the a ntained within silicor , express or implied,	2/35/EC (RoHS Directive), EU Directive 2011/65/EU (R supplier declarations, and /or analytical test data. In intentional ingredient in the semiconductor device a reason to believe that the unavoidable impurity convide. stics. You can access the UL iQTM family of database I chloride (PVC) plastic. "Window envelopes" used to bstances restricted by RoHS in Microchip Technology of, as of the date listed in this form. Microchip Technology theranges provided in Material Safety Data Sheets p mation may not have been provided by subcontract a verage weight of anticipated significant toxic metals in a devices (silicon IC) in the finished parts.	nd, to the best centration of th s to obtain a te hold the packi v Incorporated'' logy Incorpora rovided by raw issemblers and components. T ration. The exc	of Microchip T le chemical sui st report at ng slip on the s semiconduci ted cannot gue rmaterial supp raw material s hese estimate: lusive, limited	echnology bstance, if outer box tor devices in arantee the biers. suppliers. s do not product		(mg) Total (mg) Total	Chip (Die) 7440-21-3 Total Wire Bond 7440-57-5	% of Total Weight 100 100.00 % of Total Weight 100	
tive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). pliance with the above EU Directives has been verified via inter- hemical substance is absent from the list above, the chemical porated's knowledge and belief as of the date of this documen is not below the threshold of regulatory concern for any regula ing compounds used by Microchip meet the UL94 V0 flammabi //ul.com/global/eng/pages/offerings/industries/chemicals/plasti porotective "tubes" in which the specific product is shipped are certain "reels" may be made from PVC plastic. Sochip Technology Incorporated believes the information in this original packing materials is true and correct to the best of its belteness and accuracy of data in this form because it has bee liler information is often protected from disclosure as trade se- mation is provided only as estimates of the average weight of i de trace levels of dopants, metals, and non-metal materials co pochip Technology Incorporated does not provide any warranty, anties provided by Microchip Technology Incorporated and its	with EU Directive 200 rnal design controls, substance is NOT ar it, there is no credibl atory scheme world-v ility standard for plas ics/ made from polyviny form concerning sul knowledge and belie n compiled based on crets and some infor these parts and the a ntained within silicor , express or implied, subsidiaries are con	2/95/EC (RoHS Directive), EU Directive 2011/65/EU (R supplier declarations, and /or analytical test data. In intentional ingredient in the semiconductor device a reason to believe that the unavoidable impurity con- vide. I chloride (PVC) plastic. "Window envelopes" used to bestances restricted by RoHS in Microchip Technology of, as of the date listed in this form. Microchip Technology of, as of the date listed in Material Safety Data Sheets p mation may not have been provided by subcontract a verage weight of anticipated significant toxic metals in a devices (silicon IC) in the finished parts. with respect to the information provided in this decla tained in Microchip's standard terms and conditions of Declarations and shall not be liable for any damages,	nd, to the best centration of th s to obtain a te hold the packi y Incorporated' Jology Incorpora rovided by raw issemblers and components. T ration. The exc of sale. These a direct or indire	of Microchip T e chemical su st report at ng slip on the s semiconduct ted cannot gua material supp raw material sup raw material sup	iechnology bstance, if outer box tor devices in arantee the bliers. suppliers. s do not product n Microchip's tital or	1.54	(mg) Total (mg) Total	Chip (Die) 7440-21-3 Total Wire Bond 7440-57-5 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1	% of Total Weight 100 100.00 % of Total Weight 100 100.00	0.2

Semiconductor Device	Type: SM, S2AE 0	3 (Lead) SOIC (208 mil) (C3/CD)		nation Base pper Alloy ((-		-	ogeneous Materials: g. pc boards, display	s)	JEDEC 97 Product Markin and/or Pkg. Labeling e3
		"Contained In"	% Total							
Basic Substance	CAS Number	Sub-Component	Weight	mg/part	ppm	99.27	(mg) Total	Mold Compound	% ot Total Weight	79.8
Silica, vitreous	60676-86-0	Mold Compound	67.830	84.381	678,300		Silica, vitreous	60676-86-0	85.00	
Epoxy Resin	Trade Secret	Mold Compound	4.888	6.080	48,878		Epoxy Resin	Trade Secret	6.13	
Phenolic Resin	Trade Secret	Mold Compound	4.888	6.080	48,878		Phenolic Resin	Trade Secret	6.13	
Epoxy, Cresol Novolac	29690-82-2	Mold Compound	1.955	2.432	19,551		Epoxy, Cresol Novolac	29690-82-2	2.45	
Carbon Black	1333-86-4	Mold Compound	0.239	0.298	2,394		Carbon Black	1333-86-4	0.30	
Copper	7440-50-8	Lead Frame	10.031	12.479	100,314			Total	100.00	
Iron	7439-89-6	Lead Frame	0.247	0.307	2,468	13.06	(mg) Total	Lead Frame	% of Total Weight	10.5
Silver	7440-22-4	Lead Frame	0.200	0.249	2,000		Copper	7440-50-8	95.54	
Zinc	7440-66-6	Lead Frame	0.013	0.016	131		Iron	7439-89-6	2.35	
Phosphorous	7723-14-0	Lead Frame	0.009	0.011	87		Silver	7440-22-4	1.91	
Silver (Ag)	7440-22-4	Die Attach	0.563	0.700	5,625		Zinc	7440-66-6	0.13	
Modified Epoxy Resin	13561-08-5	Die Attach	0.105	0.131	1,050		Phosphorous	7723-14-0	0.08	
Diglycidylether of bisphenol-F	54208-63-8	Die Attach	0.056	0.070	563			Total	100.00	-
Modified Amine	827-43-0	Die Attach	0.026	0.033	263	0.93	(mg) Total	Die Attach	% of Total Weight	0.75
Silicon	7440-21-3	Chip (Die)	7.500	9.330	75,000		Silver (Ag)	7440-22-4	75	
Doped Gold	7440-57-5	Wire Bond	0.200	0.249	2,000		Modified Epoxy Resin	13561-08-5	14	
Tin	7440-31-5 F	Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	1.250	1.555	12,500	D	iglycidylether of bisphenol-F	54208-63-8	8	
		TOTALS:	100.000	124.400	1,000,000		Modified Amine	827-43-0	4	
	0 1244 c	Total Mass						Total	100.00	
s semiconductor device and its homogenous materials co ective 2002/53/EC (End-of-Life Vehicles (ELV) Directive).			RoHS Recas	t Directive) ar	nd with EU	9.33	(mg) Total	Chip (Die)	% of Total Weight	7.5
mpliance with the above EU Directives has been verified vi	a internal design controls,	supplier declarations, and /or analytical test data.					Doped Silicon	7440-21-3	100	
chemical substance is absent from the list above, the che								Total]
emical substance, if any, is not below the threshold of regu	ulatory concern for any regu	s no credible reason to believe that the unavoidable ulatory scheme world-wide.	e impurity co	ncentration o	f the			Total		1
emical substance, if any, is not below the threshold of regu- lding compounds used by Microchip meet the UL94 V0 flar p://ul.com/global/eng/pages/offerings/industries/chemicals	ulatory concern for any regu mmability standard for plass s/plastics/	s no credible reason to believe that the unavoidabl Ilatory scheme world-wide. tics. You can access the UL iQTM family of databas	e impurity co ses to obtain	ncentration o a test report a	f the at	0.25	(mg) Total	Total Wire Bond		0.2
chnology incorporated's knowledge and belief as of the da emical substance, if any, is not below the threshold of regu Iding compounds used by Microchip meet the UL94 V0 flat p://ul.com/global/eng/pages/offerings/industries/chemicals e protective "tubes" in which the specific product is shipper x and certain "reels" may be made from PVC plastic.	ulatory concern for any regu mmability standard for plass s/plastics/	s no credible reason to believe that the unavoidabl Ilatory scheme world-wide. tics. You can access the UL iQTM family of databas	e impurity co ses to obtain	ncentration o a test report a	f the at	0.25	(mg) Total	Wire Bond 7440-57-5	100.00 % of Total Weight 100	0.2
emical substance, if any, is not below the threshold of regu- lding compounds used by Microchip meet the UL94 V0 flar p://ul.com/global/eng/pages/offerings/industries/chemicals e protective "tubes" in which the specific product is shippe	ulatory concern for any regu mmability standard for plass s/plastics/ ed are made from polyvinyl in this form concerning sub to the best of its knowledge m because it has been com m disclosure as trade secre ates of the average weight of	s no credible reason to believe that the unavoidable ulatory scheme world-wide. tics. You can access the UL iQTM family of databas chloride (PVC) plastic. "Window envelopes" used t ostances restricted by RoHS in Microchip Technolo e and belief, as of the date listed in this form. Micro oilled based on the ranges provided in Material Safe ets and some information may not have been provide of these parts and the average weight of anticipated	e impurity co les to obtain o hold the pa gy Incorpora chip Technol ty Data Shee ded by subcc I significant t	ncentration o a test report a acking slip on ted's semicor ogy Incorpor ts provided b intract assem oxic metals c	the outer at the outer ated cannot y raw blers and	0.25		Wire Bond	100.00 % of Total Weight	0.2
emical substance, if any, is not below the threshold of regu- lding compounds used by Microchip meet the UL94 V0 flar p://ul.com/global/eng/pages/offerings/industries/chemicals e protective "tubes" in which the specific product is shipper x and certain "reels" may be made from PVC plastic. crochip Technology Incorporated believes the information vices in their original packing materials is true and correct arantee the completeness and accuracy of data in this form terial suppliers. Supplier information is often protected fro v material suppliers. Information is provided only as estima	ulatory concern for any regu mmability standard for plass s/plastics/ ed are made from polyvinyl in this form concerning sub to the best of its knowledge m because it has been com m disclosure as trade secre ates of the average weight of ls, and non-metal materials mranty, express or implied, a porated and its subsidiaries	s no credible reason to believe that the unavoidable ulatory scheme world-wide. tics. You can access the UL iQTM family of databas chloride (PVC) plastic. "Window envelopes" used to estances restricted by RoHS in Microchip Technolo e and belief, as of the date listed in this form. Micro biled based on the ranges provided in Material Safe ets and some information may not have been provid of these parts and the average weight of anticipated contained within silicon devices (silicon IC) in the f with respect to the information provided in this dec	e impurity co les to obtain o hold the pa gy Incorpora chip Technol ty Data Shee ded by subcc I significant t inished parts laration. The	ncentration o a test report a acking slip on ted's semicor ogy Incorpor ogy Incorpor ts provided b ntract assem poxic metals c exclusive, lin	the outer the outer nductor ated cannot y raw blers and omponents.	0.25		Wire Bond 7440-57-5	100.00 % of Total Weight 100	0.2
mical substance, if any, is not below the threshold of regu- ding compounds used by Microchip meet the UL94 V0 flar ://ul.com/global/eng/pages/offerings/industries/chemicals protective "tubes" in which the specific product is shippe and certain "reels" may be made from PVC plastic. Tochip Technology Incorporated believes the information ices in their original packing materials is true and correct rantee the completeness and accuracy of data in this form erial suppliers. Supplier information is often protected fro material suppliers. Information is provided only as estima se estimates do not include trace levels of dopants, metal cochip Technology Incorporated does not provide any wai duct warranties provided by Microchip Technology Incorp	ulatory concern for any regu mmability standard for plasi s/plastics/ ed are made from polyvinyl in this form concerning sub to the best of its knowledgy m because it has been com om disclosure as trade secre ates of the average weight o ls, and non-metal materials mranty, express or implied, poorated and its subsidiaries d invoices. ananges to Material Content ID susers' reliance on the infor	s no credible reason to believe that the unavoidable ulatory scheme world-wide. tics. You can access the UL iQTM family of databas chloride (PVC) plastic. "Window envelopes" used t bestances restricted by RoHS in Microchip Technolo e and belief, as of the date listed in this form. Micro biled based on the ranges provided in Material Safe ets and some information may not have been provi of these parts and the average weight of anticipated contained within silicon devices (silicon IC) in the f with respect to the information provided in this dec are contained in Microchip's standard terms and c Declarations and shall not be liable for any damage:	e impurity co les to obtain o hold the pa gy Incorpora chip Technol ty Data Shee Jed by subcc led by subcc led by subcc lag significant t inished parts laration. The onditions of s	ncentration o a test report a acking slip on ted's semicor ogy Incorpor ts provided b ntract assem oxic metals c exclusive, lin sale. These an direct, conse	f the at the outer ated cannot y raw blers and omponents. hited re provided quential or		Doped Gold	Wire Bond 7440-57-5 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for	100.00 % of Total Weight 100 100.00	

	e: S24F 08/1 av			ation Base oper Alloy ((-		-	geneous Materials: g. pc boards, display	s)	JEDEC 97 Product Markir and/or Pkg. Labeling e4
Basic Substance	CAS Number	"Contained In" Sub-Component	% Total Weight	mg/part	ppm	89.96	(mg) Total	Mold Compound	% ot Total Weight	66.29
Silica, vitreous	60676-86-0	Mold Compound	56.347	76.462	563,465		Silica, vitreous	60676-86-0	85.00	1
Epoxy Resin (No bromine, No diantimony trioxide)	Trade Secret	Mold Compound	4.060	5.510	40,603		Epoxy Resin	Trade Secret	6.13	
Phenolic Resin (No Br / CL SbO3, No diantimony trioxide)	Trade Secret	Mold Compound	4.060	5.510	40,603		Phenolic Resin	Trade Secret	6.13	
Epoxy, Cresol Novolac	29690-82-2	Mold Compound	1.624	2.204	16,241		Epoxy, Cresol Novolac	29690-82-2	2.45	
Carbon Black	1333-86-4	Mold Compound	0.199	0.270	1,989		Carbon Black	1333-86-4	0.30	
Copper	7440-50-8	Lead Frame	26.540	36.015	265,403			Total	100.00	
Iron	7439-89-6	Lead Frame	0.653	0.886	6,528	37.70	(mg) Total	Lead Frame	% of Total Weight	27.78
Silver	7440-22-4	Lead Frame	0.529	0.718	5,292		Copper	7440-50-8	95.54	
Zinc	7440-66-6	Lead Frame	0.035	0.047	347		Iron	7439-89-6	2.35	
Phosphorous	7723-14-0	Lead Frame	0.023	0.031	229		Silver	7440-22-4	1.91	
Silver	7440-22-4	Die Attach	0.163	0.221	1,628		Zinc	7440-66-6	0.13	
Epoxy resin	Trade Secret	Die Attach	0.044	0.060	440		Phosphorous	7723-14-0	0.08	
Metal oxide	Trade Secret	Die Attach	0.007	0.009	66			Total	100.00	
Gamma-butyrolactone	96-48-0	Die Attach	0.007	0.009	66	0.30	(mg) Total	Die Attach	% of Total Weight	0.22
Silicon	7440-21-3	Chip (Die)	5.410	7.341	54,100		Silver	7440-22-4	74	
Gold	7440-57-5	Wire Bond	0.150	0.204	1.500		Epoxy resin	Trade Secret	20	
Nickel	7440-02-0	Plating on external leads (pins)(PPF)	0.142	0.192	1,418		Metal oxide	Trade Secret	3	
Palladium	7440-05-03	Plating on external leads (pins)(PPF)	0.008	0.010	75		Gamma-butyrolactone	96-48-0	3	
Gold	7440-57-5	Plating on external leads (pins)(PPF)	0.001	0.001	8			Total	100.00	1
										5.41
		TOTAL S	100.000	135.700	1.000.000	7 34	Total (mg)	Chin (Die)		
		TOTALS: Total Mass 2/95/EC (RoHS Directive), EU Directive 2011/65/		135.700 st Directive) a	1,000,000 and with EU	7.34	Total (mg) Doped Silicon	Chip (Die) 7440-21-3 Total	% of Total Weight 100 100.00	5.41
semiconductor device and its homogenous materials compl ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). Ipliance with the above EU Directives has been verified via in	with EU Directive 200	Total Mass 2/95/EC (RoHS Directive), EU Directive 2011/65/	EU (RoHS Reca			0.20		7440-21-3	100	0.15
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). pliance with the above EU Directives has been verified via in themical substance is absent from the list above, the chemic anology Incorporated's knowledge and belief as of the date o nical substance, if any, is not below the threshold of regulator	with EU Directive 200 ernal design controls, al substance is NOT an this document, there ry concern for any reg	Total Mass 2/95/EC (RoHS Directive), EU Directive 2011/65/ supplier declarations, and /or analytical test dat intentional ingredient in the semiconductor dev s no credible reason to believe that the unavoid ulatory scheme world-wide.	EU (RoHS Recas a. vice and, to the l lable impurity co	at Directive) a poest of Micro poncentration	and with EU chip of the		Doped Silicon	7440-21-3 Total Wire Bond 7440-57-5	100 100.00 % of Total Weight 100	
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). pliance with the above EU Directives has been verified via in chemical substance is absent from the list above, the chemic nology Incorporated's knowledge and belief as of the date o	with EU Directive 200 ernal design controls, al substance is NOT an this document, there ry concern for any reg bility standard for plas	Total Mass 2/95/EC (RoHS Directive), EU Directive 2011/65/ supplier declarations, and /or analytical test dat intentional ingredient in the semiconductor dev s no credible reason to believe that the unavoid ulatory scheme world-wide.	EU (RoHS Recas a. vice and, to the l lable impurity co	at Directive) a poest of Micro poncentration	and with EU chip of the		Doped Silicon (mg) Total	7440-21-3 Total Wire Bond	100 100.00 % of Total Weight 100	
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). pliance with the above EU Directives has been verified via in chemical substance is absent from the list above, the chemic nology Incorporated's knowledge and belief as of the date o nical substance, if any, is not below the threshold of regulato ting compounds used by Microchip meet the UL94 V0 flamma	with EU Directive 200 ernal design controls, al substance is NOT an this document, there ry concern for any reg bility standard for plas stics/	Total Mass 2/95/EC (RoHS Directive), EU Directive 2011/65/ supplier declarations, and /or analytical test dat intentional ingredient in the semiconductor dev s no credible reason to believe that the unavoid ulatory scheme world-wide. tics. You can access the UL iQTM family of data	EU (RoHS Recar a. vice and, to the l lable impurity co bases to obtain	st Directive) a pest of Micro oncentration a test report	and with EU chip of the at		Doped Silicon (mg) Total	7440-21-3 Total Wire Bond 7440-57-5	100 100.00 % of Total Weight 100	
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). pliance with the above EU Directives has been verified via in themical substance is absent from the list above, the chemica nology Incorporated's knowledge and belief as of the date o nical substance, if any, is not below the threshold of regulated ting compounds used by Microchip meet the UL94 V0 flamma //ul.com/global/eng/pages/offerings/industries/chemicals/pla protective "tubes" in which the specific product is shipped a	with EU Directive 200 ernal design controls, al substance is NOT an this document, there ry concern for any reg bility standard for plas stics/ re made from polyvinyl is form concerning sul te best of its knowledg cause it has been com sclosure as trade secr of the average weight c	Total Mass 2/95/EC (RoHS Directive), EU Directive 2011/65/ supplier declarations, and /or analytical test dat intentional ingredient in the semiconductor dev s no credible reason to believe that the unavoid ulatory scheme world-wide. tics. You can access the UL iQTM family of data chloride (PVC) plastic. "Window envelopes" us ostances restricted by RoHS in Microchip Techr e and belief, as of the date listed in this form. M piled based on the ranges provided in Material S ets and some information may not have been pu of these parts and the average weight of anticip	EU (RoHS Recat a. vice and, to the l lable impurity co bases to obtain ed to hold the p tology Incorpora icrochip Techno Safety Data Shec ated significant	at Directive) a post of Micro oncentration a test report acking slip o ated's semico logy Incorpo ats provided ontract asset ontract asset	and with EU chip of the at n the outer onductor rated cannot by raw mblers and	0.20	Doped Silicon (mg) Total Doped Gold	7440-21-3 Total Wire Bond 7440-57-5 Total Plating on external	100 100.00 % of Total Weight 100 100.00	0.15
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). apliance with the above EU Directives has been verified via in themical substance is absent from the list above, the chemic anology Incorporated's knowledge and belief as of the date o nical substance, if any, is not below the threshold of regulated ling compounds used by Microchip meet the UL94 V0 flamme //ul.com/global/eng/pages/offerings/industries/chemicals/pla protective "tubes" in which the specific product is shipped a and certain "reels" may be made from PVC plastic. ochip Technology Incorporated believes the information in th ces in their original packing materials is true and correct to to antical suppliers. Supplier information is often protected from d material suppliers. Supplier information is provided only as estimates	with EU Directive 200 ernal design controls, al substance is NOT an i this document, there ry concern for any reg bility standard for plas stics/ re made from polyvinyl is form concerning sul he best of its knowledg cause it has been com sclosure as trade secr of the average weight of the average weight of the average weight and non-metal materials ty, express or implied, ed and its subsidiaries	Total Mass 2/95/EC (RoHS Directive), EU Directive 2011/65/ supplier declarations, and /or analytical test dat intentional ingredient in the semiconductor dev s no credible reason to believe that the unavoid ulatory scheme world-wide. tics. You can access the UL IQTM family of data chloride (PVC) plastic. "Window envelopes" us ostances restricted by RoHS in Microchip Techr e and belief, as of the date listed in this form. M piele based on the ranges provided in Material S ets and some information may not have been p of these parts and the average weight of anticip contained within silicon devices (silicon IC) in t with respect to the information provided in this	EU (RoHS Recar a. rice and, to the l lable impurity co bases to obtain ed to hold the p tology Incorpora crochip Techno Safety Data She ovided by subc ated significant he finished part declaration. The	at Directive) a poest of Micro oncentration a test report acking slip o ated's semico logy Incorpo ets provided toxic metals s.	and with EU chip of the at n the outer onductor rated cannot by raw mblers and components. mited	0.20	(mg) Total Doped Gold (mg) Total	7440-21-3 Total Wire Bond 7440-57-5 Total Plating on external leads (pins)(PPF)	100 100.00 % of Total Weight 100 100.00 % of Total Weight	0.15
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). apliance with the above EU Directives has been verified via in themical substance is absent from the list above, the chemic anology Incorporated's knowledge and belief as of the date of nical substance, if any, is not below the threshold of regulated ling compounds used by Microchip meet the UL94 V0 flamma //ul.com/global/eng/pages/offerings/industries/chemicals/pla protective "tubes" in which the specific product is shipped a and certain "reels" may be made from PVC plastic. ochip Technology Incorporated believes the information in th ces in their original packing materials is true and correct to th anterial suppliers. Supplier information is often protected from d material suppliers. Supplier information is provided only as estimates se estimates do not include trace levels of dopants, metals, a ochip Technology Incorporated does not provide any warran fuct warranties provided by Microchip Technology Incorporated the set of the set of	with EU Directive 200 ernal design controls, al substance is NOT an this document, there ry concern for any reg bility standard for plas stics/ re made from polyvinyl is form concerning sul e best of its knowledg cause it has been com sclosure as trade secr of the average weight t and non-metal materials ty, express or implied, ed and its subsidiaries oices. es to Material Content t s' reliance on the info	Total Mass 2/95/EC (RoHS Directive), EU Directive 2011/65/ supplier declarations, and /or analytical test dat intentional ingredient in the semiconductor dev s no credible reason to believe that the unavoid ulatory scheme world-wide. tics. You can access the UL iQTM family of data chloride (PVC) plastic. "Window envelopes" us pstances restricted by RoHS in Microchip Techr e and belief, as of the date listed in this form. M biled based on the ranges provided in Material 5 ets and some information may not have been pro of these parts and the average weight of anticip contained within silicon devices (silicon IC) in t with respect to the information provided in this are contained in Microchip's standard terms ar Declarations and shall not be liable for any dam	EU (RoHS Recar a. rice and, to the l lable impurity co bases to obtain ed to hold the p tology Incorporr iscrochip Techno Safety Data She ovided by subc ated significant he finished part declaration. The id conditions of ages, direct or i	at Directive) a post of Micro oncentration a test report acking slip o ated's semicc ology Incorpo ts provided ontract asset toxic metals s. e exclusive, li sale. These andirect, cons	and with EU chip of the at n the outer rated cannot by raw mblers and components. mited are provided equential or	0.20	(mg) Total Doped Gold (mg) Total Nickel	7440-21-3 Total Wire Bond 7440-57-5 Total Plating on external leads (pins)(PPF) 7440-02-0	100 100.00 % of Total Weight 100 100.00 % of Total Weight 94.50	0.15

Semiconductor Devi	ice Type: S3AE 08 (Lead)) SOIC (.208x.284in) (U4)		ation Base / oper Alloy (C			•	ogeneous Materials: g. pc boards, display	rs)	JEDEC 97 Product Markir and/or Pkg. Labeling e3
		"Contained In"	% Total			97.68	(mg) Total	Mold Compound	% ot Total Weight	71.98
Basic Substance	CAS Number	Sub-Component	Weight	mg/part	ppm	97.66	(mg) i otai	wola compouna	% of Total weight	/1.90
Silica, vitreous	60676-86-0	Mold Compound	61.183	83.025	611,830		Silica, vitreous	60676-86-0	85.00	
Epoxy Resin	Trade Secret	Mold Compound	4.409	5.983	44,088		Epoxy Resin	Trade Secret	6.13	
Phenolic Resin	Trade Secret	Mold Compound	4.409	5.983	44,088		Phenolic Resin	Trade Secret	6.13	
Epoxy, Cresol Novolac	29690-82-2	Mold Compound	1.764	2.393	17,635		Epoxy, Cresol Novolac	29690-82-2	2.45	
Carbon Black	1333-86-4	Mold Compound	0.216	0.293	2,159		Carbon Black	1333-86-4	0.30	
Copper	7440-50-8	Lead Frame	22.298	30.259	222,985			Total		
Iron	7439-89-6	Lead Frame	0.548	0.744	5,485	31.67	(mg) Total	Lead Frame	% of Total Weight	23.34
Silver	7440-22-4	Lead Frame	0.445	0.603	4,446		Copper	7440-50-8	95.54	
Zinc	7440-66-6	Lead Frame	0.029	0.040	292		Iron	7439-89-6	2.35	
Phosphorous	7723-14-0	Lead Frame	0.019	0.026	193		Silver	7440-22-4	1.91	
Synthetic Rubber	308079-85-8	Die Attach	0.068	0.092	680		Zinc	7440-66-6	0.13	
Silica, vitreous	60676-86-0	Die Attach	0.060	0.081	595		Phosphorous	7723-14-0	0.08	
Solid Epoxy Resin	Trade Secret	Die Attach	0.021	0.029	213			Total		
Phenol Resin	Trade Secret	Die Attach	0.021	0.029	213	0.23	(mg) Total	Die Attach	% of Total Weight	0.17
Silicon	7440-21-3	Chip (Die)	3.510	4.763	35,100		Synthetic Rubber	308079-85-8	40.00	
Doped Gold	7440-57-5	Wire Bond	0.120	0.163	1,200		Silica, vitreous	60676-86-0	35.00	
Tin	7440-31-5 Р	lating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	0.880	1.194	8,800		Solid Epoxy Resin	Trade Secret	12.50	
		TOTALS: Total Mass	100.000	135.700	1,000,000		Phenol Resin	Trade Secret Total	12.50 100.00	l
npliance with the above EU Directives has been verifie chemical substance is absent from the list above, the hnology Incorporated's knowledge and belief as of the	chemical substance is NOT an i	ntentional ingredient in the semiconductor device ar	nd, to the bes	of Microchin)		Doped Silicon	7440-21-3 Total	100 100.00	
			mpurity conc		he					
emical substance, if any, is not below the threshold of r Iding compounds used by Microchip meet the UL94 V0	regulatory concern for any regul flammability standard for plasti	latory scheme world-wide.		entration of t	he .	0.16	(mg) Total	Wire Bond	% of Total Weight	0.12
Indigg incorporated s knowledge and belief as of the emical substance, if any, is not below the threshold of r liding compounds used by Microchip meet the UL94 V0 p://ul.com/global/eng/pages/offerings/industries/chemic e protective "tubes" in which the specific product is sh x and certain "reels" may be made from PVC plastic.	regulatory concern for any regul flammability standard for plasti cals/plastics/	latory scheme world-wide. cs. You can access the UL iQTM family of databases	to obtain a te	entration of t		0.16	(mg) Total Doped Gold	Wire Bond 7440-57-5	% of Total Weight	0.12
emical substance, if any, is not below the threshold of r Iding compounds used by Microchip meet the UL94 V0 p://ul.com/global/eng/pages/offerings/industries/chemic e protective "tubes" in which the specific product is sh	regulatory concern for any regul flammability standard for plasti cals/plastics/ ipped are made from polyvinyl of ion in this form concerning subs rect to the best of its knowledge form because it has been compi from disclosure as trade secret tes of the average weight of thes	latory scheme world-wide. cs. You can access the UL iQTM family of databases chloride (PVC) plastic. "Window envelopes" used to l stances restricted by RoHS in Microchip Technology and belief, as of the date listed in this form. Microch iled based on the ranges provided in Material Safety ts and some information may not have been provide se parts and the average weight of anticipated signif	to obtain a tr hold the pack Incorporated ip Technolog Data Sheets d by subcontr icant toxic mo	entration of the est report at ing slip on the 's semicondu y Incorporate provided by r act assemble	e outer uctor ed cannot aw ers and raw	0.16			100.00	
emical substance, if any, is not below the threshold of r liding compounds used by Microchip meet the UL94 V0 p://ul.com/global/eng/pages/offerings/industries/chemic e protective "tubes" in which the specific product is sh x and certain "reels" may be made from PVC plastic. crochip Technology Incorporated believes the informati vices in their original packing materials is true and corr arantee the completeness and accuracy of data in this terial suppliers. Supplier information is often protected terial suppliers. Information is provided only as estimal	regulatory concern for any regul flammability standard for plasti cals/plastics/ ipped are made from polyvinyl of ion in this form concerning subs rect to the best of its knowledge form because it has been compi I from disclosure as trade secret tes of the average weight of thes tetals, and non-metal materials of warranty, express or implied, we ed and its subsidiaries are conta	latory scheme world-wide. cs. You can access the UL iQTM family of databases chloride (PVC) plastic. "Window envelopes" used to l stances restricted by RoHS in Microchip Technology and belief, as of the date listed in this form. Microch iled based on the ranges provided in Material Safety ts and some information may not have been provide se parts and the average weight of anticipated signif contained within silicon devices (silicon IC) in the fini rith respect to the information provided in this declar	to obtain a to hold the pack Incorporated ip Technolog Data Sheets Data Sheets icant toxic mushed parts. ation. The ex	entration of t est report at ing slip on th 's semicondu y Incorporate provided by r act assemble etals compon clusive, limite	e outer uctor ed cannot aw ers and raw ents. ed product	0.16		7440-57-5	100.00	
emical substance, if any, is not below the threshold of r liding compounds used by Microchip meet the UL94 V0 p://ul.com/global/eng/pages/offerings/industries/chemie e protective "tubes" in which the specific product is sh x and certain "reels" may be made from PVC plastic. crochip Technology Incorporated believes the informati vices in their original packing materials is true and corr arantee the completeness and accuracy of data in this iterial suppliers. Supplier information is often protected terial suppliers. Information is provided only as estimal ese estimates do not include trace levels of dopants, m crochip Technology Incorporated does not provide any rranties provided by Microchip Technology Incorporate	regulatory concern for any regul of lammability standard for plasticals/plastics/ sipped are made from polyvinyl of ton in this form concerning subsection to the best of its knowledge form because it has been compiled from disclosure as trade secret tes of the average weight of these teetals, and non-metal materials of warranty, express or implied, w ad and its subsidiaries are contained in invoices.	latory scheme world-wide. cs. You can access the UL iQTM family of databases chloride (PVC) plastic. "Window envelopes" used to l stances restricted by RoHS in Microchip Technology and belief, as of the date listed in this form. Microchi lied based on the ranges provided in Material Safety ts and some information may not have been provide se parts and the average weight of anticipated signifi- contained within silicon devices (silicon IC) in the fini- ith respect to the information provided in this declar ined in Microchip's standard terms and conditions o eclarations and shall not be liable for any damages,	to obtain a to hold the pack incorporated ip Technolog Data Sheets d by subconti icant toxic mi shed parts. ation. The ex f sale. These direct or indir	entration of t est report at ing slip on th 's semicondu y Incorporate provided by r act assemble etals compon clusive, limite are provided ect, consequ	e outer uctor aw ers and raw ents. ed product in ential or		Doped Gold	7440-57-5 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for	100.00	
nical substance, if any, is not below the threshold of r ting compounds used by Microchip meet the UL94 V0 ://ul.com/global/eng/pages/offerings/industries/chemic protective "tubes" in which the specific product is sh and certain "reels" may be made from PVC plastic. ochip Technology Incorporated believes the informati ces in their original packing materials is true and corr antee the completeness and accuracy of data in this arial suppliers. Supplier information is often protected rial suppliers. Supplier information is often protected rial suppliers. Information is provided only as estimat se estimates do not include trace levels of dopants, m ochip Technology Incorporated does not provide any anties provided by Microchip Technology Incorporate ochip's quotations, sales order acknowledgement, an ochip disclaims any duty to notify users of updates o rwise, suffered by users or third parties as a result of	regulatory concern for any regul of lammability standard for plasticals/plastics/ sipped are made from polyvinyl of ton in this form concerning subsection to the best of its knowledge form because it has been compiled from disclosure as trade secret tes of the average weight of these teetals, and non-metal materials of warranty, express or implied, w ad and its subsidiaries are contained in invoices.	latory scheme world-wide. cs. You can access the UL iQTM family of databases chloride (PVC) plastic. "Window envelopes" used to l stances restricted by RoHS in Microchip Technology and belief, as of the date listed in this form. Microchi lied based on the ranges provided in Material Safety ts and some information may not have been provide se parts and the average weight of anticipated signifi- contained within silicon devices (silicon IC) in the fini- ith respect to the information provided in this declar ined in Microchip's standard terms and conditions o eclarations and shall not be liable for any damages,	to obtain a to hold the pack incorporated ip Technolog Data Sheets d by subconti icant toxic mi shed parts. ation. The ex f sale. These direct or indir	entration of t est report at ing slip on th 's semicondu y Incorporate provided by r act assemble etals compon clusive, limite are provided ect, consequ	e outer uctor aw ers and raw ents. ed product in ential or		Doped Gold (mg) Total	7440-57-5 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	100.00 100.00 % of Total Weight 100.00	

	e: CB and NB and	TT 03 (Lead) SOT-23 (C6 / CV / M7)		nation Base A pper Alloy (C				nogeneous Materials: e.g. pc boards, displa	/s)	JEDEC 97 Product Marking and/or Pkg. Labeling e3
Semiconductor Device Typ		"Contained In"	% Total		1					
Basic Substance	CAS Number	Sub-Component	Weight	mg/part	ppm	6.62	(mg) Total	Mold Compound	% ot Total Weight	79.8
Silica, vitreous	60676-86-0	Mold Compound	67.830	5.630	678.300		Silica, vitreous	60676-86-0	85.00	
Epoxy Resin (No bromine, No diantimony trioxide)	Trade Secret	Mold Compound	4.888	0.406	48,878		Epoxy Resin	Trade Secret	6.13	
Phenolic Resin (No Br / CL SbO3, No diantimony trioxide)	Trade Secret	Mold Compound	4.888	0.406	48,878		Phenolic Resin	Trade Secret	6.13	
Epoxy, Cresol Novolac	29690-82-2	Mold Compound	1.955	0.162	19,551		Epoxy, Cresol Novolac	29690-82-2	2.45	
Carbon Black	1333-86-4	Mold Compound	0.239	0.020	2,394		Carbon Black	1333-86-4	0.30	
Copper	7440-50-8	Lead Frame	10.031	0.833	100,314			Total	100.00	
Iron Silver	7439-89-6 7440-22-4	Lead Frame	0.247	0.020	2,468	0.87	(mg) Total	Lead Frame	% of Total Weight	10.5
Zinc	7440-22-4	Lead Frame Lead Frame	0.200	0.017	2,000		Copper Iron	7440-50-8 7439-89-6	95.54 2.35	
Phosphorous	7723-14-0	Lead Frame	0.009	0.001	87		Silver	7439-89-8	1.91	
Silver (Ag)	7440-22-4	Die Attach	0.563	0.047	5.625		Zinc	7440-66-6	0.13	
Modified Epoxy Resin	13561-08-5	Die Attach	0.105	0.009	1,050		Phosphorous	7723-14-0	0.08	
Diglycidylether of bisphenol-F	54208-63-8	Die Attach	0.056	0.005	563		<u>.</u>	Total	100.00	
Modified Amine	827-43-0	Die Attach	0.026	0.002	263	0.06	(mg) Total	Die Attach	% of Total Weight	0.75
Silicon	7440-21-3	Chip (Die)	7.500	0.623	75,000		Silver (Ag)	7440-22-4	75	
Gold	7440-57-5	Wire Bond	0.200	0.017	2,000		Modified Epoxy Resin	13561-08-5	14	
Tin	7440-31-5	Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	1.250	0.104	12,500	D	iglycidylether of bisphenol-F	54208-63-8	8	
		TOTALS:	100.000	8.300	1,000,000		Modified Amine	827-43-0	4	
	0.0083 g	g Total Mass						Total	100.00	
Directive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). Compliance with the above EU Directives has been verified via inte	rnal design controls, s	supplier declarations, and /or analytical test data.				0.62	Total (mg) Doped Silicon	Chip (Die) 7440-21-3	% of Total Weight	7.5
If a chemical substance is absent from the list above, the chemical Incorporated's knowledge and belief as of the date of this documer any, is not below the threshold of regulatory concern for any regula Molding compounds used by Microchip meet the UL94 V0 flammab http://ul.com/global/eng/pages/offerings/industries/chemicals/plast	it, there is no credible atory scheme world-w ility standard for plast	reason to believe that the unavoidable impurity con- ide.	centration of th	e chemical su		0.02	(mg) Total	Total Wire Bond	100.00 % of Total Weight	0.2
The protective "tubes" in which the specific product is shipped are and certain "reels" may be made from PVC plastic.	made from polyvinyl	chloride (PVC) plastic. "Window envelopes" used to	hold the packi	ng slip on the	outer box		Doped Gold	7440-57-5	100	
Microchip Technology Incorporated believes the information in this in their original packing materials is true and correct to the best of the completeness and accuracy of data in this form because it has Supplier information is often protected from disclosure as trade se Information is provided only as estimates of the average weight of include trace levels of dopants, metals, and non-metal materials co	its knowledge and be been compiled based crets and some inforn these parts and the av	lief, as of the date listed in this form. Microchip Tech on the ranges provided in Material Safety Data Shee nation may not have been provided by subcontract a verage weight of anticipated significant toxic metals	nology Incorpo ts provided by ssemblers and	rated cannot raw material raw material	guarantee suppliers. suppliers.			Total	100.00	
Microchip Technology Incorporated does not provide any warranty warranties provided by Microchip Technology Incorporated and its quotations, sales order acknowledgement, and invoices.						0.10	(mg) Total	Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	% of Total Weight	1.25
Microchip disclaims any duty to notify users of updates or changes otherwise, suffered by users or third parties as a result of the user or of this Certificate of Compliance for semiconductor products.							Tin	7440-31-5	100.00	
otherwise, suffered by users or third parties as a result of the user							Tin	7440-31-5 Total	100.00 100.00	

pliance with the above EU Directives has been verified via internal design controls, supplier declarations, and /or analytical test data. hemical substance is absent from the list above, the chemical substance is NOT an intentional ingredient in the semiconductor device and, to the best of Microchip nology incorporated's knowledge and belief as of the date of this document, there is no credible reason to believe that the unavoidable impurity concentration of the nical substance, if any, is not below the threshold of regulatory concern for any regulatory scheme world-wide. ing compounds used by Microchip meet the UL94 V0 flammability standard for plastics. You can access the UL iQTM family of databases to obtain a test report at //ul.com/global/eng/pages/offerings/industries/chemicals/plastics/ protective "tubes" in which the specific product is shipped are made from polyvinyl chloride (PVC) plastic. "Window envelopes" used to hold the packing slip on the outer		e: CT and OT 05	; (Lead) SOT-23А (М7)		nation Base A pper Alloy (C	-		•	nogeneous Materials: e.g. pc boards, displa		JEDEC 97 Product Markin and/or Pkg. Labeling e3
$\frac{1}{1000} = \frac{1}{1000} + 1$			"Contained In"	% Total	1						
Encody Ream (No boximics) Trade Social Mode Compound 83/2 0.5/7 83/16 Provice Ream (No boximics) Table Social Mode Compound 83/2 0.5/7 83/16 Provice Ream (No boximics) Table Social Table Social 0.5/7 83/16 Composed Table Social Table Social 0.5/7 83/16 Composed Table Social 0.5/2 0.5/7 83/16 Composed Table Social 0.5/2 0.5/2 0.5/2 Tom 7430-25/2 Lead Finne 0.5/2 0.0/2 0.5/2 0.0/2 0.5/2 0.0/2	Basic Substance	CAS Number	Sub-Component	Weight	mg/part	ppm	9.42	(mg) Total	Mold Compound	% ot Total Weight	63.21
Photole Ream No.8 // C. BSOS. No. diatimitmy mixely Trade Sector Mod Compound 3.8 // 10.3 // 15.8 // 10.3 // 15.8 // 10.3 // 10.0 //	Silica, vitreous							Silica, vitreous	60676-86-0	85.00	
Epox Centor Block 2880 Mold Compound 1.548 0.238 1548 0.228 1.548 0.228 1.548 0.228 1.548 0.228 1.548 0.228 1.548 0.228 1.548 0.228 1.548 0.228 1.548 0.228 1.548 0.228 1.548 0.228 1.548 0.228 1.548 0.228 1.548 0.238 1.528 1.558								Epoxy Resin			
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Copper 7449 50-8 Lead Finne 7037 4 (20) 27.0371 Teal 100.00 Share 7439 50-8 Lead Finne 0.053 0.098 6.531 4.20 (mon Teal 56.4 4.22 (mon Teal 56.541 20 (mon Teal 56.541 20 20.991 24.450.6 85.54 35.991 20.991 24.450.6 85.54 35.991 20.991 24.450.6 85.54 35.991 20.991 24.450.6 85.54 35.991 20.991 24.450.6 85.54 35.991 20.991 24.450.6 85.54 35.991 20.991 24.992 23.91 20.991 24.992 23.91 20.991 24.910 35.991 20.991 24.910 35.991 20.991 24.910 35.991 20.991 27.991 20.991 27.991 20.991 27.991 20.991 27.991 20.991 27.991 20.991 27.991 20.991 27.991 20.991 20.991 20.991 20.991 20.991 20.991 20.991											
Inin 7439386 Lead Frame 0.655 0.099 6.651 4.22 (ma) Total Lead Frame %, 07 total Weight 28.3 2000 744026.4 Lead Frame 0.535 0.055 5.301 Cooper 744026.5 0.554 2.35 2000 743056.6 Lead Frame 0.535 0.055 5.46 2.35 2						1		Carbon Black			
Silver 7440-22-4 Lead Frame 0.539 0.080 5.391 Procession 965.54 Proceptionus 7723-14-0 Lead Frame 0.023 0.003 238 100 101											
Zm 7440666 Lead Fame 0.035 0.005 384 Phosphorous 7723-140 Lead Fame 0.035 0.005 233 Metal code 17686-Secet Dis Attach 0.845 0.18 8.448 Chard Metal 17686-Secet Dis Attach 0.845 0.18 8.448 Chard Metal 17686-Secet Dis Attach 0.845 0.135 6.446 Chard Metal 7440-21-3 Chard Metal 0.230 0.034 2.354 0.38 (mg) Total Metal code Trass Secret 33 God 7440-27-5 Hyos Bond 0.740 0.110 7.400 7.400 7.400 7.400 7.400 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 100.00 10.00 10.00 100.00 100.00 100.00 100.00 100.00 100.00 100.00 100.00 100.00							4.22	(mg) Total	Lead Frame	% of Total Weight	28.3
Photogenous 7723-14-0 Lead Fame 0.023 0.003 223 Matal ando Trade Secret Die Attach 0.824 0.156 6.448 Image Secret 0.01 7.723-14-0 0.08 7.840 7.723-14-0 0.08 7.840 7.723-14-0 0.08 7.840 7.723-14-0 0.84 7.840 7.723-14-0 0.84 7.840 7.723-14-0 0.84 7.840 7.723-14-0 0.84 7.840 </td <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>Copper</td> <td></td> <td>95.54</td> <td></td>								Copper		95.54	
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Epoxy resins Trade Societ Die Attach 0.845 0.126 8.448 Proghoms 77234-0 0.08 Curing / Hardwer Trade Societ Die Attach 0.640 0.054 6.304 0.34 7723-140 0.08 Curing / Hardwer Trade Societ Die Attach 0.640 0.354 2.304 0.38 (mg) Test Die Attach %, of Total Weight 2.56 Old 7440-07-5 Mile Bord 0.70 0.740 10.00 2.000 10.00 2.000 10.00 2.000 10.000	Phosphorous		Lead Frame			233		Silver	7440-22-4	1.91	
Olycol ethers Trade Secret Die Attach 0.040 0.095 6.400 Chung / Hardber Trade Secret Die Attach 0.220 0.034 2.38 0.034 2.38 0.034 2.38 0.034 2.38 0.034 2.38 0.034 2.38 0.034 2.38 0.034 2.38 0.034 2.38 0.034 2.38 0.034 2.38 0.034 2.38 0.034 2.38 0.034 2.38 0.034 2.38 0.034 2.38 0.034 2.38 0.030 0											
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Silton 7440-21-3 Chip (De) 3.170 0.472 31.700 0.472 31.700 Gold 7440-21-3 Wite Bond 0.400 7.400 100 7.400 100 7.400 100 7.400 100 7.400 100 7.400 100 7.400 100 7.400 100	Glycol ethers	Trade Secret	Die Attach	0.640	0.095	6,400			Total	100.00	
Gold 7440:57:9 Wite Bord 0.740 0.110 7400 0.110 7400 0.110 7400 0.110 7400 0.110 7400 0.110 7400 0.110 7400 0.0100 7400 0.0100 7400 0.0100 7400 0.0100 7400 0.0100 7400 0.0100 7400 0.0100 7400 0.0100 7400 0.0100 7400 0.000 10000 0.0100<	Curing / Hardener	Trade Secret	Die Attach	0.230	0.034	2,304	0.38	(mg) Total	Die Attach	% of Total Weight	2.56
Tin Teleform Teleform <thteleform< th=""> Teleform T</thteleform<>	Silicon	7440-21-3	Chip (Die)	3.170	0.472	31,700		Metal oxide	Trade Secret	33	
HANA / Material compilation 0.0149 g Total Mass TOTALS: 100.000 14.900 1,000,000 Barding of the second of the seco	Gold	7440-57-5	Wire Bond	0.740	0.110	7,400		Epoxy resins	Trade Secret	33	1
TOTALS: 100.00 1,000,000 1,000,000 HANA / Material compilation OTTALS: 100.00 1,000,000 1,000,000 HANA / Material compilation OTTALS: 100.00 1,000,000 1,000,000 Semiconductor device and its homogenous materials comply with EU Directive 2002/95/EC (RoHS Directive), EU Directive 2011/65/EU (RoHS Recast Directive) and with EU 0,014 g Total Mags Total Since With Beave EU Directives has been verified via interial design controls, supplier declarations, and /or analytical test data. 0,047 Total (mg) Chip (Die) % of Total Weight 3.17 Journal Visco Since Circle-Or-Life Visco Since Visco Visco Since Visco	Tin	7440-31-5	Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	2.020	0.301	20,200		Glycol ethers	Trade Secret	25	1
Intervery materials comply with EU Directive 2007/85/EC (Reds) Directive), EU Directive 2007/85/EC (Reds-Life Vehicles (EU) Directive) 0.47 Total (mg) Chip (Die) % of Total Weight 3.17 Dirace with the above EU Directives has been verified via internal design controls, supplier declarations, and /or analytical test data. 0.47 Total (mg) Chip (Die) % of Total Weight 3.17 Dirace with the above EU Directives has been verified via internal design controls, supplier declarations, and /or analytical test data. 0.47 Total (mg) Chip (Die) % of Total Weight 3.17 Dirace with the above EU Directives has been verified via internal design controls, supplier declarations, and /or analytical test data. 0.47 Total (mg) Chip (Die) % of Total Weight 3.17 Dirace with the above EU Directives has been verified via internal design controls, supplier declarations, and /or analytical test data. 0.47 Total (mg) Chip (Die) % of Total Weight 3.17 Inica substance, is absent from the list above, the chemical substance is not content or any regulatory scheme world-wide. 0.11 (mg) Total Wire Bond % of Total Weight 0.74 Victoredigbale/logg/Bages/offering/lage/schgenering/lage/schgenering/lage/schgenering/lage/schgenering/lage/schgenering/lage/schgenering/lage/schgenering/lage/schgenering/lage/schgenering/lage/schgenering/lage/schgenering/lage/schgenering/lage/schgenering/											
semiconductor device and its homogenous materials comply with EU Directive 2002/39/EC (RoHS Directive), EU Directive 2011/65/EU (RoHS Recast Directive) and with EU tive 2002/39/EC (End-of-LIMe Vehicles (ELV) Directives). Belonce with the above EU Directives has been verified via internal design controls, supplier declarations, and /or analytical test data. hemical substance is above EU Directives has been verified via internal design controls, supplier declarations, and /or analytical test data. hemical substance is above EU Directives has been verified via internal design controls, supplier declarations, and /or analytical test data. hemical substance is above EU Directives has been verified via internal design controls, supplier declarations, and /or analytical test data. hemical substance, if any, is not below the threshold of regulatory concern for any regulatory scheme world-wide. Ing compounds used by Microchip meet the UL94 V0 flammability standard for plastics. You can access the UL iQTM family of databases to obtain a test report at (u.comglobabe/gpages/differing/industrise/charmicals/plastics/ rorotective "tubes" in which the specific product is shiped are made from polyvinyl chloride (PVC) plastic. "Window envelopes" used to hold the packing slip on the outer has terial suppliers. Supplier information is often protected from disclosure as trade serviced by NHOP chartis is true and correct to the best of its knowledge and belie, as of the date listed in this form. Microchip Technology Incorporated cannot haterial suppliers. Supplier information is often protected from disclosure as trade servers and some information may not have been provided by yaw rait suppliers. Supplier information is often protected from disclosure as trade secrets and some information and network been provided by yaw rait suppliers. Supplier information is often protected from disclosure as trade secrets and some information and this idence (silicon C) in the finished parts. Suchip Technology Incorporated dees not p	HANA / Material compilation	0.01/0	Total Mass						Total	100.00	3
International substance is absent from the instance is working and beform and explanation in the semicoliduction device and, to the best of including and the semicoliduction device and, to the best of including and the semicoliduction device and, to the best of including and the semicoliduction device and the semicoliduction device and, to the best of including and the semicoliduction device and the		with EU Directive 20	02/95/EC (RoHS Directive), EU Directive 2011/65/E	EU (RoHS Reca	st Directive) a	nd with EU	0.47	Total (mg)	Chip (Die)	% of Total Weight	3.17
//ul.com/global/eng/pages/offerings/industries/chemicals/plastics/ 0.11 (mg) Total Wire Bond % of Total Weight 0.74 //ul.com/global/eng/pages/offerings/industries/chemicals/plastics/ 0.11 (mg) Total Wire Bond % of Total Weight 0.74 orrotective "tubes" in which the specific product is shipped are made from polyvinyl chloride (PVC) plastic. "Window envelopes" used to hold the packing slip on the outer and certain "reels" may be made from PVC plastic. 0.11 (mg) Total Wire Bond % of Total Weight 0.74 ochip Technology Incorporated believes the information in this form concerning substances restricted by RoHS in Microchip Technology Incorporated's semiconductor original packing materials is true and correct to the best of its knowledge and belief, as of the date listed in this form. Microchip Technology Incorporated cannot naterial suppliers. Supplier information is often protected from disclosure as trade secrets and some information may not have been provided by subcontract assemblers and naterial suppliers. Information is provided only as estimates of the average weight of these parts and the average weight of anticipated significant toxic metals components. 0.30 (mg) Total Plasting on external leads (pins) - Matte Tin / Anales (pins)	ective 2002/53/EC (End-of-Life Vehicles (ELV) Directive).				ist Directive) a	nd with EU	0.47	,	7440-21-3	100	
and certain "reels" may be made from PVC plastic. Doped Gold 7440-57-5 100 Total 100.00 Total 100	ective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). mpliance with the above EU Directives has been verified via intr chemical substance is absent from the list above, the chemica shnology Incorporated's knowledge and belief as of the date of	ernal design controls I substance is NOT a this document, there	s, supplier declarations, and /or analytical test data an intentional ingredient in the semiconductor dev e is no credible reason to believe that the unavoid	a. vice and, to the	best of Micro	chip	0.47	,	7440-21-3	100	
bochip Technology Incorporated believes the information in this form concerning substances restricted by RoHS in Microchip Technology Incorporated's semiconductor sees in their original packing materials is true and correct to the best of its knowledge and belief, as of the date listed in this form. Microchip Technology Incorporated cannot antee the completeness and accuracy of data in this form because it has been compiled based on the ranges provided in Material Safety Data Sheets provided by raw rial suppliers. Information is often protected from disclosure as trade secrets and some information may not have been provided by subcontract assemblers and material suppliers. Information is provided only as estimates of the average weight of these parts and the average weight of anticipated significant toxic metals components. e estimates do not include trace levels of dopants, metals, and non-metal materials contained within silicon devices (silicon IC) in the finished parts. bochip Technology Incorporated does not provide any warranty, express or implied, with respect to the information provided in this declaration. The exclusive, limited uct warranties provided by Microchip Technology Incorporated and its subsidiaries are contained in Microchip's standard terms and conditions of sale. These are provided torchip's quotations, sales order acknowledgement, and invoices. bochip disclaims any duty to notify users of updates or changes to Material Content Declarations and shall not be liable for any damages, direct or indirect, consequential or wise, suffered by users or third parties as a result of the users' reliance on the information in Material Content Declarations (MCD) or independent third party test reports b) or of this Certificate of Compliance for semiconductor products. Tin 7440-31-5 100.00	ective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). mpliance with the above EU Directives has been verified via intr chemical substance is absent from the list above, the chemica chnology Incorporated's knowledge and belief as of the date of emical substance, if any, is not below the threshold of regulator Iding compounds used by Microchip meet the UL94 V0 flammal	ernal design controls I substance is NOT a this document, ther y concern for any re bility standard for pla	s, supplier declarations, and /or analytical test data an intentional ingredient in the semiconductor dev e is no credible reason to believe that the unavoid gulatory scheme world-wide.	a. vice and, to the lable impurity c	best of Micro	chip of the		Doped Silicon	7440-21-3 Total	100 100.00	
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rwise, suffered by users or third parties as a result of the users' reliance on the information in Material Content Declarations (MCD) or independent third party test reports Tin 7440-31-5 100.00	ective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). mpliance with the above EU Directives has been verified via intr chemical substance is absent from the list above, the chemical chnology Incorporated's knowledge and belief as of the date of emical substance, if any, is not below the threshold of regulator Iding compounds used by Microchip meet the UL94 V0 flammal o://ul.com/global/eng/pages/offerings/industries/chemicals/plas a protective "tubes" in which the specific product is shipped ar k and certain "reels" may be made from PVC plastic. erochip Technology Incorporated believes the information in thir rices in their original packing materials is true and correct to the rantee the completeness and accuracy of data in this form bet terial suppliers. Supplier information is often protected from dis material suppliers. Information is provided only as estimates of ease estimates do not include trace levels of dopants, metals, an	ernal design controls I substance is NOT a this document, therr y concern for any re bility standard for pla tics/ e made from polyvin s form concerning s e best of its knowled ause it has been con sclosure as trade set of the average weigh id non-metal materia	s, supplier declarations, and /or analytical test data an intentional ingredient in the semiconductor dev is no credible reason to believe that the unavoid gulatory scheme world-wide. astics. You can access the UL iQTM family of datal yl chloride (PVC) plastic. "Window envelopes" use ubstances restricted by RoHS in Microchip Techn Ige and belief, as of the date listed in this form. Mi mpiled based on the ranges provided in Material S crets and some information may not have been pro t of these parts and the average weight of anticipa Is contained within silicon devices (silicon IC) in th	a. rice and, to the lable impurity of bases to obtain ed to hold the bology Incorpor icrochip Techn Safety Data She ovided by subo ated significant he finished par	best of Micro concentration n a test report packing slip o rated's semicc ology Incorpo bets provided contract asser toxic metals o ts.	chip of the at n the outer nductor rated cannot by raw nblers and components.		(mg) Total	7440-21-3 Total Wire Bond 7440-57-5 Total	100 100.00 % of Total Weight 100	0.74
Total 100.00	ective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). mpliance with the above EU Directives has been verified via intr chemical substance is absent from the list above, the chemical chemical substance is absent from the list above, the chemical chemical substance, if any, is not below the threshold of regulator lding compounds used by Microchip meet the UL94 V0 flammal S/ul.com/global/eng/pages/offerings/industries/chemicals/plas a protective "tubes" in which the specific product is shipped ar c and certain "reels" may be made from PVC plastic. prochip Technology Incorporated believes the information in this reaches the information is often protected from dif- traterial suppliers. Supplier information is often protected from dif- raterial suppliers. Supplier information is provided only as estimates of ease estimates do not include trace levels of dopants, metals, and prochip Technology Incorporated does not provide any warranted duct warranties provided by Microchip Technology Incorporated Microchip's quotations, sales order acknowledgement, and involution without the specific Technology Incorporated believes the provide any warranted dicrochip's quotations, sales order acknowledgement, and involution without the specific Technology Incorporated function is provided by Microchip Technology Incorporated Microchip's quotations, sales order acknowledgement, and involution without the specific Technology Incorporated function is provided by Microchip's quotations, sales order acknowledgement, and involution without the specific technology Incorporated function is provided by Microchip Technology Incorporated function is provide the specific Technology Incorporated function is provide the specific technology Incorporated function is provided by Microchip Technology Incorporated function is provide the specific technology Incorporated function is provide the specific technology Incorporated function is provided by Microchip Technology Incorporated function is provide the specific technology	ernal design controls I substance is NOT a this document, therr y concern for any re bility standard for pla tics/ e made from polyvin s form concerning s e best of its knowled cause it has been col sclosure as trade set of the average weigh d non-metal materia y, express or implied ed and its subsidiarie pices.	s, supplier declarations, and /or analytical test data an intentional ingredient in the semiconductor dev is no credible reason to believe that the unavoid gulatory scheme world-wide. astics. You can access the UL iQTM family of data yl chloride (PVC) plastic. "Window envelopes" use ubstances restricted by RoHS in Microchip Techn Ige and belief, as of the date listed in this form. Mi mpiled based on the ranges provided in Material S crets and some information may not have been pr to of these parts and the average weight of anticipa Is contained within silicon devices (silicon IC) in th I, with respect to the information provided in this of as are contained in Microchip's standard terms an	a. rice and, to the lable impurity of bases to obtain ed to hold the p loology Incorpori- crochip Techn Safety Data She ovided by sub- ated significant he finished par declaration. Thi d conditions o	best of Micro concentration in a test report packing slip o rated's semico ology Incorpo bets provided contract asser toxic metals o ts. e exclusive, lii f sale. These a	chip of the at n the outer rated cannot by raw nblers and components. mited re provided	0.11	(mg) Total	7440-21-3 Total Wire Bond 7440-57-5 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for	100 100.00 % of Total Weight 100 100.00	0.74
	Active 2002/53/EC (End-of-Life Vehicles (ELV) Directive). Inpliance with the above EU Directives has been verified via inter- chemical substance is absent from the list above, the chemical hnology Incorporated's knowledge and belief as of the date of mical substance, if any, is not below the threshold of regulator and compounds used by Microchip meet the UL94 V0 flammal ://ul.com/global/eng/pages/offerings/industries/chemicals/plas protective "tubes" in which the specific product is shipped ar and certain "reels" may be made from PVC plastic. Trochip Technology Incorporated believes the information in this ices in their original packing materials is true and correct to the rante the completeness and accuracy of data in this form bede reial suppliers. Supplier information is often protected from dir material suppliers. Information is provided only as estimates of se estimates do not include trace levels of dopants, metals, and trochip Technology Incorporated believes not provide any warrant duct warranties provided by Microchip Technology Incorporated licrochip's quotations, sales order acknowledgement, and invo rochip disclaims any duty to notify users of updates or change privise, suffered by users or third parties as a result of the user	ernal design controls I substance is NOT a this document, ther y concern for any re oility standard for pla- tics/ e made from polyvin s form concerning s e best of its knowled cause it has been co sclosure as trade se- of the average weigh id non-metal materia y, express or implied ed and its subsidiarie oices. is to Material Conten is 'reliance on the in	s, supplier declarations, and /or analytical test data an intentional ingredient in the semiconductor dev is no credible reason to believe that the unavoid gulatory scheme world-wide. astics. You can access the UL iQTM family of data yl chloride (PVC) plastic. "Window envelopes" use ubstances restricted by RoHS in Microchip Techn lge and belief, as of the date listed in this form. Mi mpiled based on the ranges provided in Material S crets and some information may not have been pr t of these parts and the average weight of anticipa Is contained within silicon devices (silicon IC) in th 4, with respect to the information provided in this of eas are contained in Microchip's standard terms an t Declarations and shall not be liable for any dama	a. rice and, to the lable impurity of bases to obtain ed to hold the p ricology Incorpor circochip Techn Safety Data She ovided by sub- ated significant he finished par declaration. Th d conditions o ages, direct or	best of Micro concentration n a test report packing slip o rated's semicc ology Incorpo test provided contract asser t toxic metals ts. e exclusive, li f sale. These a indirect, cons	chip of the at n the outer rated cannot by raw nblers and components. mited ure provided equential or	0.11	(mg) Total (mg) Total	7440-21-3 Total Wire Bond 7440-57-5 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 bour	100 100.00 % of Total Weight 100 100.00 % of Total Weight	0.74

Semiconductor Devic	ce Type: CT and OT (05 (Lead) SOT-23 (C7/CX)		nation Base opper Alloy (ogeneous Materials: .g. pc boards, display	rs)	JEDEC 97 Product Markin and/or Pkg. Labeling e3
		"Contained In"	% Total			12.77	(mg) Total	Mold Compound	% ot Total Weight	79.8
Basic Substance	CAS Number	Sub-Component	Weight	mg/part	ppm	12.77	(mg) i otai	wola Compound	% of Total weight	/9.8
Silica, vitreous	60676-86-0	Mold Compound	67.830	10.853	678,300		Silica, vitreous	60676-86-0	85.00	
Epoxy Resin	Trade Secret	Mold Compound	4.888	0.782	48,878		Epoxy Resin	Trade Secret	6.13	
Phenolic Resin	Trade Secret	Mold Compound	4.888	0.782	48,878		Phenolic Resin	Trade Secret	6.13	
Epoxy, Cresol Novolac	29690-82-2	Mold Compound	1.955 0.239	0.313	19,551		Epoxy, Cresol Novolac	29690-82-2	2.45	
Carbon Black	1333-86-4 7440-50-8	Mold Compound Lead Frame	10.031	1.605	2,394 100.314		Carbon Black	1333-86-4 Total		ll .
Copper Iron	7440-50-8 7439-89-6	Lead Frame	0.247	0.039	2,468	1.00	(
Silver	7439-89-6	Lead Frame	0.247	0.039	2,466	1.68	(mg) Total	Lead Frame 7440-50-8	% of Total Weight	10.5
Zinc	7440-22-4 7440-66-6	Lead Frame	0.200	0.032	2,000		Copper Iron	7440-50-8 7439-89-6	95.54 2.35	
Phosphorous	7440-66-6	Lead Frame	0.013	0.002	87		Silver	7439-89-6	2.35	
Silver (Ag)	7440-22-4	Die Attach	0.563	0.001	5.625		Zinc	7440-22-4	0.13	
Modified Epoxy Resin	13561-08-5	Die Attach	0.105	0.090	1,050		Phosphorous	7723-14-0	0.08	-
Dialvcidvlether of bisphenol-F	54208-63-8	Die Attach	0.056	0.009	563		Thosphoroda	Total		<u>1</u>
Modified Amine	827-43-0	Die Attach	0.026	0.003	263	0.12	(mg) Total	Die Attach	% of Total Weight	
Silicon	7440-21-3	Chip (Die)	7.500	1.200	75.000	0.12	Silver (Ag)		75	0.75
Doped Gold	7440-21-5	Wire Bond	0.200	0.032	2.000		Modified Epoxy Resin		14	
Tin	7440-31-5	Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	1.250	0.200	12,500	Di	iglycidylether of bisphenol-F		8	
100	1440 01 0	TOTALS:	100.000	16.000	1,000,000	Di	Modified Amine		4	
	0.0460	g Total Mass			.,,		Modified 74mile	Total	100.00	1
nnliance with the above ELL Directives has been verified	I she has a set of a stress of the stress of					1.20	(mg) Total	Chip (Die)	% of Total Weight	7.5
-	-	s, supplier declarations, and /or analytical test data.					Doped Silicon	7440-21-3	100]
chemical substance is absent from the list above, the ch chnology Incorporated's knowledge and belief as of the emical substance, if any, is not below the threshold of re	hemical substance is NOT a date of this document, there egulatory concern for any re	an intentional ingredient in the semiconductor device a e is no credible reason to believe that the unavoidable gulatory scheme world-wide.	impurity con	centration of	the		Doped Silicon	7440-21-3 Total	100	
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a chemical substance is absent from the list above, the cl chnology Incorporated's knowledge and belief as of the emical substance, if any, is not below the threshold of re- olding compounds used by Microchip meet the UL94 V0 fi p://ul.com/global/eng/pages/offerings/industries/chemica e protective "tubes" in which the specific product is ship	themical substance is NOT a date of this document, there agulatory concern for any re flammability standard for pla als/plastics/	an intentional ingredient in the semiconductor device a e is no credible reason to believe that the unavoidable gulatory scheme world-wide. astics. You can access the UL iQTM family of database	impurity con s to obtain a	centration of test report at	the		Doped Silicon	7440-21-3 Total Wire Bond 7440-57-5	100 100.00 % of Total Weight 100	a 0.2
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a chemical substance is absent from the list above, the ch chnology Incorporated's knowledge and belief as of the c emical substance, if any, is not below the threshold of re- olding compounds used by Microchip meet the UL94 V0 fi p://ul.com/global/eng/pages/offerings/industries/chemica e protective "tubes" in which the specific product is ship x and certain "reels" may be made from PVC plastic. crochip Technology Incorporated believes the informatio vices in their original packing materials is true and correct arantee the completeness and accuracy of data in this fo aterial suppliers. Supplier information is often protected f aterial suppliers. Information is provided only as estimate	hemical substance is NOT a date of this document, there egulatory concern for any re filammability standard for pla als/plastics/ pped are made from polyvin on in this form concerning s bet to the best of its knowled orm because it has been con from disclosure as trade see so of the average weight of t etals, and non-metal material warranty, express or implied d and its subsidiaries are co	an intentional ingredient in the semiconductor device a is no credible reason to believe that the unavoidable sgulatory scheme world-wide. astics. You can access the UL iQTM family of database yl chloride (PVC) plastic. "Window envelopes" used to ubstances restricted by RoHS in Microchip Technology Ige and belief, as of the date listed in this form. Microci mpiled based on the ranges provided in Material Safety crets and some information may not have been provide hese parts and the average weight of anticipated signi Is contained within silicon devices (silicon IC) in the fir 4, with respect to the information provided in this decla	impurity con s to obtain a hold the pac y Incorporate in Technolo / Data Sheets d by subcon ficant toxic n hished parts. ration. The e	centration of test report at king slip on t ed's semicono gy Incorporat s provided by tract assemb netals compo xclusive, limi	the the outer ductor ted cannot raw lers and raw nents.		(mg) Total	7440-21-3 Total Wire Bond 7440-57-5	100 100.00 % of Total Weight 100	e 0.2
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chemical substance is absent from the list above, the cl chnology Incorporated's knowledge and belief as of the c amical substance, if any, is not below the threshold of re- lding compounds used by Microchip meet the UL94 V0 fi p://ul.com/global/eng/pages/offerings/industries/chemica a protective "tubes" in which the specific product is ship and certain "reels" may be made from PVC plastic. crochip Technology Incorporated believes the informatio vices in their original packing materials is true and correr arantee the completeness and accuracy of data in this for terial suppliers. Supplier information is often protected f terial suppliers. Information is provided only as estimate ese estimates do not include trace levels of dopants, me crochip Technology Incorporated does not provide any w rranties provided by Microchip Technology Incorporated crochip's quotations, sales order acknowledgement, and crochip disclaims any duty to notify users of updates or terwise, suffered by users or third parties as a result of the	hemical substance is NOT a date of this document, there egulatory concern for any re flammability standard for pla als/plastics/ pped are made from polyvin on in this form concerning s ict to the best of its knowled orm because it has been con from disclosure as trade set as of the average weight of t etals, and non-metal material warranty, express or implied d and its subsidiaries are co d invoices. changes to Material Contem the users' reliance on the int	an intentional ingredient in the semiconductor device a is no credible reason to believe that the unavoidable sigulatory scheme world-wide. astics. You can access the UL iQTM family of database yl chloride (PVC) plastic. "Window envelopes" used to ubstances restricted by RoHS in Microchip Technology lige and belief, as of the date listed in this form. Micro- provided on the ranges provided in Material Safety crets and some information may not have been provide hese parts and the average weight of anticipated signi Is contained within silicon devices (silicon IC) in the fir I, with respect to the information provided in this decla intained in Microchip's standard terms and conditions to beclarations and shall not be liable for any damages,	impurity con s to obtain a hold the pac y Incorporate inp Technolo y Data Sheets d by subcon ficant toxic n hished parts. ration. The e of sale. Thes direct or ind	centration of test report at king slip on t ed's semicono gy Incorpora s provided by tract assemb netals compo xclusive, limi e are provide lirect, conseq	the the outer ductor ted cannot raw lers and raw nents. ted product d in uuential or	0.03	mg) Total (mg) Total (mg) Total (mg) Total Tin	Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	100 100.00 % of Total Weight 100 100.00	e 0.2

Basic Substance CAS Number "Contained in the substance in Component Weight mg/part gam ppm 8.39 (mg) Total Moid Compound 43.38 Excert Pasting Viewald 100076-86.0 Moid Compound 31.025 119.73 7.135 419.730 7.135 419.730 8.39 (mg) Total Moid Compound 45.39 Excert Pasting Viewald Trade Secret Moid Compound 3.025 0.514 30.245 Excert Pasting Viewald 8.50 85.01 <		e: OT 05 (Lead)	SOT-23 (P6)		nation Base A pper Alloy (C				ogeneous Materials: a.g. pc boards, displa	ys)	JEDEC 97 Product Marking and/or Pkg. Labeling e3
Bills Introl Provide Read Mole Compound 41973 7.135 41973 Provide Read Mole Compound 4075 7.135 41973 Provide Read Mole Compound 4075 7.135 41973 Provide Read Mole Compound 4025 0.0514 302.061 Mole Compound 4035 Mole Compound 4037 7.135 Mole Compound 1007 </th <th>Basia Sukatanaa</th> <th>CAS Number</th> <th></th> <th></th> <th>malaart</th> <th></th> <th>8.39</th> <th>(mg) Total</th> <th>Mold Compound</th> <th>% ot Total Weight</th> <th>49.38</th>	Basia Sukatanaa	CAS Number			malaart		8.39	(mg) Total	Mold Compound	% ot Total Weight	49.38
Exponsite Exponsite Model Compound 30/25 0.514 30/245 Prendic Ream (No Cassibility) 7/23/54/2 Model Compound 0.056 0.054 30/245 Compound 10/26 0.054 0.054 30/245 10/26 0.054 30/245 Compound 10/26 0.054 0.054 30/245 10/26								Cillian without	00070 00 0	05.00	
Physicic Res (No By / CL SIO3, No diamining tracks) Tails Scoret Moli Compound 3.202 0.514 3.20246 Physicic Resm. Title Scoret 6.13 Biology, Cristal Monols 12805 42 Mold Compound 1210 0.206 1206 1206 2006 1206 2006 1206 2006 1206 2006											
Epoxy_Costa Prove Service Prove Serv											
Carbon Black 1333 88-4 Mold Compound 0.148 0.028 1.481 Copper 7440-50-6 Laad Fame 40.191 6.566 40.191 Cambon Black 1000 4.289 Inn 7440-50-6 Laad Fame 0.051 0.071 10.076 5.171 10.026 7.28 (mg) Total Lead Fame 0.061 0.009 2.80 (mg) Total Lead Fame 0.061 0.009 0.001 10.00 743.946 Lead Fame 0.045 0.000 3.53 9.10 744.966.4 0.131 10.00 9.01 9.0											
Coppor 7440-50-0 Lead Frame 40.919 0.96 400.137 Lead Frame 10.06 7.26 1000 1000 42.80 Silver 7440-52-4 Lead Frame 0.816 0.138 8.159 2 Corper 7440-52-4 6.54 0.53 8.159 2 Corper 7440-52-4 6.54 0.53 8.159 2 Corper 7440-52-4 6.54 0.55											
Inn 1403-894 Lead Frame 0.107 0.171 10.005 7.28 Immod Total Lead Frame 4.0.7 Cell Weight 4.2.83 Zonc 1440-254 Lead Frame 0.054 0.000 555 Displayment 1723-551 Lead Frame 0.054 0.000 555 Displayment 1723-551 Lead Frame 0.054 0.000 555 Displayment 1723-551 Lead Frame 0.054 0.001 1925 Displayment 723-963 2.55 Displayment 1925 Displayment 19						, -		Ourboin Diack			1
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semiconductor device and its homogenous materials comply with EU Directive 2002/36/EC (Rehd FLB Venchale (EU) Directive). Building and the specific production of the specific production is often protection withing a packing materials strate of the average weight of the specific provide only as estimates of the average weight of the specific provide only a			TOTALS:	100.000	17.000	1,000,000	Ami	ine (Trade Secret - 10039)	mine (Trade Secret - 1003		
semiconductor device and its homogenous materials comply with EU Directive 2002/35/EC (RoHS Directive). EU Directive 2011/65/EU (RoHS Recast Directive) and with EU citive 2002/35/EC (RoHS Directive). EU Directive 2011/65/EU (RoHS Recast Directive) and with EU citive 2002/35/EC (RoHS Directive). EU Directives as been verified via internal design controls, supplier declarations, and /or analytical test data.		0.0170	g Total Mass						Total	100.00	-
nology Incorporated's knowledge and belief as of the date of this document, there is no credible reason to believe that the unavoidable impurity concentration of the inical substance, if any, is not below the threshold of regulatory concern for any regulatory scheme world-wide.					,		0.74	Total (mg)	Chip (Die)	% of Total Weight	4.38
://ul.com/global/eng/pages/offerings/industries/chemicals/plastics/ 0.07 (mg) lotal Wire Bond % of lotal Weight 0.43 protective "tubes" in which the specific product is shipped are made from polyvinyl chloride (PVC) plastic. "Window envelopes" used to hold the packing slip on the outer and certain "reels" may be made from PVC plastic. 0.07 (mg) lotal Wire Bond % of lotal Weight 0.43 ochip Technology Incorporated believes the information in this form concerning substances restricted by RoHS in Microchip Technology Incorporated's semiconductor ces in their original packing materials is true and correct to the best of its knowledge and belief, as of the date listed in this form. Microchip Technology Incorporated by raw rante the completeness and accuracy of data in this form because it has been compiled based on the ranges provided by subcontract assemblers and material suppliers. Supplier information is provided only as estimates of the severage weight of these parts and the average weight of anticipated significant toxic metals components. 0.45 (mg) Total Plating on external leeds (pins) - Matte Tin / anneelded at 150°C for / anne	•				best of Microc		0.74	,	7440-21-3	100	4.38
and certain "reels" may be made from PVC plastic. oochip Technology Incorporated believes the information in this form concerning substances restricted by RoHS in Microchip Technology Incorporated's semiconductor ces in their original packing materials is true and correct to the best of its knowledge and belief, as of the date listed in this form. Microchip Technology Incorporated cannot rantee the completeness and accuracy of data in this form because it has been compiled based on the ranges provided in Material Safety Data Sheets provided by raw rail suppliers. Supplier information is provided only as estimates of the average weight of these parts and the average weight of anticipated significant toxic metals components. se estimates do not include trace levels of dopants, metals, and non-metal materials contained within silicon devices (silicon IC) in the finished parts. oochip Technology Incorporated does not provide any warranty, express or implied, with respect to the information provided in this declaration. The exclusive, limited luct warranties provided by Microchip Technology Incorporated and its subsidiaries are contained in Microchip's standard terms and conditions of sale. These are provided by disclaims any duty to notify users of updates or changes to Material Content Declarations and shall not be liable for any damages, direct or indirect, consequential or rives, suffered by users or third parties as a result of the users' reliance on the information in Material Content Declarations (MCD) or independent third party test reports S) or of this Certificate of Compliance for semiconductor products. Tin Tail Tailoung	chemical substance is absent from the list above, the chemica shnology Incorporated's knowledge and belief as of the date of emical substance, if any, is not below the threshold of regulator	I substance is NOT this document, ther ry concern for any re	an intentional ingredient in the semiconductor devi re is no credible reason to believe that the unavoida egulatory scheme world-wide.	ce and, to the I ble impurity co	oncentration o	hip f the	0.74	,	7440-21-3	100	4.38
ochip Technology Incorporated believes the information in this form concerning substances restricted by RoHS in Microchip Technology Incorporated's semiconductor ces in their original packing materials is true and correct to the best of its knowledge and belief, as of the date listed in this form. Microchip Technology Incorporated cannot rantee the completeness and accuracy of data in this form because it has been compiled based on the ranges provided in Material Safety Data Sheets provided by raw prial suppliers. Supplier information is often protected from disclosure as trade secrets and some information may not have been provided by subcontract assemblers and materials contained within silicon devices (silicon IC) in the finished parts. orchip Technology Incorporated does not provide any warranty, express or implied, with respect to the information provided in this declaration. The exclusive, limited fuct warranties provided only as estimates or the average weight of nucleosities are contained within silicon devices (silicon IC) in the finished parts. orchip Technology Incorporated does not provide any warranty, express or implied, with respect to the information provided in this declaration. The exclusive, limited fuct warranties provided by Microchip Technology Incorporated and its subsidiaries are contained in Microchip's standard terms and conditions of sale. These are provided in the average weight of notices. 0.45 (mg) Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for / 1 hour ochip disclaims any duty to notify users of the dusers' reliance on the information in Material Content Declarations (MCD) or independent third party test reports Tin 7440-31-5 100.00 S) or of this Certificate of Compliance for semiconductor products. S	chemical substance is absent from the list above, the chemica chnology Incorporated's knowledge and belief as of the date of emical substance, if any, is not below the threshold of regulator Iding compounds used by Microchip meet the UL94 V0 flamma	I substance is NOT this document, ther ry concern for any ro bility standard for pl	an intentional ingredient in the semiconductor devi re is no credible reason to believe that the unavoida egulatory scheme world-wide.	ce and, to the I ble impurity co	oncentration o	hip f the		Doped Silicon	7440-21-3 Total	100	
Ochip Technology microported does not provide any warranty, express of implied, with respect to the microhabition provided in this declaration. The exclusive, minted does not provide any warranty, express of implied, with respect to the microhabition provided in this declaration. The exclusive, minted does not provide any warranty, express of implied, with respect to the microhabition provided in this declaration. The exclusive, minted does not provide any warranty, express of implied, with respect to the microhabition provided in this declaration. The exclusive, minted does not provide any warranty, express of implied, with respect to the microhabition provided in this declaration. The exclusive, minted is used in the exclusive, minted is used in the exclusive, minted is provided by Microchology Incorporated and its subsidiaries are contained in Microchip's standard terms and conditions of sale. These are provided in this declaration is an exclusive, minted is used in the excl	c chemical substance is absent from the list above, the chemica chnology Incorporated's knowledge and belief as of the date of emical substance, if any, is not below the threshold of regulator olding compounds used by Microchip meet the UL94 V0 flamma p://ul.com/global/eng/pages/offerings/industries/chemicals/plase e protective "tubes" in which the specific product is shipped ar	I substance is NOT this document, ther ry concern for any ro bility standard for pl stics/	an intentional ingredient in the semiconductor devi re is no credible reason to believe that the unavoida egulatory scheme world-wide. lastics. You can access the UL iQTM family of datab	ce and, to the l ble impurity co bases to obtain	oncentration o a test report a	hip If the at		Doped Silicon (mg) Total	7440-21-3 Total Wire Bond 7440-57-5	100 100.00 % of Total Weight 100	
rrwise, suffered by users or third parties as a result of the users' reliance on the information in Material Content Declarations (MCD) or independent third party test reports S) or of this Certificate of Compliance for semiconductor products.	a chemical substance is absent from the list above, the chemical choology Incorporated's knowledge and belief as of the date of emical substance, if any, is not below the threshold of regulator biding compounds used by Microchip meet the UL94 V0 flammal p://ul.com/global/eng/pages/offerings/industries/chemicals/plas e protective "tubes" in which the specific product is shipped ar x and certain "reels" may be made from PVC plastic. crochip Technology Incorporated believes the information in th vices in their original packing materials is true and correct to th arantee the completeness and accuracy of data in this form bec aterial suppliers. Information is provided only as estimates of	I substance is NOT this document, ther ry concern for any rr bility standard for pl stics/ re made from polyvir is form concerning s re best of its knowle cause it has been co calosure as trade se of the average weigh	an intentional ingredient in the semiconductor devir er is no credible reason to believe that the unavoida egulatory scheme world-wide. lastics. You can access the UL iQTM family of datab nyl chloride (PVC) plastic. "Window envelopes" use substances restricted by RoHS in Microchip Techno dge and belief, as of the date listed in this form. Mic ompiled based on the ranges provided in Material Sa crets and some information may not have been pro t of these parts and the average weight of anticipat	ce and, to the I bble impurity co bases to obtain d to hold the p blogy Incorpora frochip Techno afety Data She wided by subco ted significant t	a test report a acking slip on ated's semicor ology Incorpor ets provided b ontract assem toxic metals c	hip f the at the outer nductor ated cannot y raw bibers and		Doped Silicon (mg) Total	7440-21-3 Total Wire Bond 7440-57-5	100 100.00 % of Total Weight 100	
Total 100.00	a chemical substance is absent from the list above, the chemical choology incorporated's knowledge and belief as of the date of emical substance, if any, is not below the threshold of regulator olding compounds used by Microchip meet the UL94 V0 flammal p://ul.com/global/eng/pages/offerings/industries/chemicals/plas e protective "tubes" in which the specific product is shipped ar x and certain "reels" may be made from PVC plastic. crochip Technology Incorporated believes the information in the vices in their original packing materials is true and correct to the arantee the completeness and accuracy of data in this form be aterial suppliers. Supplier information is often protected from di w material suppliers. Information is provided only as estimates, ar crochip Technology Incorporated does not provide any warrant duct warranties provided by Microchip Technology Incorporate	I substance is NOT this document, ther ry concern for any re bility standard for pl titcs/ re made from polyvir is form concerning 1 to best of its knowle cause it has been cc sclosure as trade se of the average weigh d non-metal materia y, express or implie ed and its subsidiari	an intentional ingredient in the semiconductor devir er is no credible reason to believe that the unavoida egulatory scheme world-wide. lastics. You can access the UL iQTM family of datab nyl chloride (PVC) plastic. "Window envelopes" use substances restricted by RoHS in Microchip Techno dge and belief, as of the date listed in this form. Mic ompiled based on the ranges provided in Material Sa crets and some information may not have been pro it of these parts and the average weight of anticipat als contained within silicon devices (silicon IC) in th d, with respect to the information provided in this d	ce and, to the I bible impurity co bases to obtain d to hold the p blogy Incorpora frochip Techno afety Data She vided by subc ted significant i e finished part eclaration. The	a test report a acking slip on ated's semicor ology Incorpor ets provided b ontract assem toxic metals c s.	hip of the at the outer ated cannot y raw blers and omponents. nited	0.07	Coped Silicon (mg) Total Doped Gold	7440-21-3 Total Wire Bond 7440-57-5 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for	100 100.00 % of Total Weight 100 100.00	0.43
	chemical substance is absent from the list above, the chemical chemical substance is absent from the list above, the chemical chnology Incorporated's knowledge and belief as of the date of emical substance, if any, is not below the threshold of regulator lding compounds used by Microchip meet the UL94 V0 flammal p://ul.com/global/eng/pages/offerings/industries/chemicals/plase a protective "tubes" in which the specific product is shipped ar < and certain "reels" may be made from PVC plastic. crochip Technology Incorporated believes the information in the vices in their original packing materials is true and correct to the arantee the completeness and accuracy of data in this form bet terial suppliers. Supplier information is often protected from di v material suppliers. Information is provided only as estimates of esse estimates do not include trace levels of dopants, metals, ar erochip Technology Incorporated does not provide any warrant duct warranties provided by Microchip Technology Incorporate duct warranties novided by Microchip Technology Incorporate duct suffered by users or third parties as a result of the use	I substance is NOT this document, ther ry concern for any re- bility standard for pl titics/ re made from polyvir is form concerning e cause it has been co sclosure as trade se of the average weigh nd non-metal materia y, express or implie ed and its subsidiari oices. ses to Material Conter rs' reliance on the in	an intentional ingredient in the semiconductor devire is no credible reason to believe that the unavoida egulatory scheme world-wide. Iastics. You can access the UL iQTM family of datability of the term of term of the term of the term of term of term of the term of term	ce and, to the I bible impurity co vases to obtain d to hold the p plogy Incorpora rorchip Techno afety Data She vided by subco ted significant i e finished part eclaration. The I conditions of ges, direct or in	a test report a acking slip on ated's semicor ology Incorpor ets provided b ontract assem toxic metals c s. e exclusive, lin sale. These an ndirect, conse	hip of the at the outer nductor ated cannot y raw ublers and omponents. nited re provided quential or	0.07	(mg) Total (mg) Total	7440-21-3 Total Wire Bond 7440-57-5 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour 7440-31-5	100 100.00 % of Total Weight 100 100.00	0.43

MICROCHIP				nation Base A pper Alloy (C			•	nogeneous Materials: e.g. pc boards, display	ys)	JEDEC 97 Produc Marking and/or Pkg. Labeling e3
Semiconductor Device Typ	e: CH and OT	06 (Lead) SOT-23 (C8 / CZ)								65
Basic Substance	CAS Number	"Contained In" Sub-Component	% Total Weight	mg/part	ppm	13.57	(mg) Total	Mold Compound	% ot Total Weight	79.8
Silica, vitreous	60676-86-0	Mold Compound	67.830	11.531	678.300		Silica, vitreous	60676-86-0	85.00	
Epoxy Resin (No bromine, No diantimony trioxide)	Trade Secret	Mold Compound	4.888	0.831	48.878		Epoxy Resin	Trade Secret	6.13	
Phenolic Resin (No Br / CL SbO3, No diantimony trioxide)	Trade Secret	Mold Compound	4.888	0.831	48,878		Phenolic Resin	Trade Secret	6.13	
Epoxy, Cresol Novolac	29690-82-2	Mold Compound	1.955	0.332	19.551		Epoxy, Cresol Novolac	29690-82-2	2.45	
Carbon Black	1333-86-4	Mold Compound	0.239	0.041	2.394		Carbon Black	1333-86-4	0.30	
Copper	7440-50-8	Lead Frame	10.031	1.705	100.314		Calbon black	Total	100.00	_
Iron	7439-89-6	Lead Frame	0.247	0.042	2,468	1.79	(mg) Total	Lead Frame	% of Total Weight	10.5
Silver	7440-22-4	Lead Frame	0.247	0.042	2,408	1.79		7440-50-8	95.54	10.5
Zinc	7440-22-4	Lead Frame	0.200	0.034	2,000		Copper	7440-50-8 7439-89-6	95.54 2.35	
Phosphorous	7440-66-6	Lead Frame	0.013	0.002	87		Iron Silver	7439-89-6 7440-22-4	2.35	
			0.009	0.001					0.13	
Epoxy resin Silicon dioxide	Trade Secret Trade Secret	Die Attach Die Attach	0.338	0.057	3,375 3.375		Zinc Phosphorous	7440-66-6 7723-14-0	0.13	
					- 1		Phosphorous	7723-14-0 Total	100.00	
Curing / Hardener	Trade Secret	Die Attach	0.075	0.013	750					
Silicon	7440-21-3	Chip (Die)	7.500	1.275	75,000	0.13	(mg) Total	Die Attach	% of Total Weight	0.75
Gold	7440-57-5	Wire Bond	0.200	0.034	2,000		Epoxy resin	Trade Secret	45	
Tin	7440-31-5	Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	1.250	0.213	12,500		Silicon dioxide	Trade Secret	45	
		TOTALS:	100.000	17.000	1,000,000		Curing / Hardener	Trade Secret	10	
	0.0170	g Total Mass						Total	100.00	
his semiconductor device and its homogenous materials comply birective 2002/53/EC (End-of-Life Vehicles (ELV) Directive).	with EU Directive 20	02/95/EC (RoHS Directive), EU Directive 2011/65/EU (Rol	HS Recast Dir	ective) and wi	th EU	1.28	Total (mg)	Chip (Die)	% of Total Weight	7.5
Compliance with the shows EU Directives has been world's during bot										
omphance with the above EU Directives has been verified via inte	ernal design controls	, supplier declarations, and /or analytical test data.					Doped Silicon	7440-21-3	100	
a chemical substance is absent from the list above, the chemical acorporated's knowledge and belief as of the date of this docume ny, is not below the threshold of regulatory concern for any regul	I substance is NOT a nt, there is no credib latory scheme world-	n intentional ingredient in the semiconductor device and le reason to believe that the unavoidable impurity conce wide.	ntration of the	e chemical sul			Doped Silicon	7440-21-3 Total	100 100.00	
a chemical substance is absent from the list above, the chemical corporated's knowledge and belief as of the date of this docume ny, is not below the threshold of regulatory concern for any regul lolding compounds used by Microchip meet the UL94 V0 flammat	I substance is NOT a nt, there is no credib latory scheme world- bility standard for pla	n intentional ingredient in the semiconductor device and le reason to believe that the unavoidable impurity conce wide.	ntration of the	e chemical sul		0.03	Doped Silicon (mg) Total			0.2
f a chemical substance is absent from the list above, the chemical ncorporated's knowledge and belief as of the date of this docume any, is not below the threshold of regulatory concern for any regul Molding compounds used by Microchip meet the UL94 V0 flammat http://ul.com/global/eng/pages/offerings/industries/chemicals/plas The protective "tubes" in which the specific product is shipped are	I substance is NOT a nt, there is no credib latory scheme world- bility standard for pla tics/	n intentional ingredient in the semiconductor device and le reason to believe that the unavoidable impurity conce wide. stics. You can access the UL IQTM family of databases	ntration of the	e chemical sul st report at	bstance, if		· · ·	Total Wire Bond 7440-57-5	100.00 % of Total Weight 100	0.2
f a chemical substance is absent from the list above, the chemical incorporated's knowledge and belief as of the date of this docume any, is not below the threshold of regulatory concern for any regul Molding compounds used by Microchip meet the UL94 V0 flammat http://ul.com/global/eng/pages/offerings/industries/chemicals/plast The protective "tubes" in which the specific product is shipped are certain "reels" may be made from PVC plastic. Microchip Technology Incorporated believes the information in this their original packing materials is true and correct to the best of its completeness and accuracy of data in this form because it has be Supplier information is often protected from disclosure as trade se information is provided only as estimates of the average weight of include trace levels of dopants, metals, and non-metal materials co	I substance is NOT a nt, there is no credibl latory scheme world- bility standard for pla tics/ e made from polyviny s form concerning su s knowledge and beli en compiled based on ecrets and some infor these parts and the ontained within silico	In intentional ingredient in the semiconductor device and le reason to believe that the unavoidable impurity conce- wide. stics. You can access the UL iQTM family of databases vl chloride (PVC) plastic. "Window envelopes" used to h ubstances restricted by RoHS in Microchip Technology I ef, as of the date listed in this form. Microchip Technology I n the ranges provided in Material Safety Data Sheets pro- rmation may not have been provided by subcontract ass average weight of anticipated significant toxic metals co n devices (silicon IC) in the finished parts.	ntration of the to obtain a test old the packir ncorporated's gy Incorporate vided by raw semblers and imponents. Th	e chemical sul st report at ng slip on the o s semiconduct ed cannot gua material supp raw material s hese estimates	bstance, if outer box and tor devices in arantee the bliers. suppliers. s do not		(mg) Total	Total Wire Bond 7440-57-5 Total	100.00 % of Total Weight	0.2
f a chemical substance is absent from the list above, the chemical nocorporated's knowledge and belief as of the date of this docume any, is not below the threshold of regulatory concern for any regul Molding compounds used by Microchip meet the UL94 V0 flammat http://ul.com/global/eng/pages/offerings/industries/chemicals/plast The protective "tubes" in which the specific product is shipped are certain "reels" may be made from PVC plastic. Microchip Technology Incorporated believes the information in this heir original packing materials is true and correct to the best of its completeness and accuracy of data in this form because it has bee Supplier information is often protected from disclosure as trade se formation is provided only as estimates of the average weight of	I substance is NOT a nt, there is no credibi latory scheme world- bility standard for pla tics/ e made from polyviny s form concerning su s knowledge and beli en compiled based or cerets and some info- i these parts and the ontained within silico y, express or implied,	n intentional ingredient in the semiconductor device and le reason to believe that the unavoidable impurity conce wide. stics. You can access the UL IQTM family of databases /I chloride (PVC) plastic. "Window envelopes" used to h libstances restricted by RoHS in Microchip Technology I ef, as of the date listed in this form. Microchip Technolog I n the ranges provided in Material Safety Data Sheets pro rmation may not have been provided by subcontract as average weight of anticipated significant toxic metals co n devices (silicon IC) in the finished parts.	ntration of the to obtain a test old the packir ncorporated's gy Incorporat vided by raw semblers and imponents. Th tion. The excl	e chemical sul st report at ng slip on the o s semiconduct ed cannot gua material supp raw material s hese estimates lusive, limited	bstance, if outer box and tor devices in arantee the liers. suppliers. s do not product		(mg) Total	Total Wire Bond 7440-57-5	100.00 % of Total Weight 100	0.2
a chemical substance is absent from the list above, the chemical acorporated's knowledge and belief as of the date of this documenny, is not below the threshold of regulatory concern for any regulatory concern for any regulatory concern for any regulatory. (Jul.com/global/eng/pages/offerings/industries/chemicals/plast the Jrotective "tubes" in which the specific product is shipped and ertain "reels" may be made from PVC plastic. icrochip Technology Incorporated believes the information in this eir original packing materials is true and correct to the best of its ompleteness and accuracy of data in this form because it has bee upplier information is often protected from disclosure as trade se formation is provided only as estimates of the average weight of icrochip Technology Incorporated does not provide any warranty arranties provided by Microchip Technology Incorporated and its is provided by Microchip Technology Incorporated and its is provided by Microchip Technology Incorporated and is the server the server as the average weight of incorchip Technology Incorporated does not provide any warranty arranties provided by Microchip Technology Incorporated and its is the server as the ser	I substance is NOT a nt, there is no credible latory scheme world- bility standard for pla tics/ e made from polyviny s form concerning st s knowledge and beli en compiled based on ecrets and some infor i these parts and the ontained within silico y, express or implied, s subsidiaries are cor	In intentional ingredient in the semiconductor device and le reason to believe that the unavoidable impurity conce- wide. stics. You can access the UL IQTM family of databases /I chloride (PVC) plastic. "Window envelopes" used to h ubstances restricted by RoHS in Microchip Technology I ef, as of the date listed in this form. Microchip Technolog In the ranges provided in Material Safety Data Sheets pro- rmation may not have been provided by subcontract as average weight of anticipated significant toxic metals co- n devices (silicon IC) in the finished parts. , with respect to the information provided in this declara tained in Microchip's standard terms and conditions of Declarations and shall not be liable for any damages, d	ntration of the to obtain a test old the packir ncorporated's gy Incorporate vided by raw semblers and omponents. TI tion. The excl sale. These a irect or indire	e chemical sul st report at ng slip on the o s semiconduct ed cannot gua material supp raw material s hese estimates lusive, limited ire provided in ct, consequen	bstance, if outer box and tor devices in arantee the oliers. suppliers. s do not product Microchip's tital or	0.21	(mg) Total	Total Wire Bond 7440-57-5 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1	100.00 % of Total Weight 100 100.00	
a chemical substance is absent from the list above, the chemical corporated's knowledge and belief as of the date of this document by, is not below the threshold of regulatory concern for any regular olding compounds used by Microchip meet the UL94 V0 flammate tp://ul.com/global/eng/pages/offerings/industries/chemicals/plast he protective "tubes" in which the specific product is shipped and ertain "reels" may be made from PVC plastic. icrochip Technology Incorporated believes the information in this eign poleteness and accuracy of data in this form because it has the upplier information is often protected from disclosure as trade set formation is provided only as estimates of the average weight of clude trace levels of dopants, metals, and non-metal materials co icrochip Technology Incorporated does not provide any warranty arranties provided by Microchip Technology Incorporated and its iotations, sales order acknowledgement, and invoices. icrochip disclaims any duty to notify users of updates or change herwise, suffered by users or third parties as a result of the user	I substance is NOT a nt, there is no credible latory scheme world- bility standard for pla tics/ e made from polyviny s form concerning st s knowledge and beli en compiled based on ecrets and some infor i these parts and the ontained within silico y, express or implied, s subsidiaries are cor	In intentional ingredient in the semiconductor device and le reason to believe that the unavoidable impurity conce- wide. stics. You can access the UL IQTM family of databases /I chloride (PVC) plastic. "Window envelopes" used to h ubstances restricted by RoHS in Microchip Technology I ef, as of the date listed in this form. Microchip Technolog In the ranges provided in Material Safety Data Sheets pro- rmation may not have been provided by subcontract as average weight of anticipated significant toxic metals co- n devices (silicon IC) in the finished parts. , with respect to the information provided in this declara tained in Microchip's standard terms and conditions of Declarations and shall not be liable for any damages, d	ntration of the to obtain a test old the packir ncorporated's gy Incorporate vided by raw semblers and omponents. TI tion. The excl sale. These a irect or indire	e chemical sul st report at ng slip on the o s semiconduct ed cannot gua material supp raw material s hese estimates lusive, limited ire provided in ct, consequen	bstance, if outer box and tor devices in arantee the oliers. suppliers. s do not product Microchip's tital or	0.21	(mg) Total Doped Gold (mg) Total	Total Wire Bond 7440-57-5 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	100.00 % of Total Weight 100 100.00 % of Total Weight	

ICROCHIP Semiconductor Device	Type: OT 06 (Lead) SO	Т-23 (бА)		nation Base A pper Alloy (C			•	nogeneous Materials: e.g. pc boards, displa		JEDEC 97 Product Markin and/or Pkg. Labeling e4
Basic Substance	CAS Number	"Contained In" Sub-Component	% Total Weight	mg/part	ppm	7.94	(mg) Total	Mold Compound	% ot Total Weight	48.26
Silica, vitreous (or fused)	60676-86-0	Mold Compound	41.021	6.748	410,210		Silica, vitreous (or fused)	60676-86-0	85.00	1
Epoxy Resin	Trade Secret	Mold Compound	4.199	0.691	41,986		Epoxy Resin	Trade Secret	8.70	
Phenolic Resin	Trade Secret	Mold Compound	2.896	0.476	28,956		Phenolic Resin	Trade Secret	6.00	
Carbon Black	1333-86-4	Mold Compound	0.145	0.024	1,448		Carbon Black	1333-86-4	0.30	
Copper	7440-50-8	Lead Frame	48.319	7.949	483,192			Total		
Iron	7439-89-6	Lead Frame	1.142	0.188	11,422	8.17	(mg) Total	Lead Frame	% of Total Weight	49.66
Phosphorous	7723-14-0	Lead Frame	0.124	0.020	1,242		Copper	7440-50-8	97.30	
Zinc (Metal)	7440-44-0	Lead Frame	0.074	0.012	745		Iron	7439-89-6	2.30	
Aluminum oxide	1344-28-1	Die Attach	0.143	0.024	1,435		Phosphorous	7723-14-0	0.25	
Epoxy resin	Trade Secret	Die Attach	0.261	0.043	2,609		Zinc (Metal)	7440-44-0	0.15	
Amine (Trade Secret - 10039)	Trade Secret	Die Attach	0.016	0.003	157			Total	100.00	-
Silicon	7440-21-3	Chip (Die)	1.090	0.179	10,900	0.07	(mg) Total	Die Attach	% of Total Weight	0.42
Gold	7440-57-5	Wire Bond	0.120	0.020	1,200		Aluminum oxide	1344-28-1	34	
Nickel	7440-02-0	Plating on external leads (pins)	0.431	0.071	4,308		Epoxy resin	Trade Secret	62	1
Palladium	7440-05-03	Plating on external leads (pins)	0.015	0.002	145	Arr	nine (Trade Secret - 10039)	mine (Trade Secret - 1003	4	
	7440-57-5	Plating on external leads (pins)	0.005	0.001	47			Total	100.00	•
Gold										1.00
Gold	1440 01 0		ALS: 100.000	16.450	1.000.000	0.18	Total (mg)	Chip (Die)	% of Total Weight	
Gold semiconductor device and its homogenous materials o tive 2002/53/EC (End-of-Life Vehicles (ELV) Directive).	0.0165 g T	otal Mass			1,000,000 with EU	0.18	Total (mg) Doped Silicon	Chip (Die) 7440-21-3 Total	% of Total Weight 100 100.00	1.09
semiconductor device and its homogenous materials o	0.0165 g T omply with EU Directive 2002/9	total Mass 5/EC (RoHS Directive), EU Directive 2011/	5/EU (RoHS Recast			0.18		7440-21-3	100	
semiconductor device and its homogenous materials o tive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). Diance with the above EU Directives has been verified memical substance is absent from the list above, the ch porated's knowledge and belief as of the date of this d s not below the threshold of regulatory concern for an	0.0165 g T comply with EU Directive 2002/s via internal design controls, su memical substance is NOT an in ocument, there is no credible r y regulatory scheme world-wid	total Mass 5/EC (RoHS Directive), EU Directive 2011/ pplier declarations, and /or analytical test tentional ingredient in the semiconductor eason to believe that the unavoidable imp e.	5/EU (RoHS Recast lata. levice and, to the be rity concentration of	Directive) and st of Microchin the chemical	with EU		Doped Silicon	7440-21-3 Total Wire Bond 7440-57-5	100 100.00 % of Total Weight 100	0.12
semiconductor device and its homogenous materials of tive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). Iliance with the above EU Directives has been verified nemical substance is absent from the list above, the ch porated's knowledge and belief as of the date of this d	0.0165 g T omply with EU Directive 2002/s via internal design controls, su nemical substance is NOT an in ocument, there is no credible r y regulatory scheme world-wid ammability standard for plastic	total Mass 5/EC (RoHS Directive), EU Directive 2011/ pplier declarations, and /or analytical test tentional ingredient in the semiconductor eason to believe that the unavoidable imp e.	5/EU (RoHS Recast lata. levice and, to the be rity concentration of	Directive) and st of Microchin the chemical	with EU		Doped Silicon (mg) Total	7440-21-3 Total Wire Bond	100 100.00 % of Total Weight 100	0.12
semiconductor device and its homogenous materials of tive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). bliance with the above EU Directives has been verified nemical substance is absent from the list above, the ch porated's knowledge and belief as of the date of this d s not below the threshold of regulatory concern for an ng compounds used by Microchip meet the UL94 V0 fi	0.0165 g T omply with EU Directive 2002/S via internal design controls, su memical substance is NOT an in ocument, there is no credible r y regulatory scheme world-wid ammability standard for plastic Is/plastics/	total Mass 5/EC (RoHS Directive), EU Directive 2011/ pplier declarations, and /or analytical test tentional ingredient in the semiconductor eason to believe that the unavoidable imp e. s. You can access the UL iQTM family of o	5/EU (RoHS Recast data. levice and, to the be rity concentration of atabases to obtain a	Directive) and st of Microchip the chemical test report at	with EU p Technology substance, if		Doped Silicon (mg) Total	7440-21-3 Total Wire Bond 7440-57-5	100 100.00 % of Total Weight 100	0.12
semiconductor device and its homogenous materials o tive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). Allance with the above EU Directives has been verified nemical substance is absent from the list above, the of porated's knowledge and belief as of the date of this d s not below the threshold of regulatory concern for an ng compounds used by Microchip meet the UL94 V0 fl ful.com/global/eng/pages/offerings/industries/chemica rotective "tubes" in which the specific product is ship	0.0165 g T comply with EU Directive 2002/s via internal design controls, su memical substance is NOT an in occument, there is no credible r y regulatory scheme world-wid ammability standard for plastic Is/plastics/ ped are made from polyvinyl cl n in this form concerning subsi- best of its knowledge and belie i it has been compiled based o rade secrets and some informa ight of these parts and the ave	To otal Mass 5/EC (RoHS Directive), EU Directive 2011/ pplier declarations, and /or analytical test tentional ingredient in the semiconductor eason to believe that the unavoidable imp e. s. You can access the UL iQTM family of o nloride (PVC) plastic. "Window envelopes" tances restricted by RoHS in Microchip Te f, as of the date listed in this form. Microc n the ranges provided in Material Safety D tion may not have been provided by subc range weight of anticipated significant toxic	5/EU (RoHS Recast data. levice and, to the be rity concentration of atabases to obtain a used to hold the pac shnology Incorporate ip Technology Incor ata Sheets provided ntract assemblers a	Directive) and st of Microchig the chemical test report at king slip on th d's semicondu porated canno by raw materia	with EU p Technology substance, if ne outer box uctor devices of guarantee al suppliers.	0.02	(mg) Total	7440-21-3 Total Wire Bond 7440-57-5 Total Plating on external	100 100.00 % of Total Weight 100 100.00	0.12
semiconductor device and its homogenous materials o tive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). Aliance with the above EU Directives has been verified nemical substance is absent from the list above, the ch porated's knowledge and belief as of the date of this d s not below the threshold of regulatory concern for an ng compounds used by Microchip meet the UL94 V0 ff (ul.com/global/eng/pages/offerings/industries/chemica rotective "tubes" in which the specific product is ship ertain "reels" may be made from PVC plastic. chip Technology Incorporated believes the information ir original packing materials is true and correct to the ompleteness and accuracy of data in this form becaus lier information is often protected from disclosure as t nation is provided only as estimates of the average we	0.0165 g T omply with EU Directive 2002/s via internal design controls, su memical substance is NOT an in ocument, there is no credible r y regulatory scheme world-wid ammability standard for plastic Is/plastics/ ped are made from polyvinyl cl n in this form concerning subsi- best of its knowledge and belie a it has been compiled based o rade secrets and some informa giht of these parts and the ave rials contained within silicon d arranty, express or implied, wi and its subsidiaries are contai	Total Mass b5/EC (RoHS Directive), EU Directive 2011/ pplier declarations, and /or analytical test tentional ingredient in the semiconductor eason to believe that the unavoidable imp e. s. You can access the UL iQTM family of or horide (PVC) plastic. "Window envelopes" tances restricted by RoHS in Microchip Te f, as of the date listed in this form. Microc n the ranges provided in Material Safety D tion may not have been provided by subc rage weight of anticipated significant toxic evices (sillicon IC) in the finished parts. th respect to the information provided in the	5/EU (RoHS Recast data. levice and, to the be rity concentration of atabases to obtain a used to hold the pac thnology Incorporate ip Technology Incor ata Sheets provided ntract assemblers a metals components. is declaration. The e	Directive) and st of Microchig the chemical test report at king slip on th d's semicondu porated canno by raw materia These estima xclusive, limite	with EU p Technology substance, if ne outer box uctor devices of guarantee al suppliers. ites do not ed product	0.02	(mg) Total Doped Gold (mg) Total	7440-21-3 Total Wire Bond 7440-57-5 Total Plating on external leads (pins)	100 100.00 % of Total Weight 100 100.00 % of Total Weight	0.12

Basic Substance CAS Number Sub-Component Weight mg/part pp 13.37 (m) Total Mod Compound %, nt Total Weight	Semiconductor Device Type:	CH and OT	06 (Lead) SOT-23 (C8)		nation Base pper Alloy ((-		•	ogeneous Materials: g. pc boards, display	/s)	JEDEC 97 Product Marking and/or Pkg. Labeling e3
Balles clustatingCurrentSuper-UnipotentWrightInputPointSuper-UnipotentBiles, white andMail Compound07.2610.2510.20<			"Contained In"				13.57	(mg) Total	Mold Compound	% ot Total Weight	79.8
Elsoy Rein Trade Secter Mode Compound 4.886 0.831 46.878 Bindrick Lessa in: Bindrick Bindrick Lessa in: Bindrick Bindrick Lessa in: Bin											
Beneric Res Trade Serier Mod Compound 4.888 0.83 46.878 Brown Consel Norvace 2000 (2002) 1000 (2002											
Epoxy. Check Novalia: 28880-86-23 Mold Compand 1.955 0.332 19.551 Participant 2.334 Contron Black 7.452-954 Laad Finne 1.003 1.765 10.031 1.76 10.031 1.76 10.031 1.76 10.031 1.78 mg real 2.884 0.012 1.78 mg real 1.88 1.838-84 0.030 1.78 mg real 1.78											
Carbon Black 1333-864 Mold Corpound 0.238 0.041 2.384 Carbon Black 1333-864 0.301 100 1700 7449-894 Lead Frame 0.011 1700 170											
Copper 7440-06-0 Lead Finne 0.211 1.705 100.31 100.31 100.31 100.31 100.31 100.31 100.31 100.31 100.31 100.31 100.31 100.31 100.31 100.31 100.31 100.31 100.31 100.30 100.30 100.30 100.30 100.30 100.30 100.30 100.30 100.30 100.30 100.30 100.30 100.30 100.30 100.30 100.30 100.30 1											
Inn 7439-89-6 Lead Frame 0.247 0.042 2.468 1.79 (mg) Total Lead Frame %, of Total Weight 0.053 0.052 1.31 (mg) Total Lead Frame 0.013 0.002 0.014 2.00 0.034 2.00 0.034 2.00 0.034 2.00 0.034 2.00 0.034 2.00 0.034 2.00 0.035 0.001 0.002 0.034 0.003								Carbon Black			
Silver 7440224 Lead Frame 0.200 0.034 2.000 1034 2.000 1034 2.000 1034 2.000 1034 2.000 1034 2.000 1034 2.000 1034 2.000 1034 2.000 1034 2.000 1034 2.000 1034 2.000 1034 2.000 1034 2.000 1034 2.000 1036 0.001 0.012 0.013 0.012 0.013 0.017<											
Znc 7440-68-6 Lead Frame 0.013 0.0201 0.77 Epory mean Trade Secret Die Attach 0.069 0.005 6.025 Curron / Herdenr Trade Secret Die Attach 0.069 0.055 6.025 Curron / Herdenr Trade Secret Die Attach 0.069 6.025 7440-06-6 0.13 Stoom Trade Secret Die Attach 0.069 7400-05 0.010 7725-16-0 0.010 0.010 7725-16-0 0.010 100.00 1725-16-0 0.010 1725-16-0 0.010 1725-16-0 0.010 1725-16-0 0.010 1725-16-0 0.010 1725-16-0 0.010 1725-16-0 0.010 1725-16-0 0.010 1725-16-0 0.010 1725-16-0 0.010 1725-16-0 0.000 1725-16-0 0.000 1725-16-0 0.000 1725-16-0 0.000 1725-16-0 0.000 1725-16-0 0.000 1725-16-0 0.000 1725-16-0 0.000 1725-16-0 0.000 1725-16-0 0.000			Lead Frame			2,468	1.79	(mg) Total	Lead Frame	% of Total Weight	10.5
Phosphorous 7723-14-0 Lead Frame 0.009 0.011 677 Epoy resin Toda Secret Die Attach 0.683 0.028 6.27 Silicon doxide 7731-86-9 Die Attach 0.168 0.028 1.688 Cump / Frainfeier Trada Secret Die Attach 0.013 0.003 1.68 0.03 1.688 0.028 1.688 0.028 1.688 0.03 1.688 0.03 1.688 0.03 1.680 1.03 1.00.00 17.000 1.000 0.013 1.00.00 1.00.00 1.00.000 1.00.000 1.00.000 1.00.000 1.00.000 1.00.000 1.00.000 1.00.00 <td< td=""><td></td><td></td><td>Lead Frame</td><td></td><td></td><td></td><td></td><td>Copper</td><td>7440-50-8</td><td></td><td></td></td<>			Lead Frame					Copper	7440-50-8		
Epoy resin Trade Secret Die Attach 0.683 0.086 5.625 Silicon dioxide Trade Secret Die Attach 0.189 0.029 1.28 Phosphorus Trade 06.013 Cump / Hardener Trade Secret Die Attach 0.019 0.003 188 Important 1000 Trade Secret 0.01 Phosphorus Trade 100.00 Thin 7440-57.6 Wire Bond 0.7500 1.25 Tradue 100.00 100	Zinc	7440-66-6	Lead Frame	0.013	0.002	131		Iron	7439-89-6	2.35	
Silicon 763-1869 Die Attach 0.169 0.029 1.688 Total 7723-140 0.08 Silicon 7740-213 Chip (Be) 7.500 1.275 75,000 0.13 (mg) Total Die Attach 5.60 Total Weight 7 Th 7.440-215 Person etermine Track Secret 75 0.034 2,000 Econor resin Track Secret 75 0.034 7.000,000 7.000,000 7.010 7.0	Phosphorous	7723-14-0	Lead Frame	0.009		87		Silver	7440-22-4	1.91	
Cump / Hardener Trade Secret De Attach 0.019 0.003 188 Testa 100.00 Billion //440-21-3 Chip (Die) 7.5000 0.275 75.000 0.133 (mg) Testa Depad Gold 7.64 5.67 Testal Megad 7.6 Tim 7.440-57-5 Wre Bond 0.200 0.234 2.000 Epoxy ream Trade Secret 7.6 Selected 7.6 7.6 1.00.000 17.000.00 1.000.00 17.000.00 1.000.00 17.000.00 1.000.00 17.000.00 1.000.00 17.000.00 1.000.00 17.000.00 1.000.00 17.000.00 1.000.00 17.000.00 1.000.00 </td <td>Epoxy resin</td> <td>Trade Secret</td> <td>Die Attach</td> <td>0.563</td> <td>0.096</td> <td>5,625</td> <td></td> <td>Zinc</td> <td>7440-66-6</td> <td>0.13</td> <td></td>	Epoxy resin	Trade Secret	Die Attach	0.563	0.096	5,625		Zinc	7440-66-6	0.13	
Silicon 7440-27-3 Chip (Dip) 7.500 1.275 7.500 0.13 (mg) Total Die Attach % of Total Weight 0.7 Doepd Gold 7440-57-5 Wire Bond 0.201 1.275 7.500 0.13 (mg) Total Die Attach % of Total Weight 0.7 Tin 7440-57-5 Wire Bond 0.201 1.250 0.213 12.500 Silicon dicoids 7/5/18-9 23 Curring / Hardbare Mich Bongenous materials comply with EU Directive 2002/55EC (RoHs Directive), EU Directive 2002/55EC (RoHs Directive), EU Directive 2017/65/EU (RoHS Recast Directive) and with EU 1.26 (mg) Total Chip (Die) % of Total Weight 7.2 Indiance with the above EU Directives As been or miced to inschool to compute the date of this document, there is no credible reason to be lieve that the unavoidable impurity concentration of the micel substance is abosen from the list above, the chericial substance is NOT an intentional ingredient in the semiconductor divice and, to the best of Microchip mounds used by Microchip meet the UL94 V0 flammability stander for plastics. You can access the UL IQTM family of databases to obtain a test report at divice for more VC plastic. 1.26 (mg) Total Wire Bond 0.03 (mg) Total Doepd Silicon Accesshant and there in the information in bin form occurs in a substan	Silicon dioxide	7631-86-9	Die Attach	0.169	0.029	1,688		Phosphorous	7723-14-0	0.08	
Silton 7440-2713 Chip (Die) 7.500 1.276 7.500 0.13 (mg) Total Die Attach % of Total Weight 0.7 Tin 7440-57.5 Wire Bond 0.201 1.250 0.213 12.500 Silicon dicuide 77.00 Silicon dicuide 76.00 77.00 Silicon dicuide 76.00 1.276 Silicon dicuide 76.00 <td>Curing / Hardener</td> <td>Trade Secret</td> <td>Die Attach</td> <td>0.019</td> <td>0.003</td> <td>188</td> <td></td> <td></td> <td>Total</td> <td>100.00</td> <td></td>	Curing / Hardener	Trade Secret	Die Attach	0.019	0.003	188			Total	100.00	
Dopped Guid 7440-57-5 Write Bond 0.200 0.344 2.000 Encorr well The Bend 756 Tin 7440-315 Paring on esternal leads (pro-) Mate The Jarvesheid at tWPC for 1 toor 1 1200 1.250 0.217 1.250 0.217 1.250 0.217 1.250 0.217 1.0000 Total Mass 100.000 Total Mass Total Secret 3 OUTOLS (Clind-ULife Veloce 1002/95/EC (RoHS Directive), EU Directive 2003/95/EC (RoHS Directive), EU Directive 2011/65/EU (RoHS Recast Directive) and with EU 1.28 (mg) Total Chip (Die) % of Total Weight 7.3 molecular substance is absent from the list above, the chemical substance is NOT an intentional ingredient in the semiconductor device and, to the best of Microchip threads for portade 3 knowledge and belief as of the date of this document, there is no credible reason to believe that the unavoidable impurity concentration of the mineral substance, if any, is not below the threadoff or glastics. You can access the ULI CMT family of databases to obtain a test report at the completeness and accuracy of data in this form because it has been completed passed on the range provided in Material Safety Data Sheets provided in the outer traits strue and creation irresh "sample and form PVC plastic. 0.03 (mg) Total Doped Goid 7440-57-5 100 100.00 100.00 <td< td=""><td></td><td>7440-21-3</td><td>Chip (Die)</td><td>7.500</td><td>1.275</td><td>75.000</td><td>0.13</td><td>(mg) Total</td><td>Die Attach</td><td>% of Total Weight</td><td>0.75</td></td<>		7440-21-3	Chip (Die)	7.500	1.275	75.000	0.13	(mg) Total	Die Attach	% of Total Weight	0.75
Tin 7440:31-5 Puetting on external last (proj Mattis Tin / roneleted at 190% cpt hzar 1.250 0.213 12,500 Status	Doped Gold			0.200	0.034						
TOTALS: 100.000 17.000 1.00000 ODATO g Total Mass Semiconductor device and its homogenous materials comply with EU Directive 2002/95/EC (RoHS Directive), EU Directive 2011/65/EU (RoHS Recast Directive) and with EU Directive 2002/95/EC (RoHS Directive), EU Directive 2011/65/EU (RoHS Recast Directive) and with EU Directive 2012/95/EC (RoHS Interval), EU Directive 2011/65/EU (RoHS Recast Directive) and with EU Directive 2012/95/EC (RoHS Interval), EU Directive 2011/65/EU (RoHS Recast Directive) and with EU Directive 2012/95/EC (RoHS Directive), EU Directive 2011/65/EU (RoHS Recast Directive) and with EU Directive 2012/95/EC (RoHS Directive), EU Directive 2011/65/EU (RoHS Recast Directive) and with EU Directive 2011/65/EU (RoHS Recast Directive) and vice and for the above ful document, there is no credible reason to believe that the unavoidable imparity concentration of the mineral substance is absent from the list above, the chemical substance is a substance for any regulatory scheme world-vide. Interview 2011/05/EU (RoHS Recast Directive), Interview 2011/65/EU (RoHS Re											
Outro Total Total Total 100.00 Semiconductor device and its homogenous materials comply with EU Directive 2002/35/EC (RoHS Directive), EU Directives 2002/35/EC (RoHS Directive), 2002/35/EC (RoHS Directive), 2002/35/EC (RoHS Directive 2002/35/EC (RoHS Directive), 2002/	1111	7440-31-3									
semiconductor device and its homogenous materials comply with EU Directive 2029/35/EC (End-of-Life Vehicles (ELV) Directive). Total Verice 2029/35/EC (End-of-Life Vehicles (ELV) Directive). Total 100.00 Verice 2029/35/EC (End-of-Life Vehicles 2029/35/EC (En		0.0470		100.000	11.000	1,000,000		Culling / Hardener			
scrive 2002/SJEC (End-of-Life Vehicles (ELV) Directive). mpliance with the above EU Directives has been verified via internal design controls, supplier declarations, and /or analytical test data. chemical substance is absent from the list above, the chemical substance is NOT an intentional ingredient in the semiconductor device and, to the best of Microchip thrology incorporated's knowledge and belief as of the date of this document, there is no credible reason to believe that the unavoidable impurity concentration of the mical substance, if any, is not beliew the threshold of regulatory sceneme world-wide. In detain "reels" in which the specific product is shipped are made from polyvinyl chloride (PVC) plastic. "Window envelopes" used to hold the packing slip on the outer rotechip Technology incorporated believes the information in this form concerning substances restricted by RoHS in Microchip Technology Incorporated is another and earragine weight of these parts and the average weight of anticipated significant toxic metals components. In their original packing materials is true and correct to the best of this nowledge and belief, as of the date listed in this form. Burcechip Technology Incorporated is specific provide on yastrants and the average weight of anticipated significant toxic metals components. In their original packing materials is true and correct to the best of tis knowledge and belief, as of the date listed in this form. Microchip Technology Incorporated semilors and raw rotechip Technology Incorporated does not provide on yastrants, express or implied, with respect to the information may not have been provided by subcontract assemblers and raw rotechip Technology Incorporated date is substances. Total Total Weight 1.2 Total Total Weight 1.2 Tot									i otai	100.00	
chemical substance is absent from the list above, the chemical substance is NOT an intentional ingredient in the semiconductor device and, to the best of Microchip hnology incorporated's knowledge and belief as of the date of this document, there is no credible reason to believe that the unavoidable impurity concentration of the ding compounds used by Microchip meet the UL94 V0 flammability standard for plastics. You can access the UL iQTM family of databases to obtain a test report at <i>i://ul.com/global/eng/pages/offerings/industries/chemicals/plastics/</i> protective "tubes" in which the specific product is shipped are made from polyvinyl chloride (PVC) plastic. "Window envelopes" used to hold the packing slip on the outer and certain "reels" may be made from PVC plastic. Total 100.00 Total 0.03 (mg) Total 0.03 (mg) Total 0.03 (mg) Total 0.03 (mg) Total 0.00 Total 100.00 Total 100.00 Total 100.00 Total 100.00 Total 100.00 Total 100.00 Total 100.00 Total 100.00		h EU Directive 20	002/95/EC (RoHS Directive), EU Directive 2011/65/EU (F	RoHS Recast	Directive) and	l with EU	1.28	(mg) Total	Chip (Die)	% of Total Weight	7.5
Check much a substance is a substance is a substance is NO1 an intention an intention an intention an intention an intention an intention and intentintention and intention and intentioa and inten	npliance with the above EU Directives has been verified via intern	al design control	s, supplier declarations, and /or analytical test data.					Doped Silicon	7440-21-3	100	
protective "tubes" in which the specific product is shipped are made from polyvinyl chloride (PVC) plastic. "Window envelopes" used to hold the packing slip on the outer and certain "reels" may be made from PVC plastic. Total Deped Gold 7440-57-5 100 Deped Gold 7440-57-5 100 Total 100.00 Total 000,00 Deped Gold 7440-57-5 100 Total 000,00 Total 000,00 Deped Gold 7440-57-5 100 Deped Gold 7				and, to the be	st of Microch	ip			l otal	100.00	, ,
rochip Technology Incorporated believes the information in this form concerning substances restricted by RoHS in Microchip Technology Incorporated's semiconductor rices in their original packing materials is true and correct to the best of its knowledge and belief, as of the date listed in this form. Microchip Technology Incorporated cannot rarate the completeness and accuracy of data in this form because it has been compiled based on the ranges provided in Material Safety Data Sheets provided by raw terial suppliers. Supplier information is often protected from disclosure as trade secrets and some information may not have been provided by subcontract assemblers and raw terial suppliers. Information is often protected from disclosure as trade secrets and some information devices (silicon IC) in the finished parts. rochip Technology Incorporated does not provide any warranty, express or implied, with respect to the information provided in this declaration. The exclusive, limited product rare tevels of dopants, metals, and non-metal materials contained within silicon devices (silicon IC) in the finished parts. rochip Technology Incorporated and its subsidiaries are contained in Microchip's standard terms and conditions of sale. These are provided in range are provided in the range set of the average weight of anticipated significant to indirect, consequential or rochip technology Incorporated and its subsidiaries are contained in Microchip's standard terms and conditions of sale. These are provided in the average weight of the users' reliance on the information in Material Content Declarations (MCD) or independent third party test reports Tin 7440-31-5 100.00	mical substance, if any, is not below the threshold of regulatory c ding compounds used by Microchip meet the UL94 V0 flammabilit	oncern for any re	e is no credible reason to believe that the unavoidable egulatory scheme world-wide.	impurity con	centration of	the	0.03	(mg) Total			0.2
cochip Technology Incorporated believes the information in this form concerning substances restricted by RoHS in Microchip Technology Incorporated's semiconductor Image: Content information is the completeness and accuracy of data in this form because it has been compiled based on the ranges provided in Material Safety Data Sheets provided by raw erial suppliers. Supplier information is often protected from disclosure as trade secrets and some information may not have been provided by subcontract assemblers and raw erial suppliers. Information is provided only as estimates of the average weight of these parts and the average weight of anticipated significant toxic metals components. Image: Content information is provided only as estimates of the average weight of these parts and the average weight of anticipated significant toxic metals components. rochip Technology Incorporated does not provide any warranty, express or implied, with respect to the information provided in Microchip's standard terms and conditions of sale. These are provided in the service indirect, consequential or orchip's quotations, sales order acknowledgement, and invoices. Image: Consequential or the users' reliance on the information in Material Content Declarations (MCD) or independent third party test reports Image: Consequential or the users' reliance on the information in Material Content Declarations (MCD) or independent third party test reports	mical substance, if any, is not below the threshold of regulatory c ding compounds used by Microchip meet the UL94 V0 flammabilit ://ul.com/global/eng/pages/offerings/industries/chemicals/plastics protective "tubes" in which the specific product is shipped are m	oncern for any re ay standard for pla s/	e is no credible reason to believe that the unavoidable egulatory scheme world-wide. astics. You can access the UL iQTM family of database	e impurity con	centration of test report at	the	0.03		Wire Bond	% of Total Weight	0.2
Including feedbooks of provide any warranty, express of inpliced, with respect to the information provided in this declaration. The exclusive, initial product 0.21 (mg) Total leads (pins) - Matte Tin / annealed at 150°C for 1 hour % of Total Weight 1.2 icrochip is quotations, sales order acknowledgement, and invoices. 0.21 (mg) Total Image: Content Declaration in Material Content Declarations and shall not be liable for any damages, direct or indirect, consequential or herwise, suffered by users or third parties as a result of the users' reliance on the information in Material Content Declarations (MCD) or independent third party test reports Tin 7440-31-5 100.00	nemical substance, if any, is not below the threshold of regulatory c olding compounds used by Microchip meet the UL94 V0 flammabilit tp://ul.com/global/eng/pages/offerings/industries/chemicals/plastics ne protective "tubes" in which the specific product is shipped are m ox and certain "reels" may be made from PVC plastic.	oncern for any re y standard for pl s/ nade from polyvin	e is no credible reason to believe that the unavoidable egulatory scheme world-wide. astics. You can access the UL iQTM family of database nyl chloride (PVC) plastic. "Window envelopes" used to	impurity con es to obtain a o hold the pac	centration of test report at king slip on t	the he outer	0.03		Wire Bond 7440-57-5	% of Total Weight	0.2
herwise, suffered by users or third parties as a result of the users' reliance on the information in Material Content Declarations (MCD) or independent third party test reports Tin 7440-31-5 100.00 GS) or of this Certificate of Compliance for semiconductor products.	emical substance, if any, is not below the threshold of regulatory c olding compounds used by Microchip meet the UL94 V0 flammabilit tp://ul.com/global/eng/pages/offerings/industries/chemicals/plastics he protective "tubes" in which the specific product is shipped are m to and certain "reels" may be made from PVC plastic. crochip Technology Incorporated believes the information in this for ivices in their original packing materials is true and correct to the b arantee the completeness and accuracy of data in this form becau- aterial suppliers. Supplier information is often protected from disck aterial suppliers. Information is provided only as estimates of the av	concern for any re sy standard for pla s/ nade from polyvin orm concerning s est of its knowled se it has been co osure as trade se verage weight of f	e is no credible reason to believe that the unavoidable egulatory scheme world-wide. astics. You can access the UL iQTM family of database nyl chloride (PVC) plastic. "Window envelopes" used to substances restricted by RoHS in Microchip Technolog dge and belief, as of the date listed in this form. Microc mpiled based on the ranges provided in Material Safet crets and some information may not have been provid these parts and the average weight of anticipated sign	impurity con es to obtain a p hold the pac gy Incorporate hip Technolo ry Data Sheet ificant toxic r	centration of test report at king slip on t d's semicono gy Incorporat s provided by tract assemb	he outer luctor ed cannot raw lers and raw	0.03		Wire Bond 7440-57-5	% of Total Weight	0.2
Tatal 400.00	nemical substance, if any, is not below the threshold of regulatory c olding compounds used by Microchip meet the UL94 V0 flammabilit tp://ul.com/global/eng/pages/offerings/industries/chemicals/plastics ne protective "tubes" in which the specific product is shipped are m ox and certain "reels" may be made from PVC plastic. icrochip Technology Incorporated believes the information in this for evices in their original packing materials is true and correct to the b iarantee the completeness and accuracy of data in this form becau: aterial suppliers. Supplier information is often protected from discl aterial suppliers. Information is provided only as estimates of the av nese estimates do not include trace levels of dopants, metals, and n icrochip Technology Incorporated does not provide any warranty, e arranties provided by Microchip Technology Incorporated and its su	soncern for any re sy standard for pla s/ nade from polyvin prm concerning s est of its knowlec se it has been co soure as trade se verage weight of ioon-metal materia	e is no credible reason to believe that the unavoidable egulatory scheme world-wide. astics. You can access the UL iQTM family of database nyl chloride (PVC) plastic. "Window envelopes" used to substances restricted by RoHS in Microchip Technolog dge and belief, as of the date listed in this form. Microc impiled based on the ranges provided in Material Safet crets and some information may not have been provid these parts and the average weight of anticipated sign als contained within silicon devices (silicon IC) in the fi d, with respect to the information provided in this deck	impurity con as to obtain a b hold the pac sy Incorporate hip Technole y Data Sheet ed by subcor ificant toxic r nished parts. aration. The e	centration of test report at king slip on t d's semicono gy Incorporal s provided by react assemb netals compo xclusive, limi	the luctor luctor raw lers and raw nents.		Doped Gold	Wire Bond 7440-57-5 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for	% of Total Weight 100 100.00	0.2
	emical substance, if any, is not below the threshold of regulatory c lding compounds used by Microchip meet the UL94 V0 flammabilit p://ul.com/global/eng/pages/offerings/industries/chemicals/plastics e protective "tubes" in which the specific product is shipped are m x and certain "reels" may be made from PVC plastic. crochip Technology Incorporated believes the information in this for vices in their original packing materials is true and correct to the b arantee the completeness and accuracy of data in this form becau- terial suppliers. Supplier information is often protected from discle terial suppliers. Information is provided only as estimates of the av ese estimates do not include trace levels of dopants, metals, and n crochip Technology Incorporated does not provide any warranty, e rranties provided by Microchip Technology Incorporated and its su crochip's quotations, sales order acknowledgement, and invices. crochip disclaims any duty to notify users of updates or changes to terwise, suffered by users or third parties as a result of the users 'n	soncern for any re- sy standard for pla- s/ nade from polyvin orm concerning s est of its knowlee se it has been co osure as trade se verage weight of i non-metal materia express or implied ubsidiaries are co o Material Conten reliance on the in	e is no credible reason to believe that the unavoidable egulatory scheme world-wide. astics. You can access the UL iQTM family of database nyl chloride (PVC) plastic. "Window envelopes" used to substances restricted by RoHS in Microchip Technolog dge and belief, as of the date listed in this form. Microc impiled based on the ranges provided in Material Safet crets and some information may not have been provid these parts and the average weight of anticipated sign als contained within silicon devices (silicon IC) in the fi d, with respect to the information provided in this deck ontained in Microchip's standard terms and conditions at Declarations and shall not be liable for any damages	impurity con es to obtain a p hold the pace by Incorporate thip Technolo y Data Sheet ed by subcor ifficant toxic r nished parts. aration. The e of sale. Thes the of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the stat	centration of test report at king slip on t gy Incorporat provided by tract assemb netals compo xclusive, limi e are provide irect, conseq	the luctor red cannot raw lers and raw nents. ted product d in uential or		Doped Gold (mg) Total	Wire Bond 7440-57-5 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour 7440-31-5	% of Total Weight 100 100.00 % of Total Weight 100.00	

Semiconductor Device Type	e: MB 03 (Lead) SOT-(39 (A5 / AT)		nation Base A pper Alloy (C				nogeneous Materials: (e.g. pc boards, displa		JEDEC 97 Product Markin and/or Pkg. Labeling e3
,		"Contained In"	% Total			28.26	(mg) Total	Mold Compound	% ot Total Weight	
Basic Substance	CAS Number	Sub-Component	Weight	mg/part	ppm	20.20				34.50
Silica, vitreous	60676-86-0 Trade Secret	Mold Compound	46.376 3.342	24.023	463,760		Silica, vitreous	60676-86-0	85.00	
Epoxy Resin (No bromine, No diantimony trioxide) Phenolic Resin (No Br / CL SbO3, No diantimony trioxide)	Trade Secret	Mold Compound Mold Compound	3.342	1.731	33,418 33,418		Epoxy Resin Phenolic Resin	Trade Secret Trade Secret	6.13 6.13	
Epoxy, Cresol Novolac	29690-82-2	Mold Compound	1.337	0.692	13.367		Epoxy, Cresol Novolac	29690-82-2	2.45	
Carbon Black	1333-86-4	Mold Compound	0.164	0.085	1,637		Carbon Black	1333-86-4	0.30	
Copper	7440-50-8	Lead Frame	42.275	21.899	422,753		Garbon Black	Total		L
Iron	7439-89-6	Lead Frame	1.040	0.539	10,399	22.92	(mg) Total	Lead Frame	% of Total Weight	
Silver	7440-22-4	Lead Frame	0.843	0.437	8,430	22.52	Copper	7440-50-8	95.54	44.23
Zinc	7440-22-4	Lead Frame	0.055	0.029	553		Iron	7439-89-6	2.35	
Phosphorous	7723-14-0	Lead Frame	0.037	0.019	365		Silver	7440-22-4	1.91	
Metal oxide	Trade Secret	Die Attach	0.102	0.053	1.023		Zinc	7440-66-6	0.13	
Epoxy resins	Trade Secret	Die Attach	0.102	0.053	1,023		Phosphorous	7723-14-0	0.08	
Glycol ethers	Trade Secret	Die Attach	0.078	0.040	775			Total		Ш
Curing / Hardener	Trade Secret	Die Attach	0.028	0.014	279	0.16	(mg) Total	Die Attach	% of Total Weight	
Silicon	7440-21-3	Chip (Die)	0.410	0.212	4,100	0.10	Metal oxide	Trade Secret	33	0.01
Gold	7440-57-5	Wire Bond	0.350	0.181	3,500		Epoxy resins	Trade Secret	33	
Tin		external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	0.120	0.062	1,200		Glycol ethers	Trade Secret	25	
100	1110 01 0 1 Huding of	TOTALS:		51.800	1.000.000		Curing / Hardener	Trade Secret	9	
pliance with the above EU Directives has been verified via int hemical substance is absent from the list above, the chemica	al substance is NOT an intent						Doped Silicon	7440-21-3	100	
is not below the threshold of regulatory concern for any regu	latory scheme world-wide.	on to believe that the unavoidable impurity conce	entration of the	chemical subs				Total	100.00	2
is not below the threshold of regulatory concern for any regu ding compounds used by Microchip meet the UL94 V0 flamma	llatory scheme world-wide. ability standard for plastics. Y	on to believe that the unavoidable impurity conce	entration of the	chemical subs		0.18	(mg) Total	Total Wire Bond	100.00 % of Total Weight	
r, is not below the threshold of regulatory concern for any regu Iding compounds used by Microchip meet the UL94 V0 flamma p://ul.com/global/eng/pages/offerings/industries/chemicals/plas p protective "tubes" in which the specific product is shipped ar	latory scheme world-wide. bility standard for plastics. Y stics/	on to believe that the unavoidable impurity conce	to obtain a test	chemical subs	stance, if	0.18	(mg) Total Doped Gold	Wire Bond 7440-57-5	% of Total Weight	0.35
I is not below the threshold of regulatory concern for any regulatory concerns any set of the specific product is shipped artain "reels" may be made from PVC plastic.	Ilatory scheme world-wide. ability standard for plastics. Y stics/ re made from polyvinyl chlori is form concerning substanc is knowledge and belief, as o en compiled based on the ra d some information may not nd the average weight of anti con devices (silicon IC) in the ty, express or implied, with re	on to believe that the unavoidable impurity conce ou can access the UL iQTM family of databases de (PVC) plastic. "Window envelopes" used to h es restricted by RoHS in Microchip Technology I the date listed in this form. Microchip Technolo nges provided in Material Safety Data Sheets pro have been provided by subcontract assemblers cipated significant toxic metals components. The finished parts.	ntration of the to obtain a test old the packing Incorporated's : gy Incorporate vided by raw m and raw materi ese estimates d	chemical subs report at slip on the ou semiconducto d cannot guara aterial supplie al suppliers. Ir o not include sive, limited pi	stance, if uter box and r devices in antee the ers. Supplier formation is trace levels roduct	0.18		Wire Bond	% of Total Weight	0.35

				ation Base A oper Alloy (C				ogeneous Materials: a.g. pc boards, displa		JEDEC 97 Product Marking and/or Pkg. Labeling
Semiconductor Device Type	e: RC 04 (Lead) SOT	. ,		•						e3
Basic Substance	CAS Number	"Contained In" Sub-Component	% Total Weight	mg/part	ppm	5.69	(mg) Total	Mold Compound	% ot Total Weight	62.57
Silica, vitreous	60676-86-0	Mold Compound	53.185	4.840	531,845		Silica, vitreous	60676-86-0	85.00	
Epoxy Resin (No bromine, No diantimony trioxide)	Trade Secret	Mold Compound	3.832	0.349	38,324		Epoxy Resin	Trade Secret	6.13	
Phenolic Resin (No Br / CL SbO3, No diantimony trioxide)	Trade Secret	Mold Compound	3.832	0.349	38,324		Phenolic Resin	Trade Secret	6.13	
Epoxy, Cresol Novolac	29690-82-2	Mold Compound	1.533	0.139	15,330		Epoxy, Cresol Novolac	29690-82-2	2.45	
Carbon Black	1333-86-4	Mold Compound	0.188	0.017	1,877		Carbon Black	1333-86-4	0.30	
Iron	7439-89-6	Lead Frame	14.095	1.283	140,947			Total	100.00	
Nickel	7440-02-0	Lead Frame	11.071	1.007	110,712	2.40	(mg) Total	Lead Frame	% of Total Weight	26.36
Silver	7440-22-4	Lead Frame	0.502	0.046	5,022		Iron	7439-89-6	53.47	
Cobalt	7440-48-4	Lead Frame	0.264	0.024	2,636		Nickel	7440-02-0	42.00	
Manganese	7439-96-5	Lead Frame	0.211	0.019	2,109		Silver	7440-22-4	1.91	
Zinc (Metal)	7440-44-0	Lead Frame	0.132	0.012	1,318		Cobalt	7440-48-4	1.00	
Silicon	7440-21-3 7723-14-0	Lead Frame	0.079	0.007	791		Manganese	7439-96-5	0.80	
Phosphorous Silver (Ag)	7440-22-4	Lead Frame Die Attach	0.259	0.001	66 2.591		Zinc (Metal) Silicon	7440-66-6 7440-21-3	0.30	
Proprietary Resin	Trade Secret	Die Attach Die Attach	0.259	0.024	2,591		Phosphorous	7440-21-3 7723-14-0	0.03	
Proprietary Curing agent & Hardener	Trade Secret	Die Attach	0.001	0.000	99		Filospholous	Total	0.03 100.00	
Silicon	7440-21-3	Chip (Die)	4.290	0.390	42,900	0.03	(mg) Total	Die Attach	% of Total Weight	0.33
Gold	7440-21-3	Wire Bond	0.110	0.010	42,900	0.03		7440-22-4		0.33
Tin		on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	6.340	0.577	63,400		Silver (Ag) Proprietary Resin	Trade Secret	79 19	
1111	7440-31-3 Plating 0	TOTALS:	100.000	9.100	1,000,000	Bropriotor	y Curing agent & Hardener	Trade Secret	3	
	0.0091 g To		100.000	5.100	1,000,000	Fioplietai	y curing agent & hardener	Total	100.00	
pliance with the above EU Directives has been verified via int hemical substance is absent from the list above, the chemica			, to the best of	Microchip Tec	hnology		Doped Silicon	7440-21-3 Total	100 100.00	
rporated's knowledge and belief as of the date of this docume is not below the threshold of regulatory concern for any regu ding compounds used by Microchip meet the UL94 V0 flamma	latory scheme world-wide. ability standard for plastics.				tance, if	0.01	(mg) Total	Wire Bond	% of Total Weight	0.11
://ul.com/global/eng/pages/offerings/industries/chemicals/plas protective "tubes" in which the specific product is shipped ar		nide (PVC) plastic. "Window envelopes" used to bo	old the nacking	slin on the ou	ter box and	0.01				0.11
ain "reels" may be made from PVC plastic.			na nie paelang		ioi box ana		Doped Gold	7440-57-5 Total	100 100.00	
rochip Technology Incorporated believes the information in th			ncorporated's s					Total	100.00	
ir original packing materials is true and correct to the best of it npleteness and accuracy of data in this form because it has be romation is often protected from disclosure as trade secrets an vided only as estimates of the average weight of these parts an lopants, metals, and non-metal materials contained within silic	en compiled based on the ind some information may not the average weight of ar	ranges provided in Material Safety Data Sheets prov ot have been provided by subcontract assemblers a nticipated significant toxic metals components. The	vided by raw m and raw materi	aterial supplie al suppliers. In	rs. Supplier formation is					
ir original packing materials is true and correct to the best of it npleteness and accuracy of data in this form because it has be romation is often protected from disclosure as trade secrets an vided only as estimates of the average weight of these parts as	een compiled based on the Ind some information may nu- nd the average weight of ar con devices (silicon IC) in th ty, express or implied, with	ranges provided in Material Safety Data Sheets prov ot have been provided by subcontract assemblers a nticipated significant toxic metals components. The ne finished parts. respect to the information provided in this declarat	vided by raw m and raw materia se estimates d ion. The exclus	aterial supplie al suppliers. In o not include t sive, limited pr	rs. Supplier formation is race levels oduct	0.58		Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	% of Total Weight	6.34
original packing materials is true and correct to the best of it pleteness and accuracy of data in this form because it has be mation is often protected from disclosure as trade secrets an ided only as estimates of the average weight of these parts ar opants, metals, and non-metal materials contained within silic ochip Technology Incorporated does not provide any warrant anties provided by Microchip Technology Incorporated and it	een compiled based on the i d some information may m nd the average weight of ar son devices (silicon IC) in th ty, express or implied, with is subsidiaries are containe es to Material Content Deck	ranges provided in Material Safety Data Sheets prov ot have been provided by subcontract assemblers a tricipated significant toxic metals components. The re finished parts. respect to the information provided in this declarat d in Microchip's standard terms and conditions of s arations and shall not be liable for any damages, dii	vided by raw m and raw materia se estimates d ion. The exclus sale. These are rect or indirect.	aterial supplie al suppliers. In o not include t sive, limited pr provided in M consequentia	rs. Supplier formation is trace levels oduct icrochip's Il or	0.58		leads (pins) - Matte Tin /	% of Total Weight	6.34

ICROCHIP Semiconductor Device Type	e: DB 03 (Lead)	SOT-223 (F6)		nation Base A pper Alloy (C				nogeneous Materials: e.g. pc boards, displa	ys)	JEDEC 97 Product Markin and/or Pkg. Labeling e3
Basic Substance	CAS Number	"Contained In" Sub-Component	% Total Weight	mg/part		56.72	(mg) Total	Mold Compound	% ot Total Weight	49.02
Silica, vitreous	60676-86-0	Mold Compound	41.667	48,209	ppm 416.670		Silica, vitreous	60676-86-0	85.00	1
Epoxy Resin (No bromine, No diantimony trioxide)	Trade Secret	Mold Compound	3.002	3.474	30.025		Epoxy Resin	Trade Secret	6.13	
Phenolic Resin (No Br / CL SbO3. No diantimony trioxide)	Trade Secret	Mold Compound	3.002	3.474	30,025		Phenolic Resin	Trade Secret	6.13	
Epoxy, Cresol Novolac	29690-82-2	Mold Compound Mold Compound	1.201	1.390	12,010		Epoxy, Cresol Novolac	29690-82-2	2.45	
Carbon Black	1333-86-4	Mold Compound	0.147	0.170	1,471		Carbon Black	1333-86-4	0.30	
Copper	7440-50-8	Lead Frame	44.941	51.997	449,408			Total	100.00	
Iron	7439-89-6	Lead Frame	1.105	1.279	11,054	54.43	(mg) Total	Lead Frame	% of Total Weight	47.04
Silver	7440-22-4	Lead Frame	0.896	1.037	8.961		Copper	7440-50-8	95.54	
Zinc	7440-66-6	Lead Frame	0.059	0.068	588		Iron	7439-89-6	2.35	
Phosphorous	7723-14-0	Lead Frame	0.039	0.045	388		Silver	7440-22-4	1.91	
Silver (Ag)	7440-22-4	Die Attach	0.502	0.581	5,024		Zinc	7440-66-6	0.13	
Proprietary Resin	Trade Secret	Die Attach	0.118	0.137	1,184		Phosphorous	7723-14-0	0.08	
Proprietary Curing agent & Hardener	Trade Secret	Die Attach	0.019	0.022	192			Total	100.00	
Silicon	7440-21-3	Chip (Die)	1.580	1.828	15,800	0.74	(mg) Total	Die Attach	% of Total Weight	0.64
Gold	7440-57-5	Wire Bond	0.150	0.174	1,500		Silver (Ag)	7440-22-4	79	
Tin	7440-31-5	Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	1.570	1.816	15,700		Proprietary Resin	Trade Secret	19	
		TOTALS:	100.000	115.700	1,000,000	Proprietar	y Curing agent & Hardener	Trade Secret	3	
	0 1157	g Total Mass						Total	100.00	
ive 2002/53/EC (End-of-Life Vehicles (ELV) Directive).	with EU Directive 20	002/95/EC (RoHS Directive), EU Directive 2011/65/EU (I	RoHS Recast I	Directive) and	with EU	1.83	Total (mg) Doped Silicon	Chip (Die) 7440-21-3	% of Total Weight	1.58
ive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). liance with the above EU Directives has been verified via int remical substance is absent from the list above, the chemica	y with EU Directive 20 ernal design control al substance is NOT :	002/95/EC (RoHS Directive), EU Directive 2011/65/EU (s, supplier declarations, and /or analytical test data. an intentional ingredient in the semiconductor device	and, to the bes	st of Microchip	Technology	1.83		,		1.58
semiconductor device and its homogenous materials comply tive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). blance with the above EU Directives has been verified via int nemical substance is absent from the list above, the chemica porated's knowledge and belief as of the date of this docume s not below the threshold of regulatory concern for any regu ng compounds used by Microchip meet the UL94 V0 flammal /ul.com/global/eng/pages/offerings/industries/chemicals/plas	with EU Directive 24 ernal design control al substance is NOT ant, there is no credi llatory scheme work bility standard for pl	D02/95/EC (RoHS Directive), EU Directive 2011/65/EU (s, supplier declarations, and /or analytical test data. an intentional ingredient in the semiconductor device - ble reason to believe that the unavoidable impurity co I-wide.	and, to the bes	st of Microchip the chemical s	Technology	0.17		7440-21-3	100	0.15
tive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). Diance with the above EU Directives has been verified via int nemical substance is absent from the list above, the chemica porated's knowledge and belief as of the date of this docume s not below the threshold of regulatory concern for any regu ng compounds used by Microchip meet the UL94 V0 flamma	with EU Directive 20 ernal design control al substance is NOT ent, there is no credi ulatory scheme work bility standard for pl stics/	D02/95/EC (RoHS Directive), EU Directive 2011/65/EU (s, supplier declarations, and /or analytical test data. an intentional ingredient in the semiconductor device ble reason to believe that the unavoidable impurity co I-wide. astics. You can access the UL iQTM family of database	and, to the bes ncentration of es to obtain a t	st of Microchip the chemical s test report at) Technology substance, if		Doped Silicon	7440-21-3 Total	100 100.00	
tive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). bliance with the above EU Directives has been verified via inter- nemical substance is absent from the list above, the chemica porated's knowledge and belief as of the date of this docume s not below the threshold of regulatory concern for any regu- ng compounds used by Microchip meet the UL94 V0 flamma /ul.com/global/eng/pages/offerings/industries/chemicals/plas protective "tubes" in which the specific product is shipped ar	v with EU Directive 2 ernal design control al substance is NOT a ent, there is no credi ulatory scheme work bility standard for pl stics/ re made from polyvir is form concerning s of its knowledge and s been compiled bas ecrets and some info f these parts and the	D02/95/EC (RoHS Directive), EU Directive 2011/65/EU (s, supplier declarations, and /or analytical test data. an intentional ingredient in the semiconductor device - ble reason to believe that the unavoidable impurity co I-wide. astics. You can access the UL iQTM family of database nyl chloride (PVC) plastic. "Window envelopes" used to substances restricted by RoHS in Microchip Technolog belief, as of the date listed in this form. Microchip Tech ormation may not have been provided by subcontract average weight of anticipated significant toxic metals	and, to the bes ncentration of es to obtain a t o hold the pac gy Incorporate hnology Incorp eets provided t assemblers ar	st of Microchip the chemical s test report at king slip on th d's semicondu porated canno py raw materia d raw materia	e outer box isubstance, if e outer box ictor devices t guarantee I suppliers. I suppliers.		(mg) Total	7440-21-3 Total	100 100.00 % of Total Weight	
tive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). bilance with the above EU Directives has been verified via intr hemical substance is absent from the list above, the chemica porated's knowledge and belief as of the date of this docume is not below the threshold of regulatory concern for any regu- ng compounds used by Microchip meet the UL94 V0 flammal /ul.com/global/eng/pages/offerings/industries/chemicals/plas- protective "tubes" in which the specific product is shipped ar- tertain "reels" may be made from PVC plastic. holp Technology Incorporated believes the information in this if original packing materials is true and correct to the best oo mpleteness and accuracy of data in this form because it has lier information is often protected from disclosure as trade si- mation is provided only as estimates of the average weight of de trace levels of dopants, metals, and non-metal materials c holp Technology Incorporated does not provide any warrant interis provided by Microchip Technology Incorporated and it. holp Sudottions, sales order acknowledgement, and invoic chip disclaims any duty to notify users of updates or change	with EU Directive 24 ernal design control al substance is NOT a ent, there is no credi ulatory scheme work bility standard for pl stics/ re made from polyvir is form concerning s f its knowledge and s been compiled bas s bas a bas a bas a bas a bas s to Material Conter	D02/95/EC (RoHS Directive), EU Directive 2011/65/EU (s, supplier declarations, and /or analytical test data. an intentional ingredient in the semiconductor device - ble reason to believe that the unavoidable impurity co l-wide. astics. You can access the UL iQTM family of database nyl chloride (PVC) plastic. "Window envelopes" used to substances restricted by RoHS in Microchip Technolog belief, as of the date listed in this form. Microchip Tec aratics and the listed in this form. Microchip Tec aration may not have been provided by subcontract average weight of anticipated significant toxic metals on devices (silicon IC) in the finished parts. d, with respect to the information provided in this decl untained in Microchip's standard terms and conditions at Declarations and shall not be liable for any damages	and, to the bes ncentration of es to obtain a t o hold the pac gy Incorporate hnology Incorp ests provided t assemblers ar a components. aration. The e: of sale. These o, direct or indi	st of Microchip the chemical s test report at king slip on th d's semicondu porated canno by raw materia These estimat These estimat xclusive, limite e are provided irect, consequ	e outer box substance, if e outer box ictor devices t guarantee l suppliers. I suppliers. tes do not ed product in ential or		(mg) Total (mg) Total	7440-21-3 Total Wire Bond 7440-57-5 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	100 100.00 % of Total Weight 100 100.00	
tive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). diance with the above EU Directives has been verified via intr memical substance is absent from the list above, the chemical porated's knowledge and belief as of the date of this docume s not below the threshold of regulatory concern for any regu- ng compounds used by Microchip meet the UL94 V0 flammal ful.com/global/eng/pages/offerings/industries/chemicals/plas- rotective "tubes" in which the specific product is shipped ar ertain "reels" may be made from PVC plastic. chip Technology Incorporated believes the information in thi ir original packing materials is true and correct to the best of ompleteness and accuracy of data in this form because it has lier information is often protected from disclosure as trade so- nation is provided only as estimates of the average weight of le trace levels of dopants, metals, and non-metal materials c chip Technology Incorporated does not provide any warrant nites provided by Microchip Technology Incorporated and it chip's quotations, sales order acknowledgement, and invoic	with EU Directive 24 ernal design control al substance is NOT a ent, there is no credi ulatory scheme work bility standard for pl stics/ re made from polyvir is form concerning s f its knowledge and s been compiled bas s bas a bas a bas a bas a bas s to Material Conter	D02/95/EC (RoHS Directive), EU Directive 2011/65/EU (s, supplier declarations, and /or analytical test data. an intentional ingredient in the semiconductor device - ble reason to believe that the unavoidable impurity co l-wide. astics. You can access the UL iQTM family of database nyl chloride (PVC) plastic. "Window envelopes" used to substances restricted by RoHS in Microchip Technolog belief, as of the date listed in this form. Microchip Tec aratics and the listed in this form. Microchip Tec aration may not have been provided by subcontract average weight of anticipated significant toxic metals on devices (silicon IC) in the finished parts. d, with respect to the information provided in this decl untained in Microchip's standard terms and conditions at Declarations and shall not be liable for any damages	and, to the bes ncentration of es to obtain a t o hold the pac gy Incorporate hnology Incorp ests provided t assemblers ar a components. aration. The e: of sale. These o, direct or indi	st of Microchip the chemical s test report at king slip on th d's semicondu porated canno by raw materia These estimat These estimat xclusive, limite e are provided irect, consequ	e outer box substance, if e outer box ictor devices t guarantee l suppliers. I suppliers. tes do not ed product in ential or	0.17	(mg) Total	7440-21-3 Total Wire Bond 7440-57-5 Total Plating on external leads (pins) - Matte Tin	100 100.00 % of Total Weight 100 100.00	0.15

\ICROCHIP				nation Base A pper Alloy (C	-		•	ogeneous Materials: .g. pc boards, displa		JEDEC 97 Produc Marking and/or Pk Labeling e3
Semiconductor Device Type	e: DC 05 (Lead) SC	JT-223 (N7)								
Basic Substance	CAS Number	"Contained In" Sub-Component	% Total Weight	mg/part	ppm	8.71	(mg) Total	Mold Compound	% ot Total Weight	52.77
Silica, vitreous	60676-86-0	Mold Compound	44.855	7,401	448.545		Silica, vitreous	60676-86-0	85.00	
Epoxy Resin (No bromine, No diantimony trioxide)	Trade Secret	Mold Compound	3.232	0.533	32,322		Epoxy Resin	Trade Secret	6.13	
Phenolic Resin (No Br / CL SbO3, No diantimony trioxide)	Trade Secret	Mold Compound	3.232	0.533	32,322		Phenolic Resin	Trade Secret	6.13	
Epoxy, Cresol Novolac	29690-82-2	Mold Compound	1.293	0.213	12,929		Epoxy, Cresol Novolac	29690-82-2	2.45	
Carbon Black	1333-86-4	Mold Compound	0.158	0.026	1,583		Carbon Black	1333-86-4	0.30	
Copper	7440-50-8	Lead Frame	35.148	5.799	351,482			Total	100.00	
Iron	7439-89-6	Lead Frame	0.865	0.143	8,646	6.07	(mg) Total	Lead Frame	% of Total Weight	36.79
Silver	7440-22-4	Lead Frame	0.701	0.116	7,008		Copper	7440-50-8	95.54	
Zinc	7440-66-6	Lead Frame	0.046	0.008	460		Iron	7439-89-6	2.35	
Phosphorous	7723-14-0	Lead Frame	0.030	0.005	304		Silver	7440-22-4	1.91	
Silver (Ag)	7440-22-4	Die Attach	0.667	0.110	6,673		Zinc	7440-66-6	0.13	
Proprietary Resin	Trade Secret	Die Attach	0.157	0.026	1,573		Phosphorous	7723-14-0	0.08	
Proprietary Curing agent & Hardener	Trade Secret	Die Attach	0.026	0.004	255			Total	100.00	
Silicon	7440-21-3	Chip (Die)	1.030	0.170	10,300	0.14	(mg) Total	Die Attach	% of Total Weight	0.85
Gold	7440-57-5	Wire Bond	0.550	0.091	5,500		Silver (Ag)	7440-22-4	79	
Tin	7440-31-5 Plating or	n external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	8.010	1.322	80,100		Proprietary Resin	Trade Secret	19	
	· · · · · · · · ·	TOTALS:	100.000	16.500	1,000,000	Proprieta	ry Curing agent & Hardener	Trade Secret	3	
	0.0165 g Tot	al Mass						Total	100.00	
semiconductor device and its homogenous materials comply ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive).		χ μ		ast Directive) a	and with EU	0.17	Total (mg)	Chip (Die)	% of Total Weight	1.03
pliance with the above EU Directives has been verified via int	ernal design controls, supp	lier declarations, and /or analytical test dat	а.				Doped Silicon	7440-21-3	100	
chemical substance is absent from the list above, the chemica mology Incorporated's knowledge and belief as of the date of mical substance, if any, is not below the threshold of regulato	f this document, there is no			Dest of Micro						-
		ory scheme world-wide.		concentration	of the					
ling compounds used by Microchip meet the UL94 V0 flamma //ul.com/global/eng/pages/offerings/industries/chemicals/plas	•	ory scheme world-wide.		concentration	of the	0.09	(mg) Total	Wire Bond	% of Total Weight	
ling compounds used by Microchip meet the UL94 V0 flamma	stics/	ory scheme world-wide. You can access the UL iQTM family of data	bases to obtai	concentration n a test report	of the at	0.09	(mg) Total	7440-57-5	100	0.55
ling compounds used by Microchip meet the UL94 V0 flamma //ul.com/global/eng/pages/offerings/industries/chemicals/plas protective "tubes" in which the specific product is shipped ar	stics/ re made from polyvinyl chlo is form concerning substar he best of its knowledge an form because it has been c m disclosure as trade secret ates of the average weight c	ory scheme world-wide. You can access the UL iQTM family of datal pride (PVC) plastic. "Window envelopes" use nces restricted by RoHS in Microchip Techn d belief, as of the date listed in this form. Mi ompiled based on the ranges provided in ML ets and some information may not have bee of these parts and the average weight of ant	bases to obtai ed to hold the iology Incorpo icrochip Techr aterial Safety I in provided by icipated signif	concentration n a test report packing slip o rated's semicc ology Incorpo Jata Sheets pr subcontract a icant toxic me	of the at n the outer onductor orated rovided by issemblers tals	0.09			100	0.55
ling compounds used by Microchip meet the UL94 V0 flamma //ul.com/global/eng/pages/offerings/industries/chemicals/plas protective "tubes" in which the specific product is shipped ar and certain "reels" may be made from PVC plastic. ochip Technology Incorporated believes the information in th ces in their original packing materials is true and correct to th tot guarantee the completeness and accuracy of data in this f material suppliers. Supplier information is often protected for raw material suppliers. Information is provided only as estima	stics/ re made from polyvinyl chlo ne best of its knowledge an form because it has been c m disclosure as trade secru ates of the average weight o nts, metals, and non-metal ty, express or implied, with ed and its subsidiaries are	ory scheme world-wide. You can access the UL iQTM family of data oride (PVC) plastic. "Window envelopes" use nees restricted by RoHS in Microchip Techn d belief, as of the date listed in this form. Mi ompiled based on the ranges provided in Mi ets and some information may not have bee of these parts and the average weight of ant materials contained within silicon devices (s respect to the information provided in this of	bases to obtai ed to hold the icrochip Techr aterial Safety I en provided by icipated signif silicon IC) in th declaration. Th	concentration n a test report packing slip o rated's semico ology Incorpo Data Sheets pr subcontract a icant toxic me le finished par we exclusive, li	of the at n the outer onductor orated rovided by issemblers tals ts. mited	0.09		7440-57-5	100	0.55

ppliance with the above EU Directives has been verified via internal design controls, supplier declarations, and /or analytical test data. Doped Silicon 7440-21-3 100 Total 100.00 Total 100.00 Total 100.00 Total 0.05 (mg) Total Wire Bond % of Total Weight 0.4 protective "tubes" in which the specific product is shipped are made from polyvinyl chloride (PVC) plastic. "Window envelopes" used to hold the packing slip on the outer box					ation Base A oper Alloy (C				ogeneous Materials: .g. pc boards, displa	ys)	JEDEC 97 Product Markin and/or Pkg. Labeling
Basic SubscineC/S NumberSub-ComponentWeightng/artpm7.70(u) TulWold TulWold componed6.5.4Sign System1398 System </th <th>Semiconductor Device Type</th> <th>e: OS 05 (Lead)</th> <th></th> <th>% Total</th> <th>1</th> <th>1</th> <th></th> <th></th> <th>r</th> <th></th> <th>es</th>	Semiconductor Device Type	e: OS 05 (Lead)		% Total	1	1			r		es
Satisty Description Description <thdescription< th=""> <thdescription< th=""> <th< th=""><th>Basic Substance</th><th>CAS Number</th><th></th><th></th><th>mg/part</th><th>ppm</th><th>7.99</th><th>(mg) Total</th><th>Mold Compound</th><th>% ot Total Weight</th><th>62.42</th></th<></thdescription<></thdescription<>	Basic Substance	CAS Number			mg/part	ppm	7.99	(mg) Total	Mold Compound	% ot Total Weight	62.42
Encode Search Destroating Trade Societ Model Configurad 8.822 (model Search Destroating Trade Societ Medic Configurad Action Proceeding Trade Societ Medic Configuration Process and Societ Action Process Action Proc	Silica vitreous	60676-86-0	Mold Compound	53 057	6 791	530 570		Silica, vitreous	60676-86-0	85.00	
Encor, Creat Notable 00000 (23) Notable Compound 15.201 Control Bala Case Case <th< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>Epoxy Resin</td><td>Trade Secret</td><td>6.13</td><td></td></th<>								Epoxy Resin	Trade Secret	6.13	
$ \frac{1}{10000000000000000000000000000000000$											
$ \frac{1}{1000} \frac{1}{100$											
Inon 743956 Led Frame 0.620 0.051 6.253 3.4 (mg) Total Least Frame 5.61 Total Weight 5.72 Biter 7140224 Least Frame 0.050 6.102 0.055 6.102 0.055 1.002 0.055 1.002 0.055 6.102 0.002 0.055 6.102 0.002 0.051 0.055 6.102 0.002 0.051 0.050 0.051 0.051 0.051 0.051 0.051 0.051 0.051 0.051 0.051 0.051 0.051								Carbon Black			
Silver 7440224 Lead Finine 0.510 0.036 5.102 Description 240.061 240.07 Physics/Prints 77221404 Lead Finine 0.031 0.034 326.0											
$ \frac{2 \text{ loc} 1}{1 \text{ highly three}} \frac{7 \text{ highly 066}}{1 \text{ highly 066}} \frac{1 \text{ head} Farms}{1 \text{ row}} 0.023} 0.003 2 0.000 326 0.000 326 0.000 326 0.000 326 0.000 326 0.000 326 0.000 400 0.000 326 0.000 400 0.0000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.0$							3.43				26.78
Photogenous T73:14.0 Lead Frame 0.022 0.003 221 Bister (Ag) Trade 224 De Atasin 0.038 153 100 244:02.4 0.014 153 Property Curring agent 8 hateborn Trade 5 term De Atasin 0.059 0.057 100 100.00 State (Ag) Trade 27.1 Or (Dip (Dip) 5.340 0.654 5.357 100.00											
Silver (Ap) 7440224 Die Attach 1531 0.196 11.530 0.096 11.530 0.096 11.530 0.096 11.530 0.096 11.530 0.096 11.530 0.096 11.530 0.096 11.530 0.096 11.530 0.096 11.530 0.096 11.530 0.096 11.530 0.096 11.530 0.096 11.530 0.096 11.530 0.096 11.530 0.096 11.530 0.096 11.530 0.096 11.530 0.0128											
Proprietary Seam Trade Searce De Attach 0.031 0.046 3.008 Proprietary Compaged 74 Constant Co											
Slion 7440-213 Chip (Dis) 5.340 0.684 5.400 0.25 Cing Teal Dis Attach % of Teal Weah 1.95 Git 7440-313 Tange a numerical providence proprovidence proprovidence providence providence providence propro											
Order 7440-57-5 Were Bond 0.400 0.051 4.000 31100 0.128.g Trial 7440-37-5 Transportational inposition 0.1000 0.2800 1.000,000 0.2800 1.000,000 <td>Proprietary Curing agent & Hardener</td> <td>Trade Secret</td> <td>Die Attach</td> <td>0.059</td> <td>0.007</td> <td>585</td> <td></td> <td></td> <td>Total</td> <td>100.00</td> <td>4</td>	Proprietary Curing agent & Hardener	Trade Secret	Die Attach	0.059	0.007	585			Total	100.00	4
Tin 7440-31-5 Parage anemale loss (joint). Name The Jacowand tank (joint). Name The Jacowand The	Silicon	7440-21-3	Chip (Die)	5.340	0.684	53,400	0.25	(mg) Total	Die Attach	% of Total Weight	1.95
Tin 7440-31-5 Parage anemale loss (joint). Name The Jacowand tank (joint). Name The Jacowand The											
Total Si Total Si <th< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></th<>											
Outleg Total Mass Total Total Total Total Total 100.09 semiconductor davice and its homogenous materials comply with EU Directive 2002/95/EC (End-0-Life Vehicles (ELV) Directive). 0.68 Total (mg) Chip (Die) % of Total Weight 5.34 plance with the above EU Directives has been verified via internal design controls, supplier declarations, and /or analytical test data. Doped Silcon 7/46-21-3 100 there and its howow, the chemical substance is NOT an intentional ingredient in the semiconductor dvice and, to the best of Microchip moley incorporated's knowledge and belief as of the date of this document, there is no credible reason to beliew that the unavoidable impurity concentration of the chemical function of the chemical substance is absent from the list above, the chemical substance is NOT and weight of plastics. You can access the UL IQTM family of databases to obtain a test report at function in this form concerning substances restricted by ROHS in Microchip Technology incorporated are made from polyinyl choirde (PVC) plastic. "Window envelopes" used to hold the packing slip on the outer box certain "reels" may be made from PVC plastic. 0.05 (mg) Total Wire Bond % of Total Weight 0.4 bioscipic Technology incorporated believes the information in this form concerning substances restricted by ROHS in Microchip Technology incorporated cannot an and train absen congile based on the anarges provided by subcontract assemblers and raw material plasts. Buppler information in so then protective from disclosure as trade secrets and some information may not have beerg provided in M	Lin	7440-31-5 Pla					D				
semiconductor device and its homogenous materials comply with EU Directive 201765/EU (RoHS Recast Directive) and with EU the 20035/EC (End-d-Life Values (ELV) Directive). plance with the above EU Directives has been everified via internal design controls, supplier declarations, and <i>I</i> or analytical test data. thermical substance is absent from the list above, the chemical substance is NOT an intentional ingredient in the semiconductor device and, to the best of Microchip nonlogy incorporated's knowledge and belief as of the date of this document, there is no credible reason to believe that the unavoidable impurity concentration of the chemical substance, if any, is not below the thready occurrent from regulatory scheme world-wide. If any compounds used by Microchip meet the UL94 V0 flammability standard for plastics. You can access the UL IQTM family of databases to obtain a test report at <i>If ull complex form</i> PVC plastic. Total Total Weight 0.4 0.05 (mg) Total Wire Bond %, of Total Weight 0.4 Depend Gold 7440-57.5 100 Total 100.00 Total 100.00 Total 100.00 0.00				100.000	12.000	1,000,000	Proprietar	y Curing agent & Hardener			1
://ui.com/global/eng/pages/offerings/industries/chemicals/plastics/ 0.05 (mg) lotal Wire Bond % of lotal Weight 0.4 protective "tubes" in which the specific product is shipped are made from polyvinyl chloride (PVC) plastic. "Window envelopes" used to hold the packing slip on the outer box certain "reels" may be made from PVC plastic. Doped Gold 7440-57-5 100 ochip Technology Incorporated believes the information in this form concerning substances restricted by RoHS in Microchip Technology Incorporated's semiconductor cas in the average weight of these parts and the average weight of these parts and the average weight of anticipated significant toxic metals components. These mates do not include trace levels of dopants, metals, and non-metal materials contained within silicon devices (silicon IC) in the finished parts. 0.40 (mg) Total Plating on external leads (pins) - Matter Tin / Ameeled at 150°C for / hour 3.11 ochip dicialims any duty to notify users of updates or changes to Material Content Declarations in Material Content Declarations in Material Content Declarations (MCD) or independent third party test reports Tin 7440-31-5 100.00				KOHS Recast I	Directive) and	with EU	0.68	,	7440-21-3	100	5.34
Certain "reels" may be made from PVC plastic. Loped Gold /440-57-5 100 Ochip Technology Incorporated believes the information in this form concerning substances restricted by RoHS in Microchip Technology Incorporated's semiconductor rantee the completeness and accuracy of data in this form because it has been compiled based on the ranges provided in Material Safety Data Sheets provided by raw material planes. Supplier information is provided only as estimates of the average weight of these parts and the average weight of the	chemical substance is absent from the list above, the chemica hnology Incorporated's knowledge and belief as of the date of	ernal design controls, s I substance is NOT an this document, there is	supplier declarations, and /or analytical test data. intentional ingredient in the semiconductor device s no credible reason to believe that the unavoidable	and, to the be	st of Microchi	p	0.68	,	7440-21-3	100	5.34
ochip Technology Incorporated believes the information in this form concerning substances restricted by RoHS in Microchip Technology Incorporated's semiconductor Semiconductor ces in their original packing materials is true and correct to the best of its knowledge and belief, as of the date listed in this form. Microchip Technology Incorporated cannot Semiconductor iantee the completeness and accuracy of data in this form because it has been compiled based on the ranges provided in Material Safety Data Sheets provided by raw material Semiconductor jeiers. Information is often protected from disclosure as trade secrets and some information may not have been provided by subcontract assemblers and raw material Semiconductor ochip Technology Incorporated does not provide any warranty, express or implied, with respect to the information provided in this declaration. The exclusive, limited product 0.40 (mg) Total Plating on external % of Total Weight 3.11 ochip's quotations, sales order acknowledgement, and invoices. Semiconductor provided in ontice, consequential or 10.40 Tin 7440-31-5 100.00 S) or of this Certificate of Compliance for semiconductor products. S) or of this Certificate of Compliance for semiconductor products. 10.40 Tin 7440-31-5 100.00	npliance with the above EU Directives has been verified via int chemical substance is absent from the list above, the chemica hnology Incorporated's knowledge and belief as of the date of stance, if any, is not below the threshold of regulatory concern ding compounds used by Microchip meet the UL94 V0 flammal	ernal design controls, s I substance is NOT an this document, there is n for any regulatory sch billity standard for plast	supplier declarations, and /or analytical test data. intentional ingredient in the semiconductor device s no credible reason to believe that the unavoidable neme world-wide.	and, to the bes	st of Microchi centration of t	p		Doped Silicon	7440-21-3 Total	100 100.00	
Ochip Hechnology incorporated does not provide any warranty, express of implied, with respect to the minimation provided in this declaration. The exclusive, initial product in this declaration. The exclusive, initial product is an expressed in provide does not provide any warranty, express of implied, with respect to the minimation provided in this declaration. The exclusive, initial product is an exclusive, initial product in this declaration. The exclusive, initial product is an exclusive, initial provided in this declaration. The exclusive, initial product is an exclusive, initial provided in this declaration. The exclusive, initial product is an exclusive, initial provided in this declaration. The exclusive, initial product is an exclusive, initial provided in this declaration. The exclusive, initial product is an exclusive, initial provided in this declaration. The exclusive, initial product is an exclusive, initial provided in this declaration. The exclusive, initial product is an exclusive, initial provided in this declaration. The exclusive, initial product is an exclusive, initial provided in this declaration. The exclusive, initial product is an exclusive, initial provided in this declaration is and conditions of sale. These are provided in one provided in one provided in the user's reliance on the information in Material Content Declarations (MCD) or independent third party test reports 0.40 (mg) Total Ieads (pins) - Matte Tin / annealed at 150°C for / hour's of total Weight 3.11 ochip disclaims any duty to notify users of updates or changes to Material Content Declarations (MCD) or independent third party test reports Tin 7440-31-5 100.00 S) or of this Certificate of Compliance for semiconductor products. 100.00 100.00 100.00	npliance with the above EU Directives has been verified via int chemical substance is absent from the list above, the chemica hnology Incorporated's knowledge and belief as of the date of stance, if any, is not below the threshold of regulatory concer- ding compounds used by Microchip meet the UL94 V0 flammal ://ul.com/global/eng/pages/offerings/industries/chemicals/plas protective "tubes" in which the specific product is shipped ar	ernal design controls, s I substance is NOT an this document, there is n for any regulatory sch bility standard for plast tics/	supplier declarations, and /or analytical test data. intentional ingredient in the semiconductor device s no credible reason to believe that the unavoidable neme world-wide. ics. You can access the UL iQTM family of databas	and, to the bea e impurity cond ses to obtain a	st of Microchi centration of t test report at	p ihe chemical		(mg) Total	7440-21-3 Total Wire Bond	100 100.00 % of Total Weight	
rwise, suffered by users or third parties as a result of the users' reliance on the information in Material Content Declarations (MCD) or independent third party test reports Tin 7440-31-5 100.00 Tin 7440-31-5	npliance with the above EU Directives has been verified via int chemical substance is absent from the list above, the chemical hnology incorporated's knowledge and belief as of the date of stance, if any, is not below the threshold of regulatory concern ding compounds used by Microchip meet the UL94 V0 flammai ://ul.com/global/eng/pages/offerings/industries/chemicals/plas protective "tubes" in which the specific product is shipped ar certain "reels" may be made from PVC plastic. Tochip Technology Incorporated believes the information in thi ces in their original packing materials is true and correct to the rantee the completeness and accuracy of data in this form bec pliers. Supplier information is often protected from disclosure pliers. Information is provided only as estimates of the average	ernal design controls, s I substance is NOT an this document, there is n for any regulatory sch bility standard for plast tics/ e made from polyvinyl s form concerning sub e best of its knowledge ause it has been comp as trade secrets and sa sweight of these parts	supplier declarations, and /or analytical test data. intentional ingredient in the semiconductor device s no credible reason to believe that the unavoidable neme world-wide. ics. You can access the UL iQTM family of databas chloride (PVC) plastic. "Window envelopes" used t stances restricted by RoHS in Microchip Technolo to and belief, as of the date listed in this form. Micro iled based on the ranges provided in Material Safe and the average weight of anticipated significant t	and, to the best e impurity cond les to obtain a o hold the pac gy Incorporate chip Technolo ty Data Sheets ubcontract ass bicontract ass	st of Microchi centration of t test report at king slip on th d's semicond gy Incorporat provided by i	p the chemical ne outer box uctor ed cannot raw material raw material		(mg) Total	7440-21-3 Total Wire Bond 7440-57-5	100 100.00 % of Total Weight 100	
Total 100.00	npliance with the above EU Directives has been verified via int chemical substance is absent from the list above, the chemical hnology Incorporated's knowledge and belief as of the date of stance, if any, is not below the threshold of regulatory concert ding compounds used by Microchip meet the UL94 V0 flamma ://ul.com/global/eng/pages/offerings/industries/chemicals/plas protective "tubes" in which the specific product is shipped ar certain "reels" may be made from PVC plastic. rochip Technology Incorporated believes the information in thi ices in their original packing materials is true and correct to th pliers. Supplier information is often protected from disclosure pliers. Information is provided only as estimates of the average mates do not include trace levels of dopants, metals, and non- rochip Technology Incorporated does not provide any warrant ranties provided by Microchip Technology Incorporated and it	ernal design controls, s I substance is NOT an this document, there is for any regulatory sch bility standard for plast tics/ e made from polyvinyl s form concerning sub e best of its knowledge ause it has been comp as trade secrets and se e weight of these parts metal materials contair y, express or implied, y s subsidiaries are contr	supplier declarations, and /or analytical test data. intentional ingredient in the semiconductor device s no credible reason to believe that the unavoidable neme world-wide. ics. You can access the UL iQTM family of databas chloride (PVC) plastic. "Window envelopes" used t stances restricted by RoHS in Microchip Technolo and belief, as of the date listed in this form. Micro iled based on the ranges provided in Material Safe ome information may not have been provided by si and the average weight of anticipated significant t teed within silicon devices (silicon IC) in the finisher with respect to the information provided in this dec	and, to the bee e impurity cond es to obtain a o hold the pac gy Incorporate chip Technolo ty Data Sheets ubcontract ass oxic metals co d parts.	st of Microchi centration of t test report at king slip on th d's semicond gy Incorporat provided by emblers and r mponents. Th xclusive, limit	p the chemical ne outer box uctor ed cannot raw material rese ed product	0.05	(mg) Total	7440-21-3 Total Wire Bond 7440-57-5 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for	100 100.00 % of Total Weight 100 100.00	0.4
	npliance with the above EU Directives has been verified via inter- chemical substance is absent from the list above, the chemical hnology Incorporated's knowledge and belief as of the date of stance, if any, is not below the threshold of regulatory concer- ding compounds used by Microchip meet the UL94 V0 flamma ://ul.com/global/eng/pages/offerings/industries/chemicals/plas protective "tubes" in which the specific product is shipped an certain "reels" may be made from PVC plastic. Tochip Technology Incorporated believes the information in th ices in their original packing materials is true and correct to the pilers. Supplier information is often protected from disclosure pilers. Supplier information is often protected from disclosure pilers. Information is provided only as estimates of the average mates do not include trace levels of dopants, metals, and non- rochip Technology Incorporated does not provide any warrant ranties provided by Microchip Technology Incorporated and it rochip's quotations, sales order acknowledgement, and invoic pochip disclaims any duty to notify users of updates or change provise, suffered by users or third parties as a result of the use	ernal design controls, s I substance is NOT an this document, there is for any regulatory sch bility standard for plast tics/ e made from polyvinyl s form concerning sub e best of its knowledge ause it has been comp as trade secrets and so e weight of these parts metal materials contair y, express or implied, v s subsidiaries are cont: es.	supplier declarations, and /or analytical test data. intentional ingredient in the semiconductor devices is no credible reason to believe that the unavoidable neme world-wide. ics. You can access the UL iQTM family of databas chloride (PVC) plastic. "Window envelopes" used to stances restricted by RoHS in Microchip Technolo and belief, as of the date listed in this form. Micro illed based on the ranges provided in Material Safe ome information may not have been provided by si and the average weight of anticipated significant to teed within silicon devices (silicon IC) in the finisher with respect to the information provided in this dec ained in Microchip's standard terms and conditions the clarations and shall not be liable for any damage	and, to the bee e impurity cond les to obtain a o hold the pac gy Incorporate chip Technolo ty Data Sheets Jocontract ass oxic metals co d parts. laration. The e s of sale. These s, direct or ind	st of Microchi centration of t test report at king slip on th d's semicond gy Incorporate provided by emblers and r mponents. Th xclusive, limite e are provideo irect, consequ	p the chemical he outer box ed cannot raw material raw material rese ed product d in uential or	0.05	(mg) Total (mg) Total	7440-21-3 Total Wire Bond 7440-57-5 Total Plating on external leads (pins) - Matte Tin / annealed 150°C for 1 hour	100 100.00 % of Total Weight 100 100.00	0.4

Basic Substance Silica. vitreous		C-70 (B2 / BJ)		nation Base A pper Alloy (C				nogeneous Materials: e.g. pc boards, displa	ys)	JEDEC 97 Product Markin and/or Pkg. Labeling e3
	CAS Number	"Contained In" Sub-Component	% Total Weight	malaart		4.39	(mg) Total	Mold Compound	% ot Total Weight	37.38
	60676-86-0	Mold Compound	67.830	mg/part 3.731	ppm 678.300		Silica, vitreous	60676-86-0	85.00	-
Epoxy Resin (No bromine, No diantimony trioxide)	Trade Secret	Mold Compound	4.888	0.269	48.878		Epoxy Resin	Trade Secret	6.13	
Phenolic Resin (No Br / CL SbO3, No diantimony trioxide)	Trade Secret	Mold Compound	4.888	0.269	48,878		Phenolic Resin	Trade Secret	6.13	
Epoxy, Cresol Novolac	29690-82-2	Mold Compound	1.955	0.108	19,551		Epoxy, Cresol Novolac	29690-82-2	2.45	
Carbon Black	1333-86-4	Mold Compound	0.239	0.013	2,394		Carbon Black	1333-86-4	0.30	
Copper	7440-50-8	Lead Frame	10.221	0.562	102,209			Total	100.00	
Iron	1309-37-1	Lead Frame	0.247	0.014	2,468	0.58	(mg) Total	Lead Frame	% of Total Weight	5.68
Zinc	7440-66-6	Lead Frame	0.013	0.001	131		Copper	7440-50-8	97.34	
Phosphate	7723-14-0	Lead Frame	0.009	0.000	87		Iron	1309-37-1	2.35	
Silver	7440-22-4 7440-47-3	Lead Frame	0.008	0.000	84 11		Zinc Phosphate	7440-66-6 7723-14-0	0.13	
Chromium Lead	7440-47-3 7439-92-1	Lead Frame Lead Frame	0.001	0.000	11		Silver	7723-14-0 7440-22-4	0.08	
Cadmium	7439-92-1	Lead Frame	0.001	0.000	11		Chromium	7440-22-4 7440-47-3	0.08	
Silver (Ag)	7440-43-9	Die Attach	0.589	0.032	5.888		Lead	7439-92-1	0.01	
Proprietary Resin	Trade Secret	Die Attach	0.139	0.008	1,388		Cadmium	7440-43-9	0.00	
Proprietary Curing agent & Hardener	Trade Secret	Die Attach	0.023	0.000	225		oddinidini	Total	100.00	
Silicon	7440-21-3	Chip (Die)	7.500	0.413	75,000	0.04	(mg) Total	Die Attach	% of Total Weight	0.51
Gold	7440-57-5	Wire Bond	0.200	0.011	2,000		Silver (Ag)	7440-22-4	79	
Tin		ng on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	1.250	0.069	12,500		Proprietary Resin	Trade Secret	19	
		TOTALS:	100.000	5.500	1,000,000	Proprietary	/ Curing agent & Hardener	Trade Secret	3	
	0.0058 g 1	Total Mass				.,,		Total	100.00	1
liance with the above EU Directives has been verified via ir emical substance is absent from the list above, the chemic ology Incorporated's knowledge and belief as of the date e	al substance is NOT an i	ntentional ingredient in the semiconductor	device and, to t			ļ	Doped Silicon	Total	100.00	
cal substance, if any, is not below the threshold of regulat ng compounds used by Microchip meet the UL94 V0 flamm ul.com/global/eng/pages/offerings/industries/chemicals/pla rotective "tubes" in which the specific product is shipped a box and certain "reels" may be made from PVC plastic.	ability standard for plasti stics/	cs. You can access the UL iQTM family of d				0.01	(mg) Total	Wire Bond 7440-57-5	% of Total Weight	3
chip Technology Incorporated believes the information in t es in their original packing materials is true and correct to t guarantee the completeness and accuracy of data in this aterial suppliers. Supplier information is often protected fr	he best of its knowledge form because it has been om disclosure as trade se only as estimates of the av	and belief, as of the date listed in this form. In compiled based on the ranges provided in acrets and some information may not have l verage weight of these parts and the average	. Microchip Tec n Material Safet been provided l ge weight of an	hnology Incor y Data Sheets by subcontrac ticipated signit	porated provided by t ficant toxic			Total	100.00	•
blers and raw material suppliers. Information is provided on some some some some some some some some	of dopants, metals, and r									
blers and raw material suppliers. Information is provided o	ity, express or implied, w ted and its subsidiaries a					0.07	(mg) Total	Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	% of Total Weight	52.92

Semiconductor Device Typ	e: TO and ZB 0	13 (Lead) TO-92 (A2 / AU)		nation Base / pper Alloy (C				ogeneous Materials: .g. pc boards, display	/s)	JEDEC 97 Product Marki and/or Pkg. Labeling e3
		"Contained In"	% Total							
Basic Substance	CAS Number	Sub-Component	Weight	mg/part	ppm	114.11	(mg) Total	Mold Compound	% ot Total Weight	56.77
Silica, vitreous	60676-86-0	Mold Compound	48.255	96.992	482,545		Silica, vitreous	60676-86-0	85.00	
Epoxy Resin (No bromine, No diantimony trioxide)	Trade Secret	Mold Compound	3.477	6.989	34,772	1	Epoxy Resin	Trade Secret	6.13	
Phenolic Resin (No Br / CL SbO3, No diantimony trioxide)	Trade Secret	Mold Compound	3.477	6.989	34,772	1	Phenolic Resin	Trade Secret	6.13	
Epoxy, Cresol Novolac	29690-82-2	Mold Compound	1.391	2.796	13,909		Epoxy, Cresol Novolac	29690-82-2	2.45	
Carbon Black	1333-86-4	Mold Compound	0.170	0.342	1,703		Carbon Black	1333-86-4	0.30	
Copper	7440-50-8	Lead Frame	38.024	76.428	380,239			Total	100.00	
Iron	7439-89-6	Lead Frame	0.935	1.880	9,353	80.00	(mg) Total	Lead Frame	% of Total Weight	39.8
Silver	7440-22-4	Lead Frame	0.758	1.524	7,582		Copper	7440-50-8	95.54	
Zinc	7440-66-6	Lead Frame	0.050	0.100	498	1	Iron	7439-89-6	2.35	1
Phosphorous	7723-14-0	Lead Frame	0.033	0.066	328	1	Silver	7440-22-4	1.91	1
Silver	7440-22-4	Die Attach	0.066	0.134	664	1	Zinc	7440-66-6	0.13	1
Epoxy Resin	9003-36-5	Die Attach	0.017	0.034	169	1	Phosphorous	7723-14-0	0.08	1
t-Butyl phenyl glycidyl ether	3101-60-8	Die Attach	0.006	0.011	57	1		Total	100.00	.
Phenolic hardener	92-88-6	Die Attach	0.000	0.001	3	0.18	(mg) Total	Die Attach	% of Total Weight	
Butyl cellosolve acetate	112-07-2	Die Attach	0.001	0.001	7		Silver	7440-22-4	74	
Silicon	7440-21-3	Chip (Die)	0.800	1.608	8.000		Epoxy Resin	9003-36-5	19	
Gold	7440-21-3	Wire Bond	0.040	0.080	400		t-Butyl phenyl glycidyl ether	3101-60-8	6	
Tin	7440-37-5		2.500	5.025	25.000			92-88-6	0	
lin	7440-31-5	Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	100.000	201.000	1,000,000		Phenolic hardener	92-88-6	0	
		a Total Mass	100.000	201.000	1,000,000		Butyl cellosolve acetate	Total	100.00	<u> </u>
			•	Directive) and	I WITI EU	1.61	Total (mg)	Chip (Die)	% of Total Weight	0.8
bliance with the above EU Directives has been verified via in hemical substance is absent from the list above, the chemic nology Incorporated's knowledge and belief as of the date o	al substance is NOT f this document, the	an intentional ingredient in the semiconductor device re is no credible reason to believe that the unavoidab	e and, to the be	est of Microchi	ip	1.61	Total (mg) Doped Silicon	Chip (Die) 7440-21-3 Total	100	
bliance with the above EU Directives has been verified via in hemical substance is absent from the list above, the chemic nology Incorporated's knowledge and belief as of the date o tance, if any, is not below the threshold of regulatory concer ing compounds used by Microchip meet the UL94 V0 flamma /ul.com/global/eng/pages/offerings/industries/chemicals/pla	al substance is NOT f this document, the n for any regulatory ability standard for pl stics/	an intentional ingredient in the semiconductor device re is no credible reason to believe that the unavoidab scheme world-wide. lastics. You can access the UL iQTM family of databa	e and, to the be le impurity cor ses to obtain a	est of Microchi acentration of test report at	ip the chemical	0.08	,	7440-21-3	100	
bliance with the above EU Directives has been verified via in hemical substance is absent from the list above, the chemic nology Incorporated's knowledge and belief as of the date o tance, if any, is not below the threshold of regulatory concer ing compounds used by Microchip meet the UL94 V0 flamma /ul.com/global/eng/pages/offerings/industries/chemicals/pla protective "tubes" in which the specific product is shipped a	al substance is NOT f this document, the n for any regulatory ability standard for pl stics/	an intentional ingredient in the semiconductor device re is no credible reason to believe that the unavoidab scheme world-wide. lastics. You can access the UL iQTM family of databa	e and, to the be le impurity cor ses to obtain a	est of Microchi acentration of test report at	ip the chemical		Doped Silicon	7440-21-3 Total Wire Bond 7440-57-5	100 100.00 % of Total Weight	0.04
tive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). pliance with the above EU Directives has been verified via in hemical substance is absent from the list above, the chemic: nology Incorporated's knowledge and belief as of the date o tance, if any, is not below the threshold of regulatory concer ing compounds used by Microchip meet the UL94 V0 flamma //ul.com/global/eng/pages/offerings/industries/chemicals/pla orotective "tubes" in which the specific product is shipped a cortacin "reels" may be made from PVC plastic. bochip Technology Incorporated believes the information in th ces in their original packing materials is true and correct to the antee the completeness and accuracy of data in this form be liers. Supplier information is often protected from disclosure liers. Information is provided only as estimates of the averag- nates do not include trace levels of dopants, metals, and non	al substance is NOT f this document, ther in for any regulatory ability standard for pl stics/ re made from polyvir his form concerning s he best of its knowle cause it has been cc e as trade secrets an ge weight of these pa	an intentional ingredient in the semiconductor device re is no credible reason to believe that the unavoidab scheme world-wide. lastics. You can access the UL iQTM family of databa nyl chloride (PVC) plastic. "Window envelopes" used substances restricted by RoHS in Microchip Technol dge and belief, as of the date listed in this form. Micro mpiled based on the ranges provided in Material Saf d some information may not have been provided by s	e and, to the be le impurity cor ses to obtain a to hold the par ogy Incorporat ochip Technolo ety Data Sheet subcontract as:	est of Microchi ccentration of test report at cking slip on t ed's semiconc gy Incorporat s provided by s provided by	ip the chemical he outer box Juctor raw material raw material		Doped Silicon (mg) Total	7440-21-3 Total Wire Bond 7440-57-5 Total	100 100.00 % of Total Weight	0.04
bliance with the above EU Directives has been verified via in hemical substance is absent from the list above, the chemic nology Incorporated's knowledge and belief as of the date o tance, if any, is not below the threshold of regulatory concer ing compounds used by Microchip meet the UL94 V0 flamma /ul.com/global/eng/pages/offerings/industries/chemicals/pla protective "tubes" in which the specific product is shipped a certain "reels" may be made from PVC plastic. both Technology Incorporated believes the information in th tes in their original packing materials is true and correct to the antee the completeness and accuracy of data in this form be liers. Supplier information is often protected from disclosure liers. Information is provided only as estimates of the averag	al substance is NOT f this document, ther n for any regulatory ability standard for pl stics/ re made from polyvir his form concerning the best of its knowle cause it has been co a strade secrets an ge weight of these pa -metal materials con ty, express or implie ts subsidiaries are c	an intentional ingredient in the semiconductor devici re is no credible reason to believe that the unavoidab scheme world-wide. lastics. You can access the UL iQTM family of databa nyl chloride (PVC) plastic. "Window envelopes" used substances restricted by RoHS in Microchip Technol dge and belief, as of the date listed in this form. Micr ompiled based on the ranges provided in Material Saf d some information may not have been provided by irts and the average weight of anticipated significant tained within silicon devices (silicon IC) in the finishe d, with respect to the information provided in this devi	e and, to the be le impurity cor ses to obtain a to hold the par ogy Incorporat ochip Technok ety Data Sheet subcontract as ubcontract as d parts.	est of Microchi Incentration of Itest report at oking slip on t ed's semicono gy Incorporat s provided by semblers and omponents. Th exclusive, limit	ip the chemical he outer box fuctor ted cannot raw material raw material nese		(mg) Total	7440-21-3 Total Wire Bond 7440-57-5	100 100.00 % of Total Weight	0.04
bliance with the above EU Directives has been verified via in nemical substance is absent from the list above, the chemic nology Incorporated's knowledge and belief as of the date o ance, if any, is not below the threshold of regulatory concer- ng compounds used by Microchip meet the UL94 V0 flamma /ul.com/global/eng/pages/offerings/industries/chemicals/pla protective "tubes" in which the specific product is shipped a ertain "reels" may be made from PVC plastic. chip Technology Incorporated believes the information in th es in their original packing materials is true and correct to the intee the completeness and accuracy of data in this form be iers. Supplier information is often protected from disclosure iers. Information is provided only as estimates of the averag ates do not include trace levels of dopants, metals, and non chip Technology Incorporated does not provide any warran inties provided by Microchip Technology Incorporated and i chip's quotations, sales order acknowledgement, and invoir chip fieclaims any duty to notify users of updates or chang wise, suffered by users or third parties as a result of the uses	al substance is NOT f this document, ther n for any regulatory ability standard for pl stics/ re made from polyvin his form concerning the best of its knowle cause it has been co- e as trade secrets an ge weight of these pa -metal materials con ty, express or implie ts subsidiaries are co- ces. es to Material Conter rs' reliance on the in	an intentional ingredient in the semiconductor devict re is no credible reason to believe that the unavoidab scheme world-wide. Iastics. You can access the UL iQTM family of databa nyl chloride (PVC) plastic. "Window envelopes" used substances restricted by RoHS in Microchip Technold dge and belief, as of the date listed in this form. Micro mpiled based on the ranges provided in Material Saf d some information may not have been provided by s irts and the average weight of anticipated significant tained within silicon devices (silicon IC) in the finishe d, with respect to the information provided in this devo ontained in Microchip's standard terms and condition the Declarations and shall not be liable for any damage	e and, to the be le impurity cor ses to obtain a to hold the par ochip Technok ety Data Sheet subcontract as toxic metals co dd parts. claration. The o so of sale. Thes	est of Microchi acentration of test report at cking slip on t ed's semicono gy Incorporat s provided by semblers and omponents. Th exclusive, limit as are provide direct, conseq	ip the chemical he outer box ductor ted cannot raw material raw material nese ted product d in uential or	0.08	(mg) Total	7440-21-3 Total Wire Bond 7440-57-5 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for	100 100.00 % of Total Weight 100 100.00	0.04
bliance with the above EU Directives has been verified via in hemical substance is absent from the list above, the chemic nology Incorporated's knowledge and belief as of the date o tance, if any, is not below the threshold of regulatory concer ing compounds used by Microchip meet the UL94 V0 flamma /ul.com/global/eng/pages/offerings/industries/chemicals/pla orotective "tubes" in which the specific product is shipped a sertain "reels" may be made from PVC plastic. whip Technology Incorporated believes the information in the es in their original packing materials is true and correct to the intee the completeness and accuracy of data in this form be liers. Supplier information is often protected from disclosure liers. Information is provided only as estimates of the average ates do not include trace levels of dopants, metals, and non schip Technology Incorporated does not provide any warran inties provided by Microchip Technology Incorporated and in the sport of the section of the section be the section of the section of the average ates do not include trace levels of dopants, metals, and non schip Technology Incorporated does not provide any warran in the sprovided by Microchip Technology Incorporated and in the section of the section section by the section be the section of the section by the section be the section by Microchip Technology Incorporated and in the section by Microchip Technology Incorporated and in the section by Microchip Technology Incorporated and in the section by Microchip Technology Incorporated and the technology Incorporate the section by the section	al substance is NOT f this document, ther n for any regulatory ability standard for pl stics/ re made from polyvin his form concerning the best of its knowle cause it has been co- e as trade secrets an ge weight of these pa -metal materials con ty, express or implie ts subsidiaries are co- ces. es to Material Conter rs' reliance on the in	an intentional ingredient in the semiconductor devict re is no credible reason to believe that the unavoidab scheme world-wide. Iastics. You can access the UL iQTM family of databa nyl chloride (PVC) plastic. "Window envelopes" used substances restricted by RoHS in Microchip Technold dge and belief, as of the date listed in this form. Micro mpiled based on the ranges provided in Material Saf d some information may not have been provided by s irts and the average weight of anticipated significant tained within silicon devices (silicon IC) in the finishe d, with respect to the information provided in this devo ontained in Microchip's standard terms and condition the Declarations and shall not be liable for any damage	e and, to the be le impurity cor ses to obtain a to hold the par ochip Technok ety Data Sheet subcontract as toxic metals co dd parts. claration. The o so of sale. Thes	est of Microchi acentration of test report at cking slip on t ed's semicono gy Incorporat s provided by semblers and omponents. Th exclusive, limit as are provide direct, conseq	ip the chemical he outer box ductor ted cannot raw material raw material nese ted product d in uential or	0.08	(mg) Total (mg) Total (mg) Total	7440-21-3 Total Wire Bond 7440-57-5 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	100 100.00 % of Total Weight 100 100.00	0.04

	e: LT 05 (Lead) SC-	70 (B4 / BZ)		nation Base A pper Alloy (C			•	ogeneous Materials: a.g. pc boards, displa		JEDEC 97 Product Markir and/or Pkg. Labeling e3
Basic Substance	CAS Number	"Contained In" Sub-Component	% Total Weight	mg/part	ppm	2.59	(mg) Total	Mold Compound	% ot Total Weight	
Silica, vitreous	60676-86-0	Mold Compound	35.003	2.205	350,030		Silica, vitreous	60676-86-0	85.00	.
Epoxy Resin (No bromine, No diantimony trioxide)	Trade Secret	Mold Compound Mold Compound	2.522	0.159	25,223		Epoxy Resin	Trade Secret	6.13	
Phenolic Resin (No Br / CL SbO3, No diantimony trioxide)	Trade Secret	Mold Compound	2.522	0.159	25,223		Phenolic Resin	Trade Secret	6.13	
Epoxy, Cresol Novolac	29690-82-2	Mold Compound	1.009	0.159	10.089		Epoxy, Cresol Novolac	29690-82-2	2.45	
Carbon Black	1333-86-4	Mold Compound	0.124	0.004	1,235		Carbon Black	1333-86-4	0.30	
Copper	7440-50-8	Lead Frame	6.630	0.418	66.303		Calboll Black	Total		
Iron	7439-89-6	Lead Frame	0.163	0.418	1,631	0.44	(mm) Total	Lead Frame		
						0.44	(mg) Total		% of Total Weight	6.94
Silver	7440-22-4	Lead Frame	0.132	0.008	1,322		Copper	7440-50-8	95.54	
Zinc	7440-66-6	Lead Frame	0.009	0.001	87		Iron	7439-89-6	2.35	
Phosphorous	7723-14-0	Lead Frame	0.006	0.000	57		Silver	7440-22-4	1.91	
Silver (Ag)	7440-22-4	Die Attach	0.793	0.050	7,929		Zinc	7440-66-6	0.13	
Proprietary Resin	Trade Secret	Die Attach	0.187	0.012	1,869		Phosphorous	7723-14-0	0.08	
Proprietary Curing agent & Hardener	Trade Secret	Die Attach	0.030	0.002	303			Total	100.00	
Silicon	7440-21-3	Chip (Die)	1.410	0.089	14,100	0.06	(mg) Total	Die Attach	% of Total Weight	1.01
Gold	7440-57-5	Wire Bond	0.930	0.059	9,300		Silver (Ag)	7440-22-4	79	
Tin	7440-31-5 Plati	ng on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	48.530	3.057	485,300		Proprietary Resin	Trade Secret	19	
		TOTALS:	100.000	6.300	1,000,000	Proprieta	ry Curing agent & Hardener	Trade Secret	3	
	0.0063 g T	otal Masa						Total	100.00	1
	ernal design controls, su	pplier declarations, and /or analytical test data.	RoHS Recast I		with EU	0.09	Total (mg) Doped Silicon	Chip (Die)	% of Total Weight	1.41
ppliance with the above EU Directives has been verified via int chemical substance is absent from the list above, the chemica	I substance is NOT an in	tentional ingredient in the semiconductor device	and, to the bes	st of Microchi	5	0.09				
pliance with the above EU Directives has been verified via int chemical substance is absent from the list above, the chemica nology Incorporated's knowledge and belief as of the date of stance, if any, is not below the threshold of regulatory concern ling compounds used by Microchip meet the UL94 V0 flamma	I substance is NOT an in this document, there is i n for any regulatory sche bility standard for plastic	tentional ingredient in the semiconductor device no credible reason to believe that the unavoidable me world-wide.	and, to the bes impurity cond	st of Microchip centration of t	5	0.09		7440-21-3	100	
npliance with the above EU Directives has been verified via int chemical substance is absent from the list above, the chemica hnology Incorporated's knowledge and belief as of the date of stance, if any, is not below the threshold of regulatory concer ding compounds used by Microchip meet the UL94 V0 flamma p://ul.com/global/eng/pages/offerings/industries/chemicals/plas protective "tubes" in which the specific product is shipped ar	I substance is NOT an in this document, there is in for any regulatory sche bility standard for plastic tics/	tentional ingredient in the semiconductor device to credible reason to believe that the unavoidable me world-wide. s. You can access the UL iQTM family of databas	and, to the bes impurity cond es to obtain a f	st of Microchip centration of t test report at	o he chemical		Doped Silicon	7440-21-3 Total	100 100.00	
active 2002/53/EC (End-of-Life Vehicles (ELV) Directive). mpliance with the above EU Directives has been verified via int chemical substance is absent from the list above, the chemical hology Incorporated's knowledge and belief as of the date of ustance, if any, is not below the threshold of regulatory concern ding compounds used by Microchip meet the UL94 V0 flamma by Incorporated's in which the specific product is shipped and certain 'reels'' may be made from PVC plastic. rochip Technology Incorporated believes the information in the icertain 'reels'' may be made from PVC plastic. rochip Technology Incorporated believes the information in the icertain 'reels'' is often accuracy of data in this form be uppliers. Supplier information is often protected from disclosure pliers. Information is provided only as estimates of the average mates do not include trace levels of dopants, metals, and non-	I substance is NOT an in this document, there is i n for any regulatory sche bility standard for plastic tics/ e made from polyvinyl cl s form concerning subst e best of its knowledge a cause it has beer compili as trade secrets and sor e weight of these parts a	tentional ingredient in the semiconductor device no credible reason to believe that the unavoidable me world-wide. s. You can access the UL iQTM family of databas noride (PVC) plastic. "Window envelopes" used to tances restricted by RoHS in Microchip Technolog and belief, as of the date listed in this form. Micro ed based on the ranges provided in Material Safe ne information may not have been provided by su of the average weight of anticipated significant to	and, to the bea impurity cond es to obtain a b hold the pac gy Incorporate chip Technolog y Data Sheets bcontract ass wic metals coi	st of Microchi centration of t test report at king slip on th d's semicondu gy Incorporate s provided by i	o he chemical e outer box uctor d cannot raw material aw material		Doped Silicon (mg) Total	7440-21-3 Total Wire Bond	100 100.00 % of Total Weight	0.93
mpliance with the above EU Directives has been verified via int chemical substance is absent from the list above, the chemical inhology Incorporated's knowledge and belief as of the date of stance, if any, is not below the threshold of regulatory concer- ding compounds used by Microchip meet the UL94 V0 flamma p://ul.com/global/eng/pages/offerings/industries/chemicals/plas protective "tubes" in which the specific product is shipped an l certain "reels" may be made from PVC plastic. rochip Technology Incorporated believes the information in th ices in their original packing materials is true and correct to the rantee the completeness and accuracy of data in this form be ppliers. Supplier information is often protected from disclosure pliers. Information is provided only as estimates of the averag	I substance is NOT an in this document, there is is of or any regulatory sche bility standard for plastic tics/ e made from polyvinyl ch is form concerning subst e best of its knowledge a cause it has been compil as trade secrets and sor e weight of these parts a metal materials containe y, express or implied, wit s subsidiaries are contai	tentional ingredient in the semiconductor device no credible reason to believe that the unavoidable me world-wide. s. You can access the UL iQTM family of databas noride (PVC) plastic. "Window envelopes" used to tances restricted by RoHS in Microchip Technolog and belief, as of the date listed in this form. Micro ed based on the ranges provided in Material Safe ne information may not have been provided by su d the average weight of anticipated significant to d within silicon devices (silicon IC) in the finished th respect to the information provided in this decl	and, to the bee impurity cond es to obtain a l o hold the pac gy Incorporate chip Technolog y Data Sheets bcontract ass wrice metals con parts.	st of Microchin centration of t test report at king slip on th d's semicondu gy Incorporate s provided by emblers and r mponents. Th xclusive, limite	b he chemical he outer box uctor ed cannot raw material aw material ese ed product		(mg) Total	7440-21-3 Total Wire Bond 7440-57-5	100 100.00 % of Total Weight 100	0.93
Appliance with the above EU Directives has been verified via int chemical substance is absent from the list above, the chemical nology Incorporated's knowledge and belief as of the date of stance, if any, is not below the threshold of regulatory concern ding compounds used by Microchip meet the UL94 V0 flamma ://ul.com/global/eng/pages/offerings/industries/chemicals/plas protective "tubes" in which the specific product is shipped ar certain "reels" may be made from PVC plastic. oochip Technology Incorporated believes the information in th ces in their original packing materials is true and correct to the rantee the completeness and accuracy of data in this form bed pliers. Information is provided only as estimates of the averag mates do not include trace levels of dopants, metals, and non- ochip Technology Incorporated does not provide any warrant ranties provided by Microchip Technology Incorporated and it coship's quotations, sales order acknowledgement, and invoic ophip disclaims any duty to notify users of updates or change privise, suffered by users or third parties as a result of the use	I substance is NOT an in this document, there is in of any regulatory sche- bility standard for plastic tics/ e made from polyvinyl cl is form concerning subst e best of its knowledge a cause it has been compil as trade secrets and sor e weight of these parts a metal materials containe y, express or implied, wit is subsidiaries are contai es.	tentional ingredient in the semiconductor device no credible reason to believe that the unavoidable me world-wide. s. You can access the UL iQTM family of databas nloride (PVC) plastic. "Window envelopes" used to tances restricted by RoHS in Microchip Technolog and belief, as of the date listed in this form. Micro de based on the ranges provided in Material Safe me information may not have been provided by su nd the average weight of anticipated significant to d within silicon devices (silicon IC) in the finished th respect to the information provided in this decl need in Microchip's standard terms and conditions clarations and shall not be liable for any damages	and, to the best impurity cond as to obtain a to b hold the pac ay Incorporate hip Technolog y Data Sheets bcontract ass parts. aration. The est of sale. These to direct or indi	st of Microchij centration of t test report at king slip on th d's semicond gy Incorporate sprovided by i semblers and r mponents. Th xclusive, limitu e are provided irect, consequ	b he chemical he outer box uctor ed cannot aw material ese ed product i in	0.06	Opped Silicon (mg) Total Doped Gold	7440-21-3 Total Wire Bond 7440-57-5 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for	100 100.00 % of Total Weight 100 100.00	0.93
npliance with the above EU Directives has been verified via int chemical substance is absent from the list above, the chemica hnology Incorporated's knowledge and belief as of the date of stance, if any, is not below the threshold of regulatory concern ding compounds used by Microchip meet the UL94 V0 flamma ://ul.com/global/eng/pages/offerings/industries/chemicals/plas protective "tubes" in which the specific product is shipped ar certain "reels" may be made from PVC plastic. rochip Technology Incorporated believes the information in th ices in their original packing materials is true and correct to the rantee the completeness and accuracy of data in this form be pliers. Supplier information is often protected from disclosure pliers. Information is provided only as estimates of the average mates do not include trace levels of dopants, metals, and non- rochip Technology Incorporated does not provide any warrant rantei be provided by Microchip Technology Incorporated and it	I substance is NOT an in this document, there is in of any regulatory sche- bility standard for plastic tics/ e made from polyvinyl cl is form concerning subst e best of its knowledge a cause it has been compil as trade secrets and sor e weight of these parts a metal materials containe y, express or implied, wit is subsidiaries are contai es.	tentional ingredient in the semiconductor device no credible reason to believe that the unavoidable me world-wide. s. You can access the UL iQTM family of databas nloride (PVC) plastic. "Window envelopes" used to tances restricted by RoHS in Microchip Technolog and belief, as of the date listed in this form. Micro de based on the ranges provided in Material Safe me information may not have been provided by su nd the average weight of anticipated significant to d within silicon devices (silicon IC) in the finished th respect to the information provided in this decl need in Microchip's standard terms and conditions clarations and shall not be liable for any damages	and, to the best impurity cond as to obtain a to b hold the pac ay Incorporate hip Technolog y Data Sheets bcontract ass parts. aration. The est of sale. These to direct or indi	st of Microchij centration of t test report at king slip on th d's semicond gy Incorporate sprovided by i semblers and r mponents. Th xclusive, limitu e are provided irect, consequ	b he chemical he outer box uctor ed cannot aw material ese ed product i in	0.06	(mg) Total (mg) Total (mg) Total	7440-21-3 Total Wire Bond 7440-57-5 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	100 100.00 % of Total Weight 100 100.00	0.93

Semiconductor Device Type: UT UT UT 05 (am) SC-70 MPdAu (av) UT UT 000000000000000000000000000000000					nation Base / opper Alloy (C			•	ogeneous Materials: g. pc boards, display	ys)	JEDEC 97 Product Markin and/or Pkg. Labeling
Basic Substance CAS Number Substance CAS Number Substance Registry Registry Registry Registry Registry Registry Registry Registry Registry Registry State structure	Semiconductor Device Type	: LIOPLIY U5 (Lead) S		% Total		1					e4
Epsoy Resm. Trade Scoret Made Compound 3.850 0.241 83.000 Fear View	Basic Substance	CAS Number			mg/part	ppm	3.94	(mg) Total	Mold Compound	% ot Total Weight	62.53
Pirangle Resin Thing's Boort Maid Compound 3.830 0.241 38.302 Event Name 2000 002 // Maid Compound 1.530 0.021 15.900 15	Silica, vitreous	60676-86-0	Mold Compound	53.151	3.348	531,505		Silica, vitreous	60676-86-0	85.00	
Epory, Case Revolue 28800-66-2 Muldi Component 15.20 Ord? 15.20 Control Basis 28800-62-2 2.40 Cablor Basis 1333-64-1 Muldi Component 1.181 0.071 1.520 Cablor Basis 28800-82-2 2.40 Market Strate 1.181 0.071 1.520 1.61 28000-82-2 2.40 Market Strate 1.530 1.61 1.61 2.667 1.61 1.61 3.50 1.61 3.50 1.61 3.50 1.61 3.50 1.61 3.50 1.61 1.61 3.50 1.61 <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>											
Carbon Black 1335 88-4 Model Compound 0.187 Carbon Black 13378 Carbon Black 13378 Carbon Black 13378 Carbon Black 13378-4 0.037 Carbon Black 7723-14-0 Lead Fame 0.042 5.03 1.01 (rgspace) 1.044 Fame 5.03 1.01 1.044 Fame 5.01 1.01 1.044 Fame 5.01 1.01 1.044 Fame 5.01 1.01											
Copper 7440-50-8 Lead Frame 248,212 Total Total Total Total Total Total Information 7435-86-6 Lead Frame 0.067 5.057 <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>											
Iron 7439-89-6 Lead Frame 0.037 0.037 0.037 1.617 (mg) Total Lead Frame % of Total Weight 2.51 Photophonus 7723/14-0 Lob Frame 0.004 6.03 0.014 6.03 0.014 0.014 0.014 0.014 0.014 0.014 0.014 0.014 0.014 0.014 0.014 0.014 0.014 0.014 0.014 0.014 0.011 0.011 0.01 744.03.0 0.01 1.01 0.01								Carbon Black			
Phosphorus 7723-14-0 Lead Frame 0.054 0.004 <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>4.04</td> <td></td> <td></td> <td></td> <td>05 54</td>							4.04				05 54
Zinc (Maria) 7440666 Lead Prismin 0.038 0.032 0.833 Alummun colds 1444281 Die Attach 0.601 0.038 6.012 Zie (Maria) 740.966 0.15 Defining synch monockly ther accusts Total Sector Die Attach 0.061 0.038 6.012 Zie (Maria) 740.966 0.15 Die Attach 0.066 0.004 6.65 Marinum code 1.344.261 3.4	-						1.61				25.51
Aluminum code 1944-28-1 Die Attach 0.601 0.038 6.012 Pieugebrais Pieugebrais<											
Detryleng glycol monocetyl ether acutate 112:15:2 Die Attach 0.601 0.638 6,012 Example 740:66:0 0.158 0.11 Cmm1 / Total 0.05 0.16 0.15 0.16							1				
Eboy resin Tade Secret-1014 Die Attach 0.328 0.221 3.279 Terd Toda 0.000 Boov resin Tade Secret-1003 Die Attach 0.146 0.11 fman Die Attach 5.40 Tode Weich 1.76 Amea Tade Secret-1003 Die Attach 0.046 0.040 650 Die Attach 5.40 Tode Weich 1.76 God 7440-57-5 Wine Sond 1.430 0.060 1.4300 Die Attach 1.90 0.021 1.530 Die Attach 1.90 0.000 1.900 Die Attach 1.90 0.000 1.900 Die Attach 1.90 0.000 1.900 Die Attach							1				
Epoly resin Trade Secret : 10105 Die Attach 0.014 0.010 1.640 0.11 (ma) Testal Die Attach % of Total Weight 3.76 Annie 7440 27-3 Cho (Die) 7.420 0.474 75.200 0.440.213 100 76.40 100 76.40 100 76.40 100 76.40 100 76.40 100 76.40 100 76.40 100 76.40 100 76.40 100 76.40 100 76.40 100.00 76.40 100.00								Zilic (Wetal)			
Amme Trade Secret: 10039 Die Attach 0.006 0.004 666 Markum code 1344/361 34 Gold 74402713 Wre Bord 1430 0.004 666 Epoxymein Trade Secret: 10114 19 Nickal 7440273 Wre Bord 1430 0.004 663 Epoxymein Trade Secret: 10116 19 Gold 7440273 Plaining on external leads (print) 0.023 0.004 663 Nice Trade Secret: 10114 19 Gold 7440273 Plaining on external leads (print) 0.003 0.004 663 Nice Trade Secret: 1010 Trade Secret: 1010 Nice							0.11	(mg) Total			1 76
Silicon 7440-213 One (Dis) 7.520 0.474 75200 Derlylene gycal monethyl metha acetaal 11:15:15:2 34 Nickal 7440-57:5 Plating on estimal leads (print) 0.03 0.004 620 Epoy yeals Tada Secret -10116 9 Baladium 50/7440 Plating on estimal leads (print) 0.063 0.004 625 Plating on estimal leads (print) 0.063 0.004 625 Plating on estimal leads (print) 0.0063 0.004 625 100 0.006 740-013 Viet Postal Weight 1.43 Uncorrelation with the above EU Directives Uses the control is substance is absent form the list absent porticity in which the specific product is shipped are made from PyVinyl chloride (PVC) plasic. "Window envelopes" used to holi							0.11				1.70
Gold 7440-02-0 Plating on external leads (pins) 1.1.32 0.000 14.300 Platedium Total Total 11111 11111 11111							Diethylene al				
Nickel 7440-02-0 Plating on external leads (pins) 1.125 0.071 11.250 0.071 11.250 0.071 11.250 Gold 7440-57-5 Plating on external leads (pins) 0.063 0.004 625 Total 100.00 100.00 semiconductor device and its homogenous materials comply with EU Directive 2002/39/EC (End-01-Life Vehicles (EU) Directive). EU Directive 2017/65/EU (RoHS Recast Directive) and with itercive 2002/39/EC (End-01-Life Vehicles (EU) Directive). EU Directive 2017/65/EU (RoHS Recast Directive) and with itercive 2002/39/EC (End-01-Life Vehicles (EU) Directive). EU Directive 2017/65/EU (RoHS Recast Directive) and with itercive 2002/39/EC (End-01-Life Vehicles (EU) Directive). EU Directive 2017/65/EU (RoHS Recast Directive) and with itercive 2002/39/EC (End-01-Life Vehicles (EU) Directive). EU Directive 2017/65/EU (RoHS Recast Directive) and with itercive 2002/39/EC (End-01-Life Vehicles (EU) Directive). EU Directive 2017/65/EU (RoHS Recast Directive) and with itercive 2017/65/EU (RoHS Recast Directive) and with itercive 2017/65/EU (RoHS Recast Directive). EU Directive 2017/65/EU (RoHS Recast Directive) and with itercive 2017/65/EU (RoHS Recast Directive) and with itercive 2017/65/EU (RoHS Recast Directive). EU Directive 2017/65/EU (RoHS Recast Directive). EU Directive 2017/65/EU (RoHS Directive).							Dictifyrene gr				
Palacitum 537740 Plang on external leads (pins) 0.083 0.044 625 Anne Trade Secret - 10039 4 Gold TOTALS: 100.000 6.300 1.000.000 6.300 1.000.000 0.07 Total (mg) Chip (Dip) % of Total Weight 7.52 semiconductor device and its homogenous materials comply with EU Directive 2002/3/EC (RoHS Directive). EU Directive 2011/85/EU (RoHS Recast Directive) and with Total (mg) Chip (Dip) % of Total Weight 1.43 ipclerice 2002/3/EC (RoH-C-ILV Oblices (ELV) Directives as been verified via internal design controls, supplier declarations, and /or analytical test data. 0.09 (mg) Total Wire Bond % of Total Weight 1.43 intervice 2002/3/EC (RoH-C-ILV Oblices (ELV) Directives as been verified via internal design controls, supplier declarations, and /or analytical test data. 0.09 (mg) Total Wire Bond % of Total Weight 1.43 intervice 2002/3/EC (RoH-C-ILV Oblices (ELV) Directive 2001/9/Site reason to believe whith the unavoidable impurity concentration of the ison constraints as basen on for any regulatory concent for any regulatory							1	1.7			
Gold 7440-67-5 Plaining on external leads (pins) 0.083 0.094 625 Total Total 100.00 Semiconductor device and its homogenous materials comptly with EU Directive 2002/53/EC (RoHof-Life Vehicles (ELV) Directive). 100.000 0.47 Total (mg) Chip (Die) 5:00 7440-21:3 100 100.00 Directive 2002/53/EC (RoHof-Life Vehicles (ELV) Directive). Directive 2002/53/EC (RoHof-Life Vehicles (ELV) Directive). 100.00 7440-21:3 100 100.00 1000.00 0.47 Total (mg) Chip (Mg) 7440-21:3 100.00 <							1			4	
Output TotALS: 100.000 6.300 1,000,000 0.47 Total (mg) Child (mg					0.004		1			100.00	
0.0063 g Total Mass Doped Silicon 7440-21-3 100 semiconductor device and its homogenous materials comply with EU Directive 2020/9/EC (RoHS Directive), EU Directive 2011/65/EU (RoHS Recast Directive) and with pilance with the above EU Directives has been verified via internal design controls, supplier declarations, and /or analytical test data. 0.09 (mg) Total Wire Bond % of Total Weight 1.43 bemical substance is absent from the list above, the chemical substance is NOT an intentional ingredient in the semiconductor device and, to the best of Microchip mology incorporated's knowledge and belief as of the date of this document, there is no credible reason to believe that the unavoidable impurity concentration of the inal substance. 0.09 (mg) Total Wire Bond % of Total Weight 1.43 Indica substance is absent from the list above, the chemical substance world-wide. 0.09 (mg) Total Doped Gold 7440-57-5 100 Indica substance is absent from the list above the threshold of regulatory concern for any regulatory scheme world-wide. Total 100.00 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1.25 1000 1000 1000 1000 1000 1000 1000 1000 10000 10000 10000 10000 10000				100.000	6.300	1,000,000	0.47	Total (mg)	Chip (Die)	% of Total Weight	7.52
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Init compounds used by Microbing meet the US4 VV flammability standard for plastics. You can access the UL IQT M family of databases to obtain a test report at induction/global/eng/pages/offerings/industries/chemicals/plastics/ protective "tubes" in which the specific product is shipped are made from polyvinyl chloride (PVC) plastic. "Window envelopes" used to hold the packing slip on the or box and certain "reels" may be made from PVC plastic. 0.08 (mg) Total Plating on external leads (pins) % of Total Weight 1.25 ochip Technology incorporated believes the information in this form concerning substances restricted by RoHS in Microchip Technology Incorporated of an access the date listed in this form. Microchip Technology Incorporated not guarantee the completeness and accuracy of data in this form because it has been compiled based on the ranges provided by subcontract assemblers. Supplier information is often protected from disclosure as trade secrets and some information may not have been provided by subcontract assemblers. The estimates do not include trace levels of dopants, metals, and non-metal materials contained within silicon devices (silicon IC) in the finished parts. orchip Technology Incorporated does not provide any warranty, express or implied, with respect to the information provided in Microchip's standard terms and conditions of sale. These are result of thus users' reliance on the information in Material Content Declarations. MCD) or independent third party test the Gold Paladium Paladium Paladium Paladium Paladium Paladium Paladiu Paladium	Directive 2002/53/EC (End-of-Life Vehicles (ELV	aterials comply with EU Directive /) Directive).	2002/95/EC (RoHS Directive), EU Directive 2011	·	Recast Directiv	ve) and with	0.09		Total	100.00	
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duct warranties provided by Microchip Technology Incorporated and its subsidiaries are contained in Microchip's standard terms and conditions of sale. These are vided in Microchip's quotations, sales order acknowledgement, and invoices. Palladium 740-05-3 5.00 rochip disclaims any duty to notify users of tupdates or changes to Material Content Declarations and shall not be liable for any damages, direct or indirect, consequential therwise, suffered by users or third parties as a result of the users' reliance on the information in Material Content Declarations (MCD) or independent third party test Gold 740-05-3 5.00	Directive 2002/53/EC (End-of-Life Vehicles (ELV pliance with the above EU Directives has been chemical substance is absent from the list abo nology Incorporated's knowledge and belief a mical substance, if any, is not below the thresh ling compounds used by Microchip meet the U //ul.com/global/eng/pages/offerings/industries protective "tubes" in which the specific produ	aterials comply with EU Directive /) Directive). I verified via internal design cont ve, the chemical substance is NO s of the date of this document, th old of regulatory concern for any IL94 V0 flammability standard for /chemicals/plastics/ ct is shipped are made from poly	2002/95/EC (RoHS Directive), EU Directive 2011 rols, supplier declarations, and /or analytical tes T an intentional ingredient in the semiconducton here is no credible reason to believe that the una regulatory scheme world-wide. plastics. You can access the UL iQTM family of	t data. r device and, to avoidable impur databases to o	o the best of M rity concentrat obtain a test re	icrochip ion of the port at		(mg) Total Doped Gold	Total Wire Bond 7440-57-5 Total Plating on external	100.00 % of Total Weight 100 100.00	1.43
otherwise, suffered by users or third parties as a result of the users' reliance on the information in Material Content Declarations (MCD) or independent third party test Gold 7440-57-5 5.00	Directive 2002/53/EC (End-of-Life Vehicles (ELV ppliance with the above EU Directives has been shemical substance is absent from the list abor nology Incorporated's knowledge and belief a mical substance, if any, is not below the thresh ling compounds used by Microchip meet the U //ul.com/global/eng/pages/offerings/industries protective "tubes" in which the specific produ r box and certain "reels" may be made from P' ochip Technology Incorporated believes the in ces in their original packing materials is true an ot guarantee the completeness and accuracy material suppliers. Information is provided	aterials comply with EU Directive /) Directive). I verified via internal design cont ve, the chemical substance is NO s of the date of this document, it lold of regulatory concern for any IL94 V0 flammability standard for /chemicals/plastics/ ct is shipped are made from poly VC plastic. iformation in this form concernin nd correct to the best of its know of data in this form because it ha n protected from disclosure as tr lonly as estimates of the average	2002/95/EC (RoHS Directive), EU Directive 2011 rols, supplier declarations, and /or analytical tes IT an intentional ingredient in the semiconducto rere is no credible reason to believe that the una regulatory scheme world-wide. plastics. You can access the UL iQTM family of vinyl chloride (PVC) plastic. "Window envelopes g substances restricted by RoHS in Microchip Tr ledge and belief, as of the date listed in this forr is been compiled based on the ranges provided ade secrets and some information may not have eveight of these parts and the average weight of	t data. r device and, to avoidable impur databases to o " used to hold echnology Inco n. Microchip Te in Material Safe e been provideo f anticipated si	the best of M rity concentrat bbtain a test rej the packing sl prporated's sei achnology Inco ety Data Sheet d by subcontra ignificant toxic	icrochip ion of the port at ip on the niconductor orporated s provided by ict assemblers metals	0.08	(mg) Total Doped Gold (mg) Total	Total Wire Bond 7440-57-5 Total Plating on external leads (pins)	100.00 % of Total Weight 100 100.00 % of Total Weight	1.43
	Directive 2002/53/EC (End-of-Life Vehicles (ELV ppliance with the above EU Directives has been shemical substance is absent from the list abo- nology Incorporated's knowledge and belief a nical substance, if any, is not below the thresh ling compounds used by Microchip meet the U J/Jul.com/global/eng/pages/offerings/industries protective "tubes" in which the specific produ r box and certain "reels" may be made from P' ochip Technology Incorporated believes the in ces in their original packing materials is true a not guarantee the completeness and accuracy material suppliers. Supplier information is ofter raw material suppliers. Information is provided ponents. These estimates do not include trace ochip Technology Incorporated does not provi luct warranties provided by Microchip Technol	aterials comply with EU Directive /) Directive). a verified via internal design cont ve, the chemical substance is NC s of the date of this document, th iold of regulatory concern for any IL94 V0 flammability standard for /chemicals/plastics/ ct is shipped are made from poly VC plastic. iformation in this form concernin nd correct to the best of its know of data in this form because it ha n protected from disclosure as tr I only as estimates of the average levels of dopants, metals, and n ide any warranty, express or imp ogy Incorporated and its subsidi	2002/95/EC (RoHS Directive), EU Directive 2011 rols, supplier declarations, and /or analytical tes iT an intentional ingredient in the semiconducto iere is no credible reason to believe that the una / regulatory scheme world-wide. plastics. You can access the UL iQTM family of vinyl chloride (PVC) plastic. "Window envelopes g substances restricted by RoHS in Microchip Tr ledge and belief, as of the date listed in this forr is been compiled based on the ranges provided ade secrets and some information may not have e weight of these parts and the average weight o on-metal materials contained within silicon devic lied, with respect to the information provided in	t data. r device and, to voidable impur databases to o " used to hold echnology Inco n. Microchip Te in Material Saft been provided f anticipated si ces (silicon IC) this declaration	o the best of M rity concentrat obtain a test rep the packing sl porporated's ser schnology Inco ety Data Sheet d by subcontra ignificant toxic in the finished n. The exclusiv	icrochip ion of the port at ip on the miconductor prporated s provided by ict assemblers metals parts. re, limited	0.08	(mg) Total Doped Gold (mg) Total Nickel	Total Wire Bond 7440-57-5 Total Plating on external leads (pins) 7440-02-0	100.00 % of Total Weight 100 100.00 % of Total Weight 90.00	1.43
	Directive 2002/53/EC (End-of-Life Vehicles (ELV apliance with the above EU Directives has been shemical substance is absent from the list abor nology Incorporated's knowledge and belief a mical substance, if any, is not below the thresh ling compounds used by Microchip meet the U s//ul.com/global/eng/pages/offerings/industries protective "tubes" in which the specific produ r box and certain "reels" may be made from P' ochip Technology Incorporated believes the in ces in their original packing materials is true an tot guarantee the completeness and accuracy material suppliers. Supplier information is ofte raw material suppliers. Supplier information is provided ponents. These estimates do not include trace ochip Technology Incorporated does not provided ponents. These of your and the strue and ind guarantee the completeness and accuracy material suppliers. Supplier information is ofte raw material suppliers. Supplier information is ofte raw material suppliers. Supplier information is provided ponents. These ofte does not provided ponents and yout the totify users of a con- ticed in Microchip's quotations, sales order act ochip disclaims any duty to notify users of up therwise, suffered by users or third parties as a	aterials comply with EU Directive /) Directive). a verified via internal design cont ve, the chemical substance is NO s of the date of this document, the iold of regulatory concern for any IL94 V0 flammability standard for /chemicals/plastics/ ct is shipped are made from poly VC plastic. formation in this form concernin nd correct to the best of its know of data in this form because it has n protected from disclosure as the lonly as estimates of the average levels of dopants, metals, and n ide any warranty, express or imp ogy Incorporated, and its subsidi knowledgement, and invoices. lates or changes to Material Coma a result of the users' reliance on	2002/95/EC (RoHS Directive), EU Directive 2011 rols, supplier declarations, and /or analytical tes in an intentional ingredient in the semiconductor rere is no credible reason to believe that the una regulatory scheme world-wide. plastics. You can access the UL iQTM family of vinyl chloride (PVC) plastic. "Window envelopes g substances restricted by RoHS in Microchip Tr ledge and belief, as of the date listed in this forr is been compiled based on the ranges provided ade secrets and some information may not have a weight of these parts and the average weight o on-metal materials contained within silicon device lied, with respect to the information provided in aries are contained in Microchip's standard term tent Declarations and shall not be liable for any	t data. r device and, to voidable impur databases to o " used to hold echnology Inco n. Microchip Taf been provideo of anticipated si ces (silicon IC) this declaration and conditio damages, direc	b the best of M rity concentrat obtain a test rej the packing sl achnology ince ety Data Shar ginificant toxic in the finished h. The exclusiv ns of sale. The ct or indirect, c	icrochip ion of the port at ip on the niconductor orporated s provided by ict assemblers metals parts. e, limited use are onsequential	0.08	(mg) Total Doped Gold (mg) Total Nickel Palladium	Total Wire Bond 7440-57-5 Total Plating on external leads (pins) 7440-02-0 7440-05-3	100.00 % of Total Weight 100 100.00 % of Total Weight 90.00 5.00	1.43

AICROCHIP Semiconductor Device Typ	e: LT 06 (Lead) SC-70) (R5)	-	ation Base A oper Alloy (C				nogeneous Materials: e.g. pc boards, displa		JEDEC 97 Product Markin and/or Pkg. Labeling e3
		"Contained In"	% Total		1	2.79	(mg) Total	Mold Compound	% ot Total Weight	42.97
Basic Substance	CAS Number	Sub-Component	Weight	mg/part	ppm	2.79	(mg) i otai	Mola Compouna	% of Total Weight	42.97
Silica, vitreous	60676-86-0	Mold Compound	36.525	2.374	365,245		Silica, vitreous	60676-86-0	85.00	
Epoxy Resin (No bromine, No diantimony trioxide)	Trade Secret	Mold Compound	2.632	0.171	26,319		Epoxy Resin	Trade Secret	6.13	
Phenolic Resin (No Br / CL SbO3, No diantimony trioxide)	Trade Secret	Mold Compound	2.632	0.171	26,319		Phenolic Resin	Trade Secret	6.13	
Epoxy, Cresol Novolac	29690-82-2	Mold Compound	1.053	0.068	10,528		Epoxy, Cresol Novolac	29690-82-2	2.45	
Carbon Black	1333-86-4	Mold Compound	0.129	0.008	1,289		Carbon Black	1333-86-4	0.30	
Copper	7440-50-8	Lead Frame	7.079	0.460	70,793			Total	100.00	
Iron	7439-89-6	Lead Frame	0.174	0.011	1,741	0.48	(mg) Total	Lead Frame	% of Total Weight	7.41
Silver	7440-22-4	Lead Frame	0.141	0.009	1,412		Copper	7440-50-8	95.54	
Zinc	7440-66-6	Lead Frame	0.009	0.001	93		Iron	7439-89-6	2.35	
Phosphorous	7723-14-0	Lead Frame	0.006	0.000	61		Silver	7440-22-4	1.91	
Aluminum oxide	1344-28-1	Die Attach	0.424	0.028	4,236		Zinc	7440-66-6	0.13	
Epoxy resin	Trade Secret	Die Attach	0.770	0.050	7,702		Phosphorous	7723-14-0	0.08	
Amine (Trade Secret - 10039)	(Trade Secret - 1	Die Attach	0.046	0.003	463			Total	100.00	-
Silicon	7440-21-3	Chip (Die)	1.860	0.121	18,600	0.08	(mg) Total	Die Attach	% of Total Weight	1.24
Gold	7440-57-5	Wire Bond	0.210	0.014	2,100		Aluminum oxide	1344-28-1	34	
Tin	7440-31-5 Plating or	n external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	46.310	3.010	463,100	1	Epoxy resin	Trade Secret	62	
		TOTALS:	100.000	6.500	1,000,000		Amine	Trade Secret	4	
	0.0065 a Tot	al Mass						Total	100.00	
			RoHS Recast D	virective) and	with EU	0.12	Total (mg)	Chip (Die)	% of Total Weight	1.86
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). pliance with the above EU Directives has been verified via int themical substance is absent from the list above, the chemica	with EU Directive 2002/95/I ernal design controls, supp I substance is NOT an inter	EC (RoHS Directive), EU Directive 2011/65/EU (lier declarations, and /or analytical test data. ntional ingredient in the semiconductor device	and, to the bes	t of Microchip	Technology		Total (mg) Doped Silicon		100	
tive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). pliance with the above EU Directives has been verified via int hemical substance is absent from the list above, the chemica porated's knowledge and belief as of the date of this docume is not below the threshold of regulatory concern for any regu- ing compounds used by Microchip meet the UL94 V0 flamma //ul.com/global/eng/pages/offerings/industries/chemicals/plas protective "tubes" in which the specific product is shipped an	with EU Directive 2002/95/I ernal design controls, supp I substance is NOT an inter Int, there is no credible reas latory scheme world-wide. bility standard for plastics. titcs/	EC (RoHS Directive), EU Directive 2011/65/EU (lier declarations, and /or analytical test data. titional ingredient in the semiconductor device son to believe that the unavoidable impurity co You can access the UL iQTM family of databas	and, to the bes ncentration of es to obtain a t	t of Microchip the chemical s est report at) Technology substance, if			Chip (Die) 7440-21-3	100	
semiconductor device and its homogenous materials comply ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). pliance with the above EU Directives has been verified via int hemical substance is absent from the list above, the chemica rporated's knowledge and belief as of the date of this docume is not below the threshold of regulatory concern for any regu- ling compounds used by Microchip meet the UL94 V0 flamma //ul.com/global/eng/pages/offerings/industries/chemicals/plas protective "tubes" in which the specific product is shipped and certain "reels" may be made from PVC plastic. ochip Technology Incorporated believes the information in the eir original packing materials is true and correct to the best o completeness and accuracy of data in this form because it has blier information is often protected from disclosure as trade s	with EU Directive 2002/95/I ernal design controls, supp I substance is NOT an inter int, there is no credible reaz latory scheme world-wide. bility standard for plastics. tits/ e made from polyvinyl chlo is form concerning substan is towledge and belief, a s been compiled based on t	EC (RoHS Directive), EU Directive 2011/65/EU (lier declarations, and /or analytical test data. ntional ingredient in the semiconductor device son to believe that the unavoidable impurity co You can access the UL iQTM family of databas ride (PVC) plastic. "Window envelopes" used t ces restricted by RoHS in Microchip Technolo as of the date listed in this form. Microchip Tec he ranges provided in Material Safety Data Sh	and, to the bes ncentration of es to obtain a t o hold the pack gy Incorporatet hnology Incorp sets provided b	t of Microchip the chemical s est report at ting slip on the d's semicondu orated canno y raw materia	• Technology substance, if e outer box ictor devices t guarantee l suppliers.	0.01	(mg) Total	Chip (Die) 7440-21-3 Total Wire Bond	100 100.00 % of Total Weight	
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). pliance with the above EU Directives has been verified via int chemical substance is absent from the list above, the chemical prorated's knowledge and belief as of the date of this docume is not below the threshold of regulatory concern for any regu- ling compounds used by Microchip meet the UL94 V0 flamma //ul.com/global/eng/pages/offerings/industries/chemicals/plas protective "tubes" in which the specific product is shipped and certain "reels" may be made from PVC plastic. ochip Technology Incorporated believes the information in the eir original packing materials is true and correct to the best of completeness and accuracy of data in this form because it has the second s	with EU Directive 2002/95/l ernal design controls, supp I substance is NOT an inter nt, there is no credible reas latory scheme world-wide. bility standard for plastics. tics/ e made from polyvinyl chlo is form concerning substan f its knowledge and belief, a s been compiled based on t ecrets and some informatio ' these parts and the average ontained within silicon devi	EC (RoHS Directive), EU Directive 2011/65/EU (lier declarations, and /or analytical test data. ntional ingredient in the semiconductor device son to believe that the unavoidable impurity co You can access the UL iQTM family of databas ride (PVC) plastic. "Window envelopes" used t ces restricted by RoHS in Microchip Technolo as of the date listed in this form. Microchip Tec he ranges provided in Material Safety Data Shi n may not have been provided by subcontract ge weight of anticipated significant toxic metals ces (silicon IC) in the finished parts.	and, to the bes ncentration of es to obtain a t o hold the pack gy incorporate hnology incorp eets provided b assemblers an s components.	t of Microchip the chemical s est report at ting slip on the orated canno y raw materia d raw materia These estimat	D Technology substance, if e outer box ictor devices t guarantee l suppliers. I suppliers. tes do not	0.01	(mg) Total	Chip (Die) 7440-21-3 Total Wire Bond 7440-57-5 Total	100 100.00 % of Total Weight 100	
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). pliance with the above EU Directives has been verified via int chemical substance is absent from the list above, the chemical prorated's knowledge and belief as of the date of this docume is not below the threshold of regulatory concern for any regu- ling compounds used by Microchip meet the UL94 V0 flamma //ul.com/global/eng/pages/offerings/industries/chemicals/plas protective "tubes" in which the specific product is shipped and certain "reels" may be made from PVC plastic. ochip Technology Incorporated believes the information in the eir original packing materials is true and correct to the best of completeness and accuracy of data in this form because it hand plier information is often protected from disclosure as trades is mation is provided only as estimates of the average weight of ide trace levels of dopants, metals, and non-metal materials of cochip Technology Incorporated does not provide any warrant anties provided by Microchip Technology Incorporated and it ochip's quotations, sales order acknowledgement, and invoice	with EU Directive 2002/95/l ernal design controls, supp I substance is NOT an inter ent, there is no credible reas- latory scheme world-wide. bility standard for plastics. tits/ e made from polyvinyl chlo is form concerning substan is form concerning substan is sheen compiled based on t ecrets and some informatio these parts and the averag ontained within silicon devi y, express or implied, with is s subsidiaries are contained es.	EC (RoHS Directive), EU Directive 2011/65/EU (lier declarations, and /or analytical test data. ntional ingredient in the semiconductor device son to believe that the unavoidable impurity co You can access the UL iQTM family of databas ride (PVC) plastic. "Window envelopes" used t ces restricted by RoHS in Microchip Technolo as of the date listed in this form. Microchip Tec he ranges provided in Material Safety Data Sh n may not have been provided by subcontract ge weight of anticipated significant toxic metals ces (silicon IC) in the finished parts. respect to the information provided in this deci d in Microchip's standard terms and conditions	and, to the bes ncentration of es to obtain a t o hold the pack gy Incorporate hnology Incorp ests provided b assemblers an s components. laration. The ex s of sale. These	t of Microchip the chemical s est report at ting slip on the d's semicondu d's semicondu d's semicondu d'aw materia d raw materia These estimat clusive, limite are provided	e outer box actor devices I suppliers. I suppliers. I suppliers. I suppliers. tes do not ed product in	0.01	(mg) Total	Chip (Die) 7440-21-3 Total Wire Bond 7440-57-5 Total	100 100.00 % of Total Weight 100	
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). pliance with the above EU Directives has been verified via int chemical substance is absent from the list above, the chemical is not below the threshold of regulatory concern for any regu- ling compounds used by Microchip meet the UL94 V0 flamma //ul.com/global/eng/pages/offerings/industries/chemicals/plas protective "tubes" in which the specific product is shipped and certain "reels" may be made from PVC plastic. ochip Technology Incorporated believes the information in the eir original packing materials is true and correct to the best of completeness and accuracy of data in this form because it has polier information is often protected from disclosure as trade s mation is provided only as estimates of the average weight of de trace levels of dopants, metals, and non-metal materials of cochip Technology Incorporated does not provide any warrand anties provided by Microchip Technology Incorporated and it	with EU Directive 2002/95// ernal design controls, supp I substance is NOT an inter int, there is no credible reas latory scheme world-wide. bility standard for plastics. tics/ e made from polyvinyl chlo is form concerning substan f its knowledge and belief, a s been compiled based on t ecrets and some informatio i these parts and the averag ontained within silicon devi y, express or implied, with i s subsidiaries are contained es.	EC (RoHS Directive), EU Directive 2011/65/EU (lier declarations, and /or analytical test data. ntional ingredient in the semiconductor device son to believe that the unavoidable impurity co You can access the UL iQTM family of databas ride (PVC) plastic. "Window envelopes" used t ces restricted by RoHS in Microchip Technolo as of the date listed in this form. Microchip Tec he ranges provided in Material Safety Data Sh n may not have been provided by subcontract ge weight of anticipated significant toxic metals ces (silicon IC) in the finished parts. respect to the information provided in this deci d in Microchip's standard terms and conditions rations and shall not be liable for any damage:	and, to the bes ncentration of es to obtain a t o hold the pack gy Incorporated hnology Incorp ests provided b assemblers an s components. laration. The ex s of sale. These s, direct or indii	t of Microchip the chemical s est report at king slip on the dras semicondu orated canno y raw materia d raw materia d raw materia these estimat clusive, limite are provided rect, consequi	e outer box e outer box t guarantee I suppliers. I suppliers. I suppliers tes do not d product in	0.01	(mg) Total	Chip (Die) 7440-21-3 Total Wire Bond 7440-57-5 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for	100 100.00 % of Total Weight 100 100.00	0.21

				nation Base opper Alloy (geneous Materials: I. pc boards, displays	•)	JEDEC 97 Product Markin and/or Pkg. Labeling e3
Semiconductor Device Typ	e: 33 20 (Lead)	"Contained In"	% I otal	T	-					65
Basic Substance	CAS Number	Sub-Component	Weight	mg/part	ppm	131.03	(mg) Total	Mold Compound	% ot Total Weight	7 9.8
Silica, vitreous	60676-86-0	Mold Compound	69.354	113.880	693,542		Silica, vitreous	60676-86-0	86.91	1
Epoxy Resin (No bromine, No diantimony trioxide)	Trade Secret	Mold Compound	6.121	10.050	61,207		Epoxy Resin	Trade Secret	7.67	
Phenolic Resin (No Br / CL SbO3, No diantimony trioxide)	Trade Secret	Mold Compound	4.078	6.696	40,778		Phenolic Resin	Trade Secret	5.11	
Carbon Black	1333-86-4	Mold Compound	0.247	0.406	2,474		Carbon Black	1333-86-4	0.31	
Copper	7440-50-8	Lead Frame	10.031	16.472	100,314			Total		
Iron	7439-89-6	Lead Frame	0.247	0.405	2,468	17.24	(mg) Total	Lead Frame	% of Total Weight	10.5
Silver	7440-22-4	Lead Frame	0.200	0.328	2,000		Copper	7440-50-8	95.54	
Zinc	7440-66-6	Lead Frame	0.013	0.022	131		Iron	7439-89-6	2.35	
Phosphorous	7723-14-0	Lead Frame	0.009	0.014	87 5.625		Silver	7440-22-4	1.91 0.13	
Silver (Ag) Modified Epoxy Resin	7440-22-4 13561-08-5	Die Attach Die Attach	0.563	0.924	1,050		Zinc Phosphorous	7440-66-6 7723-14-0	0.13	
Diglycidylether of bisphenol-F	54208-63-8	Die Attach	0.056	0.092	563		Filospiloious	Total		1
Modified Amine	827-43-0	Die Attach	0.036	0.043	263	1.23	(mg) Total	Die Attach	% of Total Weight	
Silicon	7440-21-3	Chip (Die)	7.500	12.315	75,000	1.23		7440-22-4	75.00	0.75
Doped Gold	7440-21-3	Wire Bond	0.200	0.328	2.000		Silver (Ag) Modified Epoxy Resin	13561-08-5	14.00	
Tin	7440-37-5	Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	1.250	2.053	12,500		Diglycidylether of bisphenol-F	54208-63-8	7.50	
100	1440 01 0	TOTALS:	100.000	164.200	1.000.000		Modified Amine	827-43-0	3.50	
	0 16/2	g Total Mass			.,,		Wodined Amine	Total		4
cctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). npliance with the above EU Directives has been verified via int chemical substance is absent from the list above, the chemica hnology Incorporated's knowledge and belief as of the date of	I substance is NOT a	n intentional ingredient in the semiconductor device a					Doped Silicon	7440-21-3 Total	100 100.00]
mical substance, if any, is not below the threshold of regulator lding compounds used by Microchip meet the UL94 VO flamma s://ul.com/global/eng/pages/offerings/industries/chemicals/plas e protective "tubes" in which the specific product is shipped ar	y concern for any re- bility standard for pla tics/	gulatory scheme world-wide. astics. You can access the UL iQTM family of database	es to obtain a	a test report a	t	0.33	(mg) Total	Wire Bond	% of Total Weight	i 0.2
x and certain "reels" may be made from PVC plastic.	e made nom polyvin	yr chloride (FVC) plastic. Whitdow envelopes used to	noiu tile pa	cking silp on	the outer		Doped Gold	7440-57-5	100.00	
crochip Technology Incorporated believes the information in th vices in their original packing materials is true and correct to th arantee the completeness and accuracy of data in this form bec ppliers. Supplier information is often protected from disclosure ppliers. Information is provided only as estimates of the averag timates do not include trace levels of dopants, metals, and non-	e best of its knowled ause it has been con as trade secrets and e weight of these par	ge and belief, as of the date listed in this form. Microc piled based on the ranges provided in Material Safety some information may not have been provided by sul ts and the average weight of anticipated significant to	hip Technolo Data Sheets bcontract as xic metals co	ogy Incorpora s provided by semblers and	ted cannot raw material raw material			Total	100.00	
crochip Technology Incorporated does not provide any warrant nranties provided by Microchip Technology Incorporated and it crochip's quotations, sales order acknowledgement, and invoic	s subsidiaries are co					2.05	(mg) Total	Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	% of Total Weight	1.25
	e to Material Conten	t Declarations and shall not be liable for any damages.	, direct or inc	direct, conseq						1
rochip disclaims any duty to notify users of updates or change erwise, suffered by users or third parties as a result of the user S) or of this Certificate of Compliance for semiconductor prod	s' reliance on the inf		dependent ti	hird party test	reports		Tin	7440-31-5	100.00	
erwise, suffered by users or third parties as a result of the user	s' reliance on the inf		dependent tl	hird party test	reports		Tin	7440-31-5 Total		ļ

SS 20 SSOP

Semiconductor Device Type	e: SS 24 (Lead) S	SSOP .209" (J2 / JH)		nation Base A pper Alloy (C				ogeneous Materials: g. pc boards, display	rs)	JEDEC 97 Product Markir and/or Pkg. Labeling e3
Basic Substance	CAS Number	"Contained In" Sub-Component	% Total Weight	malaart		121.55	(mg) Total	Mold Compound	% ot Total Weight	65.17
Basic Substance	CAS Number	Sub-Component	weight	mg/part	ppm					1
Silica, vitreous	60676-86-0	Mold Compound	55.395	103.316	553,945		Silica, vitreous	60676-86-0	85.00	
Epoxy Resin (No bromine, No diantimony trioxide)	Trade Secret	Mold Compound	3.992	7.445	39,917		Epoxy Resin	Trade Secret	6.13	
Phenolic Resin (No Br / CL SbO3, No diantimony trioxide)	Trade Secret	Mold Compound	3.992	7.445	39,917		Phenolic Resin	Trade Secret	6.13	
Epoxy, Cresol Novolac	29690-82-2	Mold Compound	1.597	2.978	15,967		Epoxy, Cresol Novolac	29690-82-2	2.45	
Carbon Black	1333-86-4	Mold Compound	0.196	0.365	1,955		Carbon Black	1333-86-4	0.30	J
Copper	7440-50-8	Lead Frame	28.222	52.636	282,218			Total		
Iron	7439-89-6	Lead Frame	0.694	1.295	6,942	55.10	(mg) Total	Lead Frame	% of Total Weight	29.54
Silver	7440-22-4	Lead Frame	0.563	1.050	5,627		Copper	7440-50-8	95.54	
Zinc	7440-66-6	Lead Frame	0.037	0.069	369		Iron	7439-89-6	2.35	
Phosphorous	7723-14-0	Lead Frame	0.024	0.045	244		Silver	7440-22-4	1.91	
Silver	7440-22-4	Die Attach	0.622	1.159	6,216		Zinc	7440-66-6	0.13	
Epoxy resin	Trade Secret	Die Attach	0.168	0.313	1,680		Phosphorous	7723-14-0	0.08	
Metal oxide	Trade Secret	Die Attach	0.025	0.047	252		-	Total	100.00	•
Gamma-butyrolactone	96-48-0	Die Attach	0.025	0.047	252	1.57	(mg) Total	Die Attach	% of Total Weight	0.84
Silicon	7440-21-3	Chip (Die)	2.490	4.644	24,900		Silver	7440-22-4	74	
Gold	7440-57-5	Wire Bond	0.250	0.466	2,500		Epoxy resin	Trade Secret	20	
Tin		Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	1.710	3.189	17,100		Metal oxide	Trade Secret	3	
		TOTALS:	100.000	186.510	1.000.000		Gamma-butyrolactone	96-48-0	3	
			100.000							
	, i i i i i i i i i i i i i i i i i i i	Total Mass			nd with EU	4.64	Total (mg)	Total Chip (Die)	100.00 % of Total Weight	
semiconductor device and its homogenous materials comply ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). pliance with the above EU Directives has been verified via int	with EU Directive 200 ernal design controls,	Total Mass 2/95/EC (RoHS Directive), EU Directive 2011/65/EU supplier declarations, and /or analytical test data	J (RoHS Recas	st Directive) ar		4.64	<u>, </u>	Total Chip (Die) 7440-21-3	100.00 % of Total Weight 100	2.49
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive).	with EU Directive 200 ernal design controls, I substance is NOT an this document, there	Total Mass 2/95/EC (RoHS Directive), EU Directive 2011/65/EU supplier declarations, and /or analytical test data intentional ingredient in the semiconductor devic is no credible reason to believe that the unavoida	J (RoHS Recas .ce and, to the b	st Directive) an	hip	4.64	Total (mg)	Total Chip (Die)	100.00 % of Total Weight 100	2.49
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). pliance with the above EU Directives has been verified via int chemical substance is absent from the list above, the chemica anology Incorporated's knowledge and belief as of the date of	with EU Directive 200 ernal design controls, I substance is NOT an this document, there y concern for any reg bility standard for plas	Total Mass 2/95/EC (RoHS Directive), EU Directive 2011/65/EI supplier declarations, and /or analytical test data intentional ingredient in the semiconductor devic is no credible reason to believe that the unavoida ulatory scheme world-wide.	J (RoHS Recas	at Directive) an poest of Microcl oncentration o	hip f the	4.64	Total (mg)	Total Chip (Die) 7440-21-3	100.00 % of Total Weight 100	2.49
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). pliance with the above EU Directives has been verified via int chemical substance is absent from the list above, the chemica nology Incorporated's knowledge and belief as of the date of nical substance, if any, is not below the threshold of regulator ling compounds used by Microchip meet the UL94 V0 flamma	with EU Directive 200 ernal design controls, I substance is NOT an this document, there y concern for any reg billity standard for plas tics/	Total Mass 2/95/EC (RoHS Directive), EU Directive 2011/65/EU supplier declarations, and /or analytical test data intentional ingredient in the semiconductor devic is no credible reason to believe that the unavoida ulatory scheme world-wide. stics. You can access the UL iQTM family of datab	J (RoHS Recas	st Directive) an best of Microcol oncentration o a test report a	hip f the at		Total (mg) Doped Silicon	Total Chip (Die) 7440-21-3 Total Wire Bond 7440-57-5	100.00 % of Total Weight 100 100.00 % of Total Weight 100	0.25
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). upliance with the above EU Directives has been verified via inter- themical substance is absent from the list above, the chemical nology Incorporated's knowledge and belief as of the date of nical substance, if any, is not below the threshold of regulator ling compounds used by Microchip meet the UL94 V0 flammal //ul.com/global/eng/pages/offerings/industries/chemicals/plas protective "tubes" in which the specific product is shipped ar	with EU Directive 200 ernal design controls, I substance is NOT an this document, there y concern for any reg bility standard for plas tics/ e made from polyvinyl is form concerning su e best of its knowledg ause it has been com sclosure as trade secr of the average weight c	Total Mass 2/95/EC (RoHS Directive), EU Directive 2011/65/EU supplier declarations, and /or analytical test data intentional ingredient in the semiconductor devic is no credible reason to believe that the unavoida ulatory scheme world-wide. stics. You can access the UL iQTM family of datab I chloride (PVC) plastic. "Window envelopes" user bstances restricted by RoHS in Microchip Techno te and belief, as of the date listed in this form. Mic piled based on the ranges provided in Material Sa rets and some information may not have been pro of these parts and the average weight of anticipat	J (RoHS Recas	est Directive) an best of Microcol actest report a acking slip on acted's semicor logy Incorpora ontract assem intract assem toxic metals cr	hip f the at the outer nductor ated cannot y raw blers and		Total (mg) Doped Silicon (mg) Total	Total Chip (Die) 7440-21-3 Total Wire Bond 7440-57-5 Total	100.00 % of Total Weight 100 100.00 % of Total Weight	2.49 0.25
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). upliance with the above EU Directives has been verified via inter- themical substance is absent from the list above, the chemical nology Incorporated's knowledge and belief as of the date of nical substance, if any, is not below the threshold of regulatou ling compounds used by Microchip meet the UL94 V0 flammal //ul.com/global/eng/pages/offerings/industries/chemicals/plas protective "tubes" in which the specific product is shipped ar and certain "reels" may be made from PVC plastic. ochip Technology Incorporated believes the information in th ces in their original packing materials is true and correct to the antee the completeness and accuracy of data in this form ber- orial suppliers. Supplier information is provided only as estimates of the set of the s	with EU Directive 200 ernal design controls, I substance is NOT an this document, there y concern for any reg bility standard for plas tics/ e made from polyviny/ is form concerning su e best of its knowledg ause it has been com sclosure as trade secr of the average weight id non-metal materials y, express or implied, s subsidiaries are con	Total Mass 2/95/EC (RoHS Directive), EU Directive 2011/65/EU supplier declarations, and /or analytical test data in intentional ingredient in the semiconductor devic is no credible reason to believe that the unavoida ulatory scheme world-wide. stics. You can access the UL iQTM family of datab I chloride (PVC) plastic. "Window envelopes" used bstances restricted by RoHS in Microchip Techno je and belief, as of the date listed in this form. Mic piled based on the ranges provided in Material Sa ets and some information may not have been pro of these parts and the average weight of anticipat is contained within silicon devices (silicon IC) in the with respect to the information provided in this de	J (RoHS Recas	est Directive) ar best of Microci oncentration o a test report a acking slip on logy Incorpor- ets provided b ontract assem toxic metals co s.	hip f the at the outer ated cannot y raw blers and omponents.		Total (mg) Doped Silicon (mg) Total	Total Chip (Die) 7440-21-3 Total Wire Bond 7440-57-5	100.00 % of Total Weight 100 100.00 % of Total Weight 100	0.25
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). upliance with the above EU Directives has been verified via inter- themical substance is absent from the list above, the chemical nology Incorporated's knowledge and belief as of the date of mical substance, if any, is not below the threshold of regulatoo ling compounds used by Microchip meet the UL94 V0 flammal //ul.com/global/eng/pages/offerings/industries/chemicals/plass protective "tubes" in which the specific product is shipped ar and certain "reels" may be made from PVC plastic. ochip Technology Incorporated believes the information in the ces in their original packing materials is true and correct to the material suppliers. Supplier information is often protected from dire are estimates do not include trace levels of dopants, metals, ar ochip Technology Incorporated does not provide any warrant anties provided by Microchip Technology Incorporated and it	with EU Directive 200 ernal design controls, I substance is NOT an this document, there y concern for any reg bility standard for plas tics/ e made from polyvinyl is form concerning su e best of its knowledg ause it has been com sclosure as trade secr of the average weight i d non-metal materials y, express or implied, s subsidiaries are con es.	Total Mass 2/95/EC (RoHS Directive), EU Directive 2011/65/EU supplier declarations, and /or analytical test data i intentional ingredient in the semiconductor devic is no credible reason to believe that the unavoida ulatory scheme world-wide. tics. You can access the UL iQTM family of datab I chloride (PVC) plastic. "Window envelopes" user bstances restricted by RoHS in Microchip Techno te and belief, as of the date listed in this form. Mic piled based on the ranges provided in Material Sa rets and some information may not have been pro of these parts and the average weight of anticipat contained within silicon devices (silicon IC) in the with respect to the information provided in this da tained in Microchip's standard terms and condition Declarations and shall not be liable for any damage	J (RoHS Recas	est Directive) ar best of Microcol ancentration o a test report a acking slip on ted's semicor logy Incorpora- tes provided b boxic metals co- s. exclusive, lim see are provid	hip f the at the outer ated cannot y raw blers and omponents. hited product ed in quential or	0.47	Total (mg) Doped Silicon (mg) Total Doped Gold	Total Chip (Die) 7440-21-3 Total Wire Bond 7440-57-5 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for	100.00 % of Total Weight 100 % of Total Weight 100 100.00	2.49

	2: SS and SI 29	(1 and 1 SSOP 200" (112 (115)		nation Base / pper Alloy (C			•	ogeneous Materials: .g. pc boards, displa		JEDEC 97 Product Markin and/or Pkg. Labeling e3
Semiconductor Device Type	e. 33 and 31 20	(Lead) SSOF .209 (N2/ND) "Contained In"	% Total	1	1					es
Basic Substance	CAS Number	Sub-Component	Weight	mg/part	ppm	182.90	(mg) Total	Mold Compound	% ot Total Weight	79.8
Silica, vitreous	60676-86-0	Mold Compound	67.830	155,466	678.300		Silica, vitreous	60676-86-0	85.00	1
Epoxy Resin (No bromine, No diantimony trioxide)	Trade Secret	Mold Compound	4,888	11.203	48.878		Epoxy Resin	Trade Secret	6.13	
Phenolic Resin (No Br / CL SbO3, No diantimony trioxide)	Trade Secret	Mold Compound	4.888	11.203	48,878		Phenolic Resin	Trade Secret	6.13	
Epoxy, Cresol Novolac	29690-82-2	Mold Compound	1.955	4.481	19,551		Epoxy, Cresol Novolac	29690-82-2	2.45	
Carbon Black	1333-86-4	Mold Compound	0.239	0.549	2,394		Carbon Black	1333-86-4	0.30	
Copper	7440-50-8	Lead Frame	10.031	22.992	100,314			Total	100.00	
Iron	7439-89-6	Lead Frame	0.247	0.566	2,468	24.07	(mg) Total	Lead Frame	% of Total Weight	10.5
Silver	7440-22-4	Lead Frame	0.200	0.458	2,000		Copper	7440-50-8	95.54	
Zinc	7440-66-6	Lead Frame	0.013	0.030	131		Iron	7439-89-6	2.35	
Phosphorous	7723-14-0	Lead Frame	0.009	0.020	87		Silver	7440-22-4	1.91	
Silver (Ag)	7440-22-4	Die Attach	0.563	1.289	5,625		Zinc	7440-66-6	0.13	
Modified Epoxy Resin	13561-08-5	Die Attach	0.105	0.241	1,050		Phosphorous	7723-14-0	0.08	
Diglycidylether of bisphenol-F	54208-63-8	Die Attach	0.056	0.129	563			Total		
Modified Amine	827-43-0	Die Attach	0.026	0.060	263	1.72	(mg) Total	Die Attach	% of Total Weight	0.75
Silicon	7440-21-3	Chip (Die)	7.500	17.190	75,000		Silver (Ag)	7440-22-4	75	
Gold	7440-57-5	Wire Bond	0.200	0.458	2,000		Modified Epoxy Resin	13561-08-5	14	
Tin	7440-31-5 F	Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	1.250	2.865	12,500	Dig	lycidylether of bisphenol-F	54208-63-8	8	
		TOTALS:	100.000	229.200	1,000,000		Modified Amine	827-43-0	4	
		Total Mass						Total	100.00	
semiconductor device and its homogenous materials comply	with EU Directive 200	12/05/EC (Rouse Directive) ELL Directive 2011/65/								
ective 2002/53/EC (End-of-Life Vehicles (ELV) Directive).			EU (RoHS Rec	ast Directive)	and with EU	17.19	Total (mg)	Chip (Die)	% of Total Weight	7.5
	ernal design controls		·	ast Directive)	and with EU	17.19	Total (mg) Doped Silicon	Chip (Die)	% of Total Weight	7.5
mpliance with the above EU Directives has been verified via int	U U	, supplier declarations, and /or analytical test da	ta.			17.19			100	7.5
npliance with the above EU Directives has been verified via int chemical substance is absent from the list above, the chemica hnology Incorporated's knowledge and belief as of the date of	I substance is NOT at this document, there	supplier declarations, and /or analytical test dat n intentional ingredient in the semiconductor dev is no credible reason to believe that the unavoic	ta. vice and, to the	e best of Micro	ochip	17.19		7440-21-3	100	7.5
mpliance with the above EU Directives has been verified via int chemical substance is absent from the list above, the chemica chnology Incorporated's knowledge and belief as of the date of emical substance, if any, is not below the threshold of regulator Iding compounds used by Microchip meet the UL94 V0 flamma	I substance is NOT an this document, there ry concern for any reg bility standard for pla	, supplier declarations, and /or analytical test dat n intentional ingredient in the semiconductor dev is no credible reason to believe that the unavoid julatory scheme world-wide.	ta. vice and, to the dable impurity	e best of Micro concentration	ochip of the	0.46		7440-21-3	100	0.2
mpliance with the above EU Directives has been verified via inte chemical substance is absent from the list above, the chemical shology Incorporated's knowledge and belief as of the date of emical substance, if any, is not below the threshold of regulator Iding compounds used by Microchip meet the UL94 V0 flammal p://ul.com/global/eng/pages/offerings/industries/chemicals/plase a protective "tubes" in which the specific product is shipped ar	I substance is NOT a this document, there ry concern for any reg bility standard for pla titcs/	, supplier declarations, and /or analytical test dat n intentional ingredient in the semiconductor der is no credible reason to believe that the unavoid julatory scheme world-wide. stics. You can access the UL iQTM family of data	ta. vice and, to the dable impurity abases to obtai	e best of Micro concentration in a test repor	ochip of the t at		Doped Silicon	7440-21-3 Total Wire Bond 7440-57-5	100 100.00 % of Total Weight 100]
mpliance with the above EU Directives has been verified via inte chemical substance is absent from the list above, the chemical schoology incorporated's knowledge and belief as of the date of emical substance, if any, is not below the threshold of regulator lding compounds used by Microchip meet the UL94 V0 flammal o://ul.com/global/eng/pages/offerings/industries/chemicals/plas a protective "tubes" in which the specific product is shipped ar < and certain "reels" may be made from PVC plastic. crochip Technology Incorporated believes the information in the rices in their original packing materials is true and correct to the not guarantee the completeness and accuracy of data in this for a material suppliers. Information is often protected from a raw material suppliers. Information is provided only as estima	I substance is NOT ai this document, there ry concern for any req bility standard for pla tics/ e made from polyviny is form concerning su e best of its knowledg orm because it has bi m disclosure as trade tes of the average we	supplier declarations, and /or analytical test dat n intentional ingredient in the semiconductor dev is no credible reason to believe that the unavoid julatory scheme world-wide. stics. You can access the UL iQTM family of data n chloride (PVC) plastic. "Window envelopes" us distances restricted by RoHS in Microchip Techr ge and belief, as of the date listed in this form. M sen compiled based on the ranges provided in M secrets and some information may not have bed ight of these parts and the average weight of an	ta. vice and, to the dable impurity abases to obtai sed to hold the nology Incorpo licrochip Techr laterial Safety I en provided by ticipated signil	e best of Micro concentration in a test repor packing slip o prated's semic nology Incorpo Data Sheets p subcontract a ficant toxic me	ochip of the at at on the outer onductor orated rovided by assemblers tals		Doped Silicon (mg) Total	7440-21-3 Total Wire Bond	100 100.00 % of Total Weight]
ective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). mpliance with the above EU Directives has been verified via int chemical substance is absent from the list above, the chemica chnology Incorporated's knowledge and belief as of the date of emical substance, if any, is not below the threshold of regulator lding compounds used by Microchip meet the UL94 V0 flammal p://ul.com/global/eng/pages/offerings/industries/chemicals/plas e protective "tubes" in which the specific product is shipped ar k and certain "reels" may be made from PVC plastic. crochip Technology Incorporated believes the information in the ircices in their original packing materials is true and correct to the not guarantee the completeness and accuracy of data in this f v material suppliers. Information is provided only as estima mponents. These estimates do not include trace levels of dopar errochip Technology Incorporated does not provide any warrant viduct warranties provided by Microchip Technology Incorporated viduct warranties provided by Microchip Technology Incorporated Viduct warranties provided by Microchip Technology Incorporated Vierochip's quotations, sales order acknowledgement, and invol	I substance is NOT all this document, there ry concern for any reg bility standard for pla- tics/ e made from polyviny is form concerning st e best of its knowledg orm because it has b m disclosure as trade tes of the average we nts, metals, and non-r y, express or implied, ed and its subsidiarie	supplier declarations, and /or analytical test dat n intentional ingredient in the semiconductor dev is no credible reason to believe that the unavoid julatory scheme world-wide. stics. You can access the UL iQTM family of data d chloride (PVC) plastic. "Window envelopes" us ubstances restricted by RoHS in Microchip Techr ge and belief, as of the date listed in this form. M een compiled based on the ranges provided in M secrets and some information may not have bee ight of these parts and the average weight of an netal materials contained within silicon devices (with respect to the information provided in this	ta. vice and, to the dable impurity abases to obtai sed to hold the nology Incorpo licrochip Techt laterial Safety iticipated signif (silicon IC) in ti declaration. TI	e best of Micro concentration in a test repor packing slip o rated's semic nology Incorp Data Sheets p subcontract a ficant toxic me he finished pa he exclusive, I	achip of the at at on the outer onductor orated rovided by assemblers otals rts.	0.46	(mg) Total	7440-21-3 Total Wire Bond 7440-57-5	100 100.00 % of Total Weight 100]
npliance with the above EU Directives has been verified via into chemical substance is absent from the list above, the chemical hnology Incorporated's knowledge and belief as of the date of mical substance, if any, is not below the threshold of regulator ding compounds used by Microchip meet the UL94 V0 flammal ://ul.com/global/eng/pages/offerings/industries/chemicals/plas protective "tubes" in which the specific product is shipped ar and certain "reels" may be made from PVC plastic. rochip Technology Incorporated believes the information in thi ices in their original packing materials is true and correct to th not guarantee the completeness and accuracy of data in this f material suppliers. Information is provided only as estima ponents. These estimates do not include trace levels of dopar rochip Technology Incorporated does not provide any warrant duct warranties provided by Microchip Technology Incorporate	I substance is NOT at this document, there ry concern for any reg bility standard for pla tics/ e made from polyviny is form concerning su e best of its knowled orm because it has be m disclosure as trade tes of the average we this, metals, and non-r y, express or implied, ad and its subsidiarie pices.	supplier declarations, and /or analytical test dat n intentional ingredient in the semiconductor dev is no credible reason to believe that the unavoid gulatory scheme world-wide. stics. You can access the UL iQTM family of data of chloride (PVC) plastic. "Window envelopes" us abstances restricted by RoHS in Microchip Techr ge and belief, as of the date listed in this form. M een compiled based on the ranges provided in M secrets and some information may not have bee ight of these parts and the average weight of an netal materials contained within silicon devices (with respect to the information provided in this s are contained in Microchip's standard terms ar Declarations and shall not be liable for any dam	ta. vice and, to the dable impurity abases to obtain sed to hold the nology Incorpo in provided by ticipated signif (silicon IC) in the declaration. The declaration of the ages, direct or	e best of Micro concentration in a test repor packing slip o rated's semic nology Incorpo Data Sheets p subcontract a ficant toxic me he finished pa he exclusive, I of sale. These	or the of the t at on the outer or the outer or the outer or the or the	0.46	(mg) Total	7440-21-3 Total Wire Bond 7440-57-5 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for	100 100.00 % of Total Weight 100 100.00	0.2

Semiconductor Devi	ce Type: WHE 32 TS	SOP \$14mm (W6)		ination Base opper Alloy (•	ogeneous Materials: g. pc boards, display	/s)	JEDEC 97 Product Markir and/or Pkg. Labeling e3
Schliebhädeler Bevi		"Contained In"	% Total	1						
Basic Substance	CAS Number	Sub-Component	Weight	mg/part	ppm	199.26	(mg) Total	Mold Compound	% ot Total Weight	79.8
Silica, vitreous (or fused)	60676-86-0	Mold Compound	67.830	169.372	678.300		Silica, vitreous (or fused)	60676-86-0	85.00	-
Epoxy Resin	Trade Secret	Mold Compound	6.943	17.336	69,426		Epoxy Resin	Trade Secret	8.70	
Phenolic Resin	Trade Secret	Mold Compound	4.788	11.956	47.880		Phenolic Resin	Trade Secret	6.00	
Carbon Black	1333-86-4	Mold Compound	0.239	0.598	2.394		Carbon Black	1333-86-4	0.30	
Copper	7440-50-8	Lead Frame	10.000	24.971	100.003		Carbon Black	Total	0.00	
Nickel	7440-02-0	Lead Frame	0.267	0.666	2.667	26.22	(mg) Total	Lead Frame	% of Total Weight	10.5
Silicon	7440-21-3	Lead Frame	0.047	0.118	473	20.22	Copper	7440-50-8	95.24	
Magnesium	7440-21-3	Lead Frame	0.047	0.026	105		Nickel	7440-02-0	2.54	
Silver	7440-22-4	Lead Frame	0.175	0.438	1.752		Silicon	7440-02-0	0.45	
Silver	7440-22-4	Die Attach	0.600	1.498	6.000		Magnesium	7439-95-4	0.10	
Epoxy Resin	Trade Secret	Die Attach	0.128	0.318	1,275		Silver	7440-22-4	1.67	
Copper	7440-50-8	Die Attach	0.023	0.056	225		Cirtor	Total		
Silicon	7440-21-3	Chip (Die)	7.500	18.728	75,000	1.87	(mg) Total	Die Attach	% of Total Weight	0.75
Doped Gold	7440-57-5	Wire Bond	0.200	0.499	2.000	1.07	Silver	7440-22-4	80.00	0.10
Tin	7440-31-5	Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	1.250	3.121	12,500		Epoxy Resin	Trade Secret	17.00	
101	1440 01 0	TOTALS:		249.700	1.000.000		Copper	7440-50-8	3.00	
	0.0407	g Total Mass	100.000	240.100	1,000,000		ооррег	Total		
npliance with the above EU Directives has been verified	d via internal design controls		and to the h	ant of Minrock	- in	18.73	(mg) Total Silicon	Chip (Die) 7440-21-3 Total	% of Total Weight 100 100.00	7.5
npliance with the above EU Directives has been verified chemical substance is absent from the list above, the o hnology Incorporated's knowledge and belief as of the mical substance, if any, is not below the threshold of re	d via internal design controls chemical substance is NOT a date of this document, there egulatory concern for any re	n intentional ingredient in the semiconductor device is no credible reason to believe that the unavoidable gulatory scheme world-wide.	e impurity con	ncentration of	fthe	18.73	Silicon	7440-21-3	100	7.5
npliance with the above EU Directives has been verified chemical substance is absent from the list above, the o hnology Incorporated's knowledge and belief as of the mical substance, if any, is not below the threshold of ro ding compounds used by Microchip meet the UL94 V0	d via internal design controls chemical substance is NOT a date of this document, there egulatory concern for any re flammability standard for pla	n intentional ingredient in the semiconductor device is no credible reason to believe that the unavoidable gulatory scheme world-wide.	e impurity con	ncentration of	fthe	0.50	-	7440-21-3	100	0.2
ective 2002/53/EC (End-of-Life Vehicles (ELV) Directive) mpliance with the above EU Directives has been verified chemical substance is absent from the list above, the of chnology Incorporated's knowledge and belief as of the emical substance, if any, is not below the threshold of re ilding compounds used by Microchip meet the UL94 V0 p://ul.com/global/eng/pages/offerings/industries/chemic e protective "tubes" in which the specific product is shi x and certain "reels" may be made from PVC plastic.	d via internal design controls chemical substance is NOT a date of this document, there egulatory concern for any re- flammability standard for pla als/plastics/	n intentional ingredient in the semiconductor device is no credible reason to believe that the unavoidable gulatory scheme world-wide. stics. You can access the UL iQTM family of databas	e impurity con es to obtain a	ncentration of a test report a	f the t		Silicon	7440-21-3 Total Wire Bond 7440-57-5	100 100.00 % of Total Weight 100.00	
mpliance with the above EU Directives has been verified a chemical substance is absent from the list above, the chnology Incorporated's knowledge and belief as of the emical substance, if any, is not below the threshold of rr Iding compounds used by Microchip meet the UL94 V0 p://ul.com/global/eng/pages/offerings/industries/chemic e protective "tubes" in which the specific product is shi x and certain "reels" may be made from PVC plastic. crochip Technology Incorporated believes the informatii vices in their original packing materials is true and corre arantee the completeness and accuracy of data in this f terial suppliers. Supplier information is often protected v material suppliers. Information is provided only as esti	d via internal design controls chemical substance is NOT a date of this document, there egulatory concern for any re- flammability standard for pla als/plastics/ pped are made from polyving on in this form concerning si act to the best of its knowled orm because it has been cor from disclosure as trade sec imates of the average weight	n intentional ingredient in the semiconductor device is no credible reason to believe that the unavoidable gulatory scheme world-wide. stics. You can access the UL iQTM family of databas yl chloride (PVC) plastic. "Window envelopes" used t ubstances restricted by RoHS in Microchip Technolog ge and belief, as of the date listed in this form. Micro- npiled based on the ranges provided in Material Safe rets and some information may not have been provic of these parts and the average weight of anticipated	e impurity con es to obtain a o hold the pa gy Incorporat chip Technol ty Data Sheet led by subco significant to	ncentration of a test report a ted's semicon logy Incorpora ts provided by untract assemi oxic metals co	t t the outer ductor ated cannot y raw blers and		Silicon (mg) Total	7440-21-3 Total Wire Bond	100 100.00 % of Total Weight 100.00	
mpliance with the above EU Directives has been verified a chemical substance is absent from the list above, the chnology Incorporated's knowledge and belief as of the emical substance, if any, is not below the threshold of rr Iding compounds used by Microchip meet the UL94 V0 p://ul.com/global/eng/pages/offerings/industries/chemic e protective "tubes" in which the specific product is shi	d via internal design controls chemical substance is NOT a date of this document, there egulatory concern for any re- flammability standard for pla als/plastics/ pped are made from polyving on in this form concerning si sect to the best of its knowled orm because it has been cor from disclosure as trade see imates of the average weight etals, and non-metal material warranty, express or implied d and its subsidiaries are co	n intentional ingredient in the semiconductor device is no credible reason to believe that the unavoidable gulatory scheme world-wide. stics. You can access the UL iQTM family of databas yl chloride (PVC) plastic. "Window envelopes" used t ubstances restricted by RoHS in Microchip Technolog ge and belief, as of the date listed in this form. Micro- npiled based on the ranges provided in Material Safe rets and some information may not have been provic of these parts and the average weight of anticipated s contained within silicon devices (silicon IC) in the f , with respect to the information provided in this decl	e impurity con es to obtain a o hold the pa gy Incorporat chip Technol ty Data Sheet led by subco significant to inished parts aration. The	ncentration of a test report a acking slip on ted's semicon logy Incorpora ts provided by ts provided by to tract assemi oxic metals co s. exclusive, lim	t the outer ductor ted cannot y raw blers and pomponents. ited product		Silicon (mg) Total	7440-21-3 Total Wire Bond 7440-57-5	100 100.00 % of Total Weight 100.00	
mpliance with the above EU Directives has been verified in chemical substance is absent from the list above, the of chnology incorporated's knowledge and belief as of the emical substance, if any, is not below the threshold of re- ilding compounds used by Microchip meet the UL94 V0 p://ul.com/global/eng/pages/offerings/industries/chemic e protective "tubes" in which the specific product is shi x and certain "reels" may be made from PVC plastic. crochip Technology Incorporated believes the informativi vicces in their original packing materials is true and corre arantee the completeness and accuracy of data in this f tetrial suppliers. Supplier information is often protected w material suppliers. Supplier information is often protected see estimates do not include trace levels of dopants, me crochip Technology Incorporated does not provide any rranties provided by Microchip Technology Incorporate	d via internal design controls chemical substance is NOT a date of this document, there egulatory concern for any re- flammability standard for pla als/plastics/ pped are made from polyving on in this form concerning si act to the best of its knowled orm because it has been cor from disclosure as trade sec imates of the average weight etals, and non-metal material warranty, express or implied d and its subsidiaries are cou d invoices. changes to Material Content the users' reliance on the inf	n intentional ingredient in the semiconductor device is no credible reason to believe that the unavoidable gulatory scheme world-wide. Istics. You can access the UL iQTM family of databas yl chloride (PVC) plastic. "Window envelopes" used t ubstances restricted by RoHS in Microchip Technolog ge and belief, as of the date listed in this form. Micro- mpiled based on the ranges provided in Material Safe rets and some information may not have been provi- of these parts and the average weight of anticipated s contained within silicon devices (silicon IC) in the f , with respect to the information provided in this decl ntained in Microchip's standard terms and conditions	e impurity con es to obtain a o hold the pa gy Incorporat chip Technol ty Data Sheet led by subco significant to inished parts aration. The s of sale. The s, direct or in-	a test report a a test report a acking slip on ted's semicon logy Incorpora ts provided by intract assemi oxic metals co accession exclusive, lim se are provide direct, consee	t the outer the outer tated cannot y raw blers and omponents. ited product ed in quential or	0.50	Silicon (mg) Total Doped Gold	7440-21-3 Total Wire Bond 7440-57-5 Total leads (pins) - Matte Tin / annealed at 150°C for 1 hour 7440-31-5	100 100.00 % of Total Weight 100.00 100.00	0.2
npliance with the above EU Directives has been verified chemical substance is absent from the list above, the nhology Incorporated's knowledge and belief as of the mical substance, if any, is not below the threshold of re ding compounds used by Microchip meet the UL94 V0 ://ul.com/global/eng/pages/offerings/industries/chemic protective "tubes" in which the specific product is shi and certain "reels" may be made from PVC plastic. roochip Technology Incorporated believes the informati- ices in their original packing materials is true and corre- rantee the completeness and accuracy of data in this f erial suppliers. Supplier information is often protected material suppliers. Information is provided only as est se estimates do not include trace levels of dopants, mo roochip Technology Incorporated does not provide any ranties provided by Microchip Technology Incorporate orochip's quotations, sales order acknowledgement, and roochip disclaims any duty to notify users of updates or provise, suffered by users or third parties as a result of	d via internal design controls chemical substance is NOT a date of this document, there egulatory concern for any re- flammability standard for pla als/plastics/ pped are made from polyving on in this form concerning si act to the best of its knowled orm because it has been cor from disclosure as trade sec imates of the average weight etals, and non-metal material warranty, express or implied d and its subsidiaries are cou d invoices. changes to Material Content the users' reliance on the inf	n intentional ingredient in the semiconductor device is no credible reason to believe that the unavoidable gulatory scheme world-wide. Istics. You can access the UL iQTM family of databas yl chloride (PVC) plastic. "Window envelopes" used t ubstances restricted by RoHS in Microchip Technolog ge and belief, as of the date listed in this form. Micro- mpiled based on the ranges provided in Material Safe rets and some information may not have been provi- of these parts and the average weight of anticipated s contained within silicon devices (silicon IC) in the f , with respect to the information provided in this decl ntained in Microchip's standard terms and conditions	e impurity con es to obtain a o hold the pa gy Incorporat chip Technol ty Data Sheet led by subco significant to inished parts aration. The s of sale. The s, direct or in-	ncentration of a test report a acking slip on ted's semicon logy Incorpora ts provided by intract assemi oxic metals co accented by intract assemi accented by intract assemi oxic metals co accented by intract assemi accented by intract assemi oxic metals co accented by intract assemi accented by intract accented by intract accent	t the outer the outer tated cannot y raw blers and omponents. ited product ed in quential or	0.50	(mg) Total (mg) Total	7440-21-3 Total Wire Bond 7440-57-5 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	100 100.00 % of Total Weight 100.00 100.00	0.2

		D		ination Base opper Alloy (ogeneous Materials: g. pc boards, display	rs)	JEDEC 97 Produ Marking and/or Pkg. Labeling e3
Semiconductor Devi	ice Type: EIE 40 TSO			-			-			
Basic Substance	CAS Number	"Contained In" Sub-Component	% Total Weight	mg/part	ppm	309.52	(mg) Total	Mold Compound	% ot Total Weight	67.2
Silica, vitreous (or fused)	60676-86-0	Mold Compound	57.120	263.095	571,200		Silica, vitreous (or fused)	60676-86-0	85.00	
Epoxy Resin	Trade Secret	Mold Compound	5.846	26.929	58,464		Epoxy Resin	Trade Secret	8.70	
Phenolic Resin	Trade Secret	Mold Compound	4.032	18.571	40,320		Phenolic Resin	Trade Secret	6.00	
Carbon Black	1333-86-4	Mold Compound	0.202	0.929	2,016		Carbon Black	1333-86-4	0.30	
Copper	7440-50-8	Lead Frame	26.248	120.900	262,484			Total	100.00	
Nickel	7440-02-0	Lead Frame	0.700	3.224	7,000	126.94	(mg) Total	Lead Frame	% of Total Weight	27.56
Silicon	7440-21-3	Lead Frame	0.124	0.571	1,240		Copper	7440-50-8	95.24	
Magnesium	7439-95-4	Lead Frame	0.028	0.127	276		Nickel	7440-02-0	2.54	
Silver	7440-22-4	Lead Frame	0.460	2.119	4,600		Silicon	7440-21-3	0.45	
Silver	7440-22-4	Die Attach	0.360	1.658	3,600		Magnesium	7439-95-4	0.10	
Epoxy Resin	Trade Secret	Die Attach	0.077	0.352	765		Silver	7440-22-4	1.67	
Copper	7440-50-8	Die Attach	0.014	0.062	135			Total	100.00	
Silicon	7440-21-3	Chip (Die)	1.900	8.751	19,000	2.07	(mg) Total	Die Attach	% of Total Weight	0.45
Doped Gold	7440-57-5	Wire Bond	0.280	1.290	2,800		Silver	7440-22-4	80.00	
Tin	7440-31-5	Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	2.610	12.022	26,100		Epoxy Resin	Trade Secret	17.00	
		TOTALS:	100.000	460.600	1,000,000		Copper	7440-50-8	3.00	
	0.4606	g Total Mass						Total	100.00	
s semiconductor device and its homogenous materials	s comply with EU Directive 200	2/95/EC (RoHS Directive) ELL Directive 2011/65/EL								
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive).		J (ROHS Reca	ist Directive) a	and with EU	8.75	(mg) Total	Chip (Die)	% of Total Weight	1.9
pliance with the above EU Directives has been verified chemical substance is absent from the list above, the d	d via internal design controls, chemical substance is NOT ar	supplier declarations, and /or analytical test data. n intentional ingredient in the semiconductor devic	e and, to the	best of Micro	chip	8.75	(mg) Total	Chip (Die) 7440-21-3 Total	100	1.9
npliance with the above EU Directives has been verified chemical substance is absent from the list above, the of hnology Incorporated's knowledge and belief as of the mical substance, if any, is not below the threshold of r ding compounds used by Microchip meet the UL94 V0	d via internal design controls, chemical substance is NOT ar a date of this document, there egulatory concern for any reg flammability standard for plas	supplier declarations, and /or analytical test data. n intentional ingredient in the semiconductor devic is no credible reason to believe that the unavoidal gulatory scheme world-wide.	e and, to the ble impurity c	best of Micro concentration	chip of the	8.75		7440-21-3	100	0.28
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	ce Type: EKE 48 TS0	DP 12x20mm (W9)		nation Base opper Alloy (-		•	ogeneous Materials: g. pc boards, display	s)	JEDEC 97 Product Markin and/or Pkg. Labeling e3
	·· //·	"Contained In"	% Total	1						
Basic Substance	CAS Number	Sub-Component	Weight	mg/part	ppm	377.31	(mg) Total	Mold Compound	% ot Total Weight	66.84
Silica, vitreous (or fused)	60676-86-0	Mold Compound	56.814	320,715	568,140		Silica, vitreous (or fused)	60676-86-0	85.00	
Epoxy Resin	Trade Secret	Mold Compound	5.815	32.826	58,151		Epoxy Resin	Trade Secret	8.70	
Phenolic Resin	Trade Secret	Mold Compound	4.010	22.639	40,104		Phenolic Resin	Trade Secret	6.00	
Carbon Black	1333-86-4	Mold Compound	0.201	1.132	2,005		Carbon Black	1333-86-4	0.30	
Copper	7440-50-8	Lead Frame	26.982	152.312	269,818			Total	100.00	
Nickel	7440-02-0	Lead Frame	0.720	4.062	7,196	159.92	(mg) Total	Lead Frame	% of Total Weight	28.33
Silicon	7440-21-3	Lead Frame	0.127	0.720	1.275		Copper	7440-50-8	95.24	
Magnesium	7439-95-4	Lead Frame	0.028	0.160	283		Nickel	7440-02-0	2.54	
Silver	7440-22-4	Lead Frame	0.473	2.669	4,728		Silicon	7440-21-3	0.45	
Silver	7440-22-4	Die Attach	0.304	1.716	3,040		Magnesium	7439-95-4	0.10	
Epoxy Resin	Trade Secret	Die Attach	0.065	0.365	646		Silver	7440-22-4	1.67	
Copper	7440-50-8	Die Attach	0.011	0.064	114			Total	100.00	
Silicon	7440-21-3	Chip (Die)	1.380	7.790	13,800	2.15	(mg) Total	Die Attach	% of Total Weight	0.38
Doped Gold	7440-57-5	Wire Bond	0.320	1.806	3,200	2.10	Silver	7440-22-4	80.00	0.00
Tin	7440-31-5	Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	2.750	15.524	27.500		Epoxy Resin	Trade Secret	17.00	
	7440-51-5	TOTALS:	100.000	564.500	1.000.000		Copper	7440-50-8	3.00	
	0.5645	g Total Mass	100.000	504.500	1,000,000		Сорреі	Total	100.00	
		g Total Mass								
comiconductor device and its homogenous materials	comply with ELL Directive 20	02/05/EC (DeUS Directive) EU Directive 2011/6			va) and with					
s semiconductor device and its homogenous materials Directive 2002/53/EC (End-of-Life Vehicles (ELV) Direct		02/95/EC (RoHS Directive), EU Directive 2011/6	5/EU (RoHS I	Recast Directi	ve) and with	7.79	(mg) Total	Chip (Die)	% of Total Weight	1.38
Directive 2002/53/EC (End-of-Life Vehicles (ELV) Direct	ive).			Recast Directi	ve) and with	7.79	(mg) Total Silicon	Chip (Die)		1.38
Directive 2002/53/EC (End-of-Life Vehicles (ELV) Direct npliance with the above EU Directives has been verified	ive). d via internal design controls	, supplier declarations, and /or analytical test d	lata.			7.79			% of Total Weight	1.38
Directive 2002/53/EC (End-of-Life Vehicles (ELV) Direct opliance with the above EU Directives has been verified chemical substance is absent from the list above, the o hnology Incorporated's knowledge and belief as of the mical substance, if any, is not below the threshold of re	ive). d via internal design controls chemical substance is NOT a date of this document, there egulatory concern for any re	, supplier declarations, and /or analytical test d n intentional ingredient in the semiconductor d is no credible reason to believe that the unavo gulatory scheme world-wide.	lata. evice and, to bidable impur	the best of N ity concentra	licrochip tion of the	7.79		7440-21-3	% of Total Weight	1.38
Directive 2002/53/EC (End-of-Life Vehicles (ELV) Direct	ive). d via internal design controls chemical substance is NOT a date of this document, there egulatory concern for any re flammability standard for pla	, supplier declarations, and /or analytical test d n intentional ingredient in the semiconductor d is no credible reason to believe that the unavo gulatory scheme world-wide.	lata. evice and, to bidable impur	the best of N ity concentra	licrochip tion of the	7.79		7440-21-3	% of Total Weight	0.32
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Description Description Total Statu	Basic Subtance CA Contained int Total Maging ppm 356.44 (m) Total Med Gempound % et Teal Weight 21.38 Fread Situa 0007/Ball of Total Social Med Compound 24.87/24 22.24 77.06 248.74 20.06 248.74 20.06 248.74 20.06 248.74 20.06 248.74 20.06 248.74 20.06 248.74 20.06 248.74 20.06 248.74 20.06 248.74 20.06 248.74 20.06 248.74 20.06 248.74 20.06 248.74 20.06 20.07 20.06 20.07 20.06 20.07 20.06 20.07 20.06 20.07 20.06 20.07 20.06 20.07 20.06 20.07 20.06 <th></th> <th></th> <th>0 ლი</th> <th></th> <th>nation Base A pper Alloy (C</th> <th></th> <th></th> <th>•</th> <th>ogeneous Materials: .g. pc boards, displa</th> <th>ys)</th> <th>JEDEC 97 Product Markin and/or Pkg. Labeling e3</th>			0 ლი		nation Base A pper Alloy (C			•	ogeneous Materials: .g. pc boards, displa	ys)	JEDEC 97 Product Markin and/or Pkg. Labeling e3
Basic SubstanceCAS NumberSub-ComponentWeightmg/mSp.44(mg) TotalMode Compound%.04 Total Weight28Epsor Rein 1Total GenerMode Compound0.82217.849.2249.249.2249.249.249.2249.2	Basic Substance CAS Number Sub-Component Weight mg/gart ppm Sisted (mg) Task Mod Compound Vol Task Weight 23.35 Exon Kinin 1 Topic Social Mod Compound 0.22 77.85 0.224 77.85 0.237 0.35.84 73.85 0.26 0.27 0.25 0.26 0.26 0.26 0.27 0.26 0.27 0.26 0.27 0.26 0.27 0.26 0.27 0.26 0.27 0.26 0.26 0.26 0	Semiconductor Device	Type: AB 03 (Lead) 10-22		W Total							es
Trans 10076-86-0 Mold Compound 0.24.974 0.27.06 2.46.74 0.27.06 2.46.74 0.27.06 2.46.74 0.27.06 2.46.74 0.27.06 2.46.74 0.27.06 2.46.74 0.27.06 2.46.74 0.27.06 2.46.74 0.27.06 2.46.74 0.27.06 2.46.74 0.27.06 0.27.44 0.27.06 0.27.44 0.27.06 0.27.44 0.27.06 0.27.44 0.27.06 0.27.44 0.27.06 0.27.44	Pued Bits Op/OF 96-0 Mod Compound 24/74 47/200 27/74 47/200 27/74 27/74 27/74 27/74 27/74 27/74 27/74 27/74 27/74 27/74 27/74	Pacia Substance	CAS Number			malaart		536.44	(mg) Total	Mold Compound	% ot Total Weight	28.38
Epoxy Rein1 Trade Scoret Mode Compound 0.022 17.454 0.224 Trade Scoret 3.00 Phenol Rein Trade Scoret Mode Compound 0.271 24.140 12/71 24.140 12/71 24.140 12/71 24.140 12/71 24.140 12/71 24.140 12/71 24.140 12/71 24.140 12/71 24.140 12/71 24.140 12/71 24.140 12/71 24.140 12/71 24.140 12/71	Epopy Rein 1 Trade Secret Mold Conjourd 0.321 71.44 9.224 Epox Rein 1 Trade Secret 3.05 50.05 8.04 10.05 8.04 10.05 8.04 10.05 8.04 10.05 8.04 10.05 8.04 10.05 8.04 10.05 8.04 10.05 10.04 10.05 10.04 10.05				•				F	00070.00.0	-	
Epop Resin 2 Trade Secret Mode Compound 0.281 16.093 0.514 Provide Resin Trade Secret 3.00 Cathon Black 1333-86.4 Mode Compound 0.071 1.341 710 Provide Resin 7304 0.05 Copper 7440-536 Least Frame 6.874 1031-06 0.874 1030-06 0.874 1030-06 0.874 1030-06 0.874 1030-06 0.874 1030-06 0.874 1030-06 0.874 1030-06 0.874 1030-06 0.874 1030-06 0.874 1030-06 0.874 1030-06 0.874	Epoint Present 2 Trade Securit Mold Compound 0.8341 10.093 8.514 Propred Ream 11.006 Securit 10.005 Securit 10.005 Securit 3.00 Candoo Blank 10.005 Securit 0.000 1.001 Securit 0.000 Candoo Blank 10.005 Securit 0.000 1.001 Securit 0.000 Tim 7.440 50-1 Laad Frame 0.116 2.108 1.000 Securit 0.000 Biller 7.440 50-1 Laad Frame 0.116 2.108 1.000 Securit 0.000 1.000											
Physical Resin Trade Secret Mold Compound 0.1271 24.140 1271 128.140 128.140 128.140 128.140 128.140 128.140 128.140 128.140 128.140 128.140 128.140 128.140 128.140 128.140	Pheroit Resin Task Sector Molit Compound 1.277 24.140 17.71 Cathon Black 1333.844 Molit Compound 0.07 1.341 77.11 Doper 7440.950 Molet Compound 0.07 1.341 77.11 1.341 77.11 Response 7440.950 Least Frame 0.116 2133 1.105 0.02 1.00 100.00 Biter (Pg, 1) 7440.92.4 Least Frame 0.140 2.135 1.1356 0.02 1.00 100.00 1.00 0.02 0.016 2.4 0.02 0.016 2.4 0.02 0.016 2.4 0.02 0.016 2.4 0.02 0.016 2.4 0.01 0.000 0.000 1.00 0.000 1.00 0.000 1.00 0.000 1.00 0.000 1.00 0.000 1.00 1.00 0.000 1.00 1.00 0.000 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00											
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hemical substance is absent from the list above, the chemical substance is NOT an intertundial ingredient in the semiconductor device and, to the best of Microchip mical substance, if any, is not below the threshold of regulatory concern for any regulatory scheme world-wide. ding compounds used by Microchip meet the UL94 V0 flammability standard for plastics. You can access the UL iQTM family of databases to obtain a test report at //ul.com/global/eng/pages/offerings/industries/chemicals/plastics/ protective "tubes" in which the specific product is shipped are made from polyvinyl chloride (PVC) plastic. "Window envelopes" used to hold the packing slip on the outer and certain "reels" may be made from PVC plastic. ochip Technology Incorporated believes the information in this form concerning substances restricted by RoHS in Microchip Technology Incorporated cannot raite the compilete hass and accuracy of data in this form because if has been compiled based on the ranges provided in Material Safety Data Sheets provided parts. ochip Technology Incorporated does not provide any warranty, express or implied, with respect to the information provided in this declaration. The exclusive, limited product article sprovided by Microchip Technology Incorporated data in this subsidiaries are contained within silicon devices (silicon IC) in the finished parts. ochip Technology Incorporated does not provide any warranty, express or implied, with respect to the information provided in this declaration. The exclusive, limited product article sprovided by Microchip Technology Incorporated and in subsidiaries are contained within silicon devices (silicon IC) in the finished parts. ochip Technology Incorporated does not provide any warranty, express or implied, with respect to the information provided in this declaration. The exclusive, limited product article sprovided by Microchip Technology Incorporated and its subsidiaries are contained within silicon devices (silicon IC) in the finished parts. orbin's material con	termical substance is abset from the list above, the chemical substance is NOT an international supervised is solved and beliefs as of the date of this document, there is no credible reason to believe that the unavoidable impurity concentration of the ical substance, if any, is not below the threshold of regulatory concern for any regulatory scheme world-wide. ng compounds used by Microchip meet the UL94 V0 flammability standard for plastics. You can access the UL iQTM family of databases to obtain a test report at (ul.com/global/eng/pages/offerings/industries/chemicals/plastics/ rotective "tubes" in which the specific product is shipped are made from polyvinyl chloride (PVC) plastic. "Window envelopes" used to hold the packing slip on the outer dictrial "reels" may be made from PVC plastic. chip Technology Incorporated believes the information in this form concerning substances restricted by ROHS in Microchip Technology Incorporated cannot intee the complied passed on the assest and accuracy of data in this form because it has been compiled based on the ranges provided in Material Safety Data Sheets provided by subcontrate. the subpliers. Information is provided only as estimates of the average weight of these parts and the average weight of anticipated significant toxic metals components. e estimates do not include trace levels of does not provide any warranty, express or implied, with respect to the information provided in this doclaration. The exclusive, limited product integrations, sales order acknowledgement, and invoices. chip disclaims any duty to notify users of ubates to change to Material Content Declarations and shall not be liable for any damages, direct or indirect, consequential or indirect, party set reports the wave on the information in Material Sonten Declarations (MCD) or independent third party test reports to indirect, and invoices.	tive 2002/53/EC (End-of-Life Vehicles (ELV) Directive).				t Directive) and	d with EU	11.34				0.6
and certain "reels" may be made from PVC plastic. Doped Gold 7440-57-5 100 Cochip Technology Incorporated believes the information in this form concerning substances restricted by RoHS in Microchip Technology Incorporated's semiconductor ces in their original packing materials is true and correct to the best of its knowledge and belief, as of the date listed in this form. Microchip Technology Incorporated cannot rantee the completeness and accuracy of data in this form because it has been compiled based on the ranges provided in Material Safety Data Sheets provided by raw erial suppliers. Supplier information is often protected from disclosure as trade secrets and some information may not have been provided by subcontract assemblers and raw erial suppliers. Information is provided only as estimates of the average weight of these parts and the average weight of anticipated significant toxic metals components. se estimates do not include trace levels of dopants, metals, and non-metal materials contained within silicon devices (silicon IC) in the finished parts. ochip Technology Incorporated does not provide any warranty, express or implied, with respect to the information provided in this declaration. The exclusive, limited product antices provided by Microchip Technology Incorporated and its subsidiaries are contained in Microchip's standard terms and conditions of sale. These are provided in 10.59 (mg) Total [Plating on external leads (pins) - Matte Tin // annealed at 150°C for	nd certain "reels" may be made from PVC plastic. Doped Gold 7440-57-5 100 Chip Technology Incorporated believes the information in this form concerning substances restricted by RoHS in Microchip Technology Incorporated's semiconductor es in their original packing materials is true and correct to the best of its knowledge and belief, as of the date listed in this form. Microchip Technology Incorporated cannot intee the completeness and accuracy of data in this form because it has been compiled based on the ranges provided in Material Safety Data Sheets provided by raw ial suppliers. Information is often protected from disclosure as trade secrets and some information may not have been provided by subcontract assemblers and raw ial suppliers. Information is provided only as estimates of the average weight of these parts and the average weight of anticipated significant toxic metals components. Plating on external leads (pins) - Matte Tin / annealed at 150°C for % of Total Weight 0.56 (hip disclaims any duty to notify users of updates or changes to Material Content Declarations and shall not be liable for any damages, direct or indirect, consequential or wise, suffered by users or third parties as a result of the users' reliance on the information in Material Content Declarations (MCD) or independent third party test reports Tin 7440-51-5 100 10.59 Total 100.00 Total 100.00 Total 100.00 Total	tive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). Diance with the above EU Directives has been verified vi	a internal design controls, supp	lier declarations, and /or analytical test data			· · •	11.34		7440-21-3	100	0.6
bochip Technology Incorporated believes the information in this form concerning substances restricted by RoHS in Microchip Technology Incorporated's semiconductor ces in their original packing materials is true and correct to the best of its knowledge and belief, as of the date listed in this form. Microchip Technology Incorporated cannot antee the completeness and accuracy of data in this form because it has been compiled based on the ranges provided in Material Safety Data Sheets provided by raw irial suppliers. Supplier information is often protected from disclosure as trade secrets and some information may not have been provided by subcontract assemblers and raw irial suppliers. Information is provided only as estimates of the average weight of these parts and the average weight of anticipated significant toxic metals components. is e estimates do not include trace levels of dopants, metals, and non-metal materials contained within silicon devices (silicon IC) in the finished parts. bochip Technology Incorporated does not provide any warranty, express or implied, with respect to the information provided in this declaration. The exclusive, limited product antices provided by Microchip Technology Incorporated and its subsidiaries are contained in Microchip's standard terms and conditions of sale. These are provided in annealed at 150°C for	chip Technology Incorporated believes the information in this form concerning substances restricted by RoHS in Microchip Technology Incorporated's semiconductor es in their original packing materials is true and correct to the best of its knowledge and belief, as of the date listed in this form. Microchip Technology Incorporated cannot intee the completeness and accuracy of data in this form because it has been compiled based on the ranges provided in Material Safet by Data Sheets provided by raw ial suppliers. Supplier information is provided only as estimates of the average weight of anticipated significant toxic metals components. e estimates do not include trace levels of dopants, metals, and non-metal materials contained within silicon devices (silicon IC) in the finished parts. chip Technology Incorporated does not provide any warranty, express or implied, with respect to the information provided in this declaration. The exclusive, limited product inties provided by Microchip Technology Incorporated and its subsidiaries are contained in Microchip's standard terms and conditions of sale. These are provided in the sprovided by Mutro notify users of updates or changes to Material Content Declarations and shall not be liable for any damages, direct or indirect, consequential or wise, suffered by users or third parties as a result of the users' reliance on the information in Material Content Declarations (MCD) or independent third party test reports Tin 7440-31-5 100.00	tive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). Diance with the above EU Directives has been verified vi nemical substance is absent from the list above, the che nology Incorporated's knowledge and belief as of the da ical substance, if any, is not below the threshold of regu ng compounds used by Microchip meet the UL94 V0 flar	a internal design controls, supp mical substance is NOT an inter te of this document, there is no llatory concern for any regulator mmability standard for plastics.	lier declarations, and /or analytical test data. ational ingredient in the semiconductor devic credible reason to believe that the unavoida ry scheme world-wide.	ce and, to the b ble impurity co	est of Microch ncentration of	ip the		Doped Silicon	7440-21-3 Total	100 100.00	
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	wise, suffered by users or third parties as a result of the users' reliance on the information in Material Content Declarations (MCD) or independent third party test reports Tin 7440-31-5 100.00	tive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). bliance with the above EU Directives has been verified vi hemical substance is absent from the list above, the che hology Incorporated's knowledge and belief as of the da ical substance, if any, is not below the threshold of regu- ng compounds used by Microchip meet the UL94 V0 flar /ul.com/global/eng/pages/offerings/industries/chemicals protective "tubes" in which the specific product is shipped ind certain "reels" may be made from PVC plastic. holp Technology Incorporated believes the information es in their original packing materials is true and correct intee the completeness and accuracy of data in this form rial suppliers. Information is provided only as estimates is sometices.	a internal design controls, supp mical substance is NOT an inter te of this document, there is no latory concern for any regulator mmability standard for plastics. ' /plastics/ ed are made from polyvinyl chlor in this form concerning substan to the best of its knowledge and n because it has been compiled m disclosure as trade secrets ar of the average weight of these p	lier declarations, and /or analytical test data. ational ingredient in the semiconductor devic credible reason to believe that the unavoida ry scheme world-wide. You can access the UL iQTM family of datab ride (PVC) plastic. "Window envelopes" user ces restricted by RoHS in Microchip Techno I belief, as of the date listed in this form. Mic based on the ranges provided in Material 3a nd some information may not have been pro arts and the average weight of anticipated s	e and, to the b ble impurity col ases to obtain a d to hold the pa logy Incorporat rochip Technol fety Data Shee vided by subco ignificant toxic	est of Microch ncentration of a test report at a test semicon ogy Incorpora ts provided by ntract assemb	ip the t the outer ductor ted cannot r aw olers and raw		Doped Silicon (mg) Total	7440-21-3 Total Wire Bond 7440-57-5	100 100.00 % of Total Weight	
rochip disclaims any duty to notify users of updates or changes to Material Content Declarations and shall not be liable for any damages, direct or indirect, consequential or erwise, suffered by users or third parties as a result of the users' reliance on the information in Material Content Declarations (MCD) or independent third party test reports Tin 7440-31-5 100.00 S) or of this Certificate of Compliance for semiconductor products.		tive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). bliance with the above EU Directives has been verified vi hemical substance is absent from the list above, the che hology Incorporated's knowledge and belief as of the da ical substance, if any, is not below the threshold of regu- ng compounds used by Microchip meet the UL94 V0 flar /ul.com/global/eng/pages/offerings/industries/chemicals protective "tubes" in which the specific product is shippy ind certain "reels" may be made from PVC plastic. Inchip Technology Incorporated believes the information es in their original packing materials is true and correct intee the completeness and accuracy of data in this form rial suppliers. Supplier information is often protected fro is uspliers. Information is provided only as estimates e estimates do not include trace levels of dopants, metal herbip Technology Incorporated does not provide any wai nuites provided by Microchip Technology Incorporated a	a internal design controls, supp mical substance is NOT an inter te of this document, there is no ulatory concern for any regulator mmability standard for plastics. ' /plastics/ ed are made from polyvinyl chlor in this form concerning substan to the best of its knowledge and n because it has been compiled m disclosure as trade secrets a of the average weight of these p ls, and non-metal materials cont rranty, express or implied, with r nd its subsidiaries are contained	lier declarations, and /or analytical test data. Ational ingredient in the semiconductor devic credible reason to believe that the unavoida ry scheme world-wide. You can access the UL iQTM family of datab ride (PVC) plastic. "Window envelopes" user ces restricted by RoHS in Microchip Techno I belief, as of the date listed in this form. Mic based on the ranges provided in Material Sa nd some information may not have been pro arts and the average weight of anticipated s ained within silicon devices (silicon IC) in the respect to the information provided in this de	e and, to the b ble impurity col ases to obtain a d to hold the pa logy Incorporat rochip Technol fety Data Shee ignificant toxic e finished parts eclaration. The	est of Microch ncentration of a test report at a test semicon- ogy Incorpora ts provided by ntract assemt metals compo- c.	the the the outer ductor ted cannot r aw olers and raw onents.	0.95	(mg) Total	7440-21-3 Total Wire Bond 7440-57-5 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for	100 100.00 % of Total Weight 100 100.00	0.05
	Total 100.00	tive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). bilance with the above EU Directives has been verified vi hemical substance is absent from the list above, the che hology Incorporated's knowledge and belief as of the da ical substance, if any, is not below the threshold of regu- ng compounds used by Microchip meet the UL94 V0 flar /ul.com/global/eng/pages/offerings/industries/chemicals protective "tubes" in which the specific product is shipped ind certain "reels" may be made from PVC plastic. The provide the completeness and accuracy of data in this form rial suppliers. Supplier information is often protected fro- rial suppliers. Supplier information is often protected fro- rial suppliers. Supplier information is often protected fro- rial suppliers. Information is provided only as estimates to the estimates do not include trace levels of dopants, metal inchip Technology Incorporated does not provide any wai inties provided by Microchip Technology Incorporated and inchip sicaliams any duty to notify users of updates or che wise, suffered by users or third parties as a result of the	a internal design controls, supp mical substance is NOT an inter te of this document, there is no ilatory concern for any regulator mmability standard for plastics. ' /plastics/ ed are made from polyvinyl chlor in this form concerning substan to the best of its knowledge and n because it has been compiled m disclosure as trade secrets ar of the average weight of these p is, and non-metal materials cont rranty, express or implied, with r nd its subsidiaries are contained ivoices. anges to Material Content Decla users' reliance on the informati	lier declarations, and /or analytical test data. ational ingredient in the semiconductor devic credible reason to believe that the unavoida ry scheme world-wide. You can access the UL iQTM family of datab ride (PVC) plastic. "Window envelopes" user ces restricted by RoHS in Microchip Techno belief, as of the date listed in this form. Mic based on the ranges provided in Material Sa nd some information may not have been pro arts and the average weight of anticipated s ained within silicon devices (silicon IC) in the respect to the information provided in this ded i m Microchip's standard terms and condition rations and shall not be liable for any damage	- ce and, to the b ble impurity col ases to obtain a d to hold the pa logy Incorporat orchip Technol ifety Data Shee vided by subco ignificant toxic e finished parts aclaration. The ons of sale. The ges, direct or in	est of Microch ncentration of a test report at a test semicon- dis semicon- dy licorpora ts provided by intract assemt metals compo- c. exclusive, limi se are provide direct, conseq	the the the outer ductor ted cannot raw olers and raw onents. ited product d in uuential or	0.95	(mg) Total (mg) Total	7440-21-3 Total Wire Bond 7440-57-5 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	100 100.00 % of Total Weight 100 100.00	0.05

	e: AT 05 (Lead) TO	-220 (B9)		ation Base A oper Alloy (C				ogeneous Materials: a.g. pc boards, displa	ys)	JEDEC 97 Produc Marking and/or Pkg. Labeling e3
Semiconductor Device Type	5. AT 05 (Leau) 10	(<i>)</i>								
Basic Substance	CAS Number	"Contained In" Sub-Component	% Total Weight	mg/part	ppm	526.92	(mg) Total	Mold Compound	% ot Total Weight	26.56
Fused Silica	60676-86-0	Mold Compound	23.373	463.693	233,728		Fused Silica	60676-86-0	88.00	
Epoxy Resin 1	Trade Secret	Mold Compound	0.863	17.125	8,632		Epoxy Resin 1	Trade Secret	3.25	
Epoxy Resin 2	Trade Secret	Mold Compound	0.797	15.808	7,968		Epoxy Resin 2	Trade Secret	3.00	
Phenol Resin	Trade Secret	Mold Compound	1.195	23.712	11,952		Phenol Resin	Trade Secret	4.50	
Carbon Black	1333-86-4	Mold Compound	0.066	1.317	664		Carbon Black	1333-86-4	0.25	
Misc.	Trade Secret	Mold Compound	0.266	5.269	2,656	4 4	Undeclared	Trade Secret	1.00	
Copper	7440-50-8	Lead Frame	70.627	1401.171	706,271			Total	100.00	
Tin	7440-31-5	Lead Frame	0.119	2.361	1,190	1430.79	(mg) Total	Lead Frame	% of Total Weight	72.12
Silver	7440-22-4	Lead Frame	1.374	27.257	13,739		Copper	7440-50-8	97.93	
Silver (Ag)	7440-22-4	Die Attach	0.071	1.402	707		Tin	7440-31-5	0.17	
Proprietary Resin	Trade Secret	Die Attach	0.017	0.330	167	4 [Silver	7440-22-4	1.91	
Proprietary Curing agent & Hardener	Trade Secret	Die Attach	0.003	0.054	27			Total	100.00	
Silicon	7440-21-3	Chip (Die)	0.620	12.300	6,200	1.79	(mg) Total	Die Attach	% of Total Weight	0.09
Gold	7440-57-5	Wire Bond	0.040	0.794	400		Silver (Ag)	7440-22-4	79	
Tin	7440-31-5 Plating	on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	0.570	11.308	5,700	1	Proprietary Resin	Trade Secret	19	
		TOTALS:	100.000	1,983.900	1,000,000	Proprietary	y Curing agent & Hardener	Trade Secret	3	
	1.9839 g To	otal Mass						Total	100.00	
rective 2002/53/EC (End-of-Life Vehicles (ELV) Directive).	rnal docian controls, cunn	ior dealarations, and for analytical test data				12.30	Total (mg)	Chip (Die)	% of Total Weight	0.62
Simpliance with the above EO Directives has been verified via litter	nai design controis, suppi						Dened Oliver	7440.04.0	400	
		· •					Doped Silicon	7440-21-3 Total	100 100.00	
corporated's knowledge and belief as of the date of this documen y, is not below the threshold of regulatory concern for any regula	at, there is no credible rease atory scheme world-wide.	tional ingredient in the semiconductor device ar on to believe that the unavoidable impurity conc	entration of th	e chemical su			Doped Silicon			
a chemical substance is absent from the list above, the chemical corporated's knowledge and belief as of the date of this documen y, is not below the threshold of regulatory concern for any regula olding compounds used by Microchip meet the UL94 V0 flammabi tp://ul.com/global/eng/pages/offerings/industries/chemicals/plasti	nt, there is no credible rease atory scheme world-wide. ility standard for plastics. \	tional ingredient in the semiconductor device ar on to believe that the unavoidable impurity conc	entration of th	e chemical su		0.79	Doped Silicon (mg) Total			0.04
corporated's knowledge and belief as of the date of this documen ny, is not below the threshold of regulatory concern for any regula olding compounds used by Microchip meet the UL94 V0 flammabi	it, there is no credible reas atory scheme world-wide. ility standard for plastics. Y ics/	tional ingredient in the semiconductor device ar on to believe that the unavoidable impurity conc fou can access the UL iQTM family of databases	entration of th	e chemical su st report at	bstance, if	0.79		Total Wire Bond 7440-57-5	100.00 % of Total Weight 100	0.04
corporated's knowledge and belief as of the date of this documen ny, is not below the threshold of regulatory concern for any regula olding compounds used by Microchip meet the UL94 V0 flammabi ttp://ul.com/global/eng/pages/offerings/industries/chemicals/plasti he protective "tubes" in which the specific product is shipped are	It, there is no credible reas atory scheme world-wide. ility standard for plastics. N ics/ made from polyvinyl chlor form concerning substanc its knowledge and belief, a been compiled based on th crets and some informatio these parts and the averag	tional ingredient in the semiconductor device an on to believe that the unavoidable impurity conc fou can access the UL iQTM family of databases ide (PVC) plastic. "Window envelopes" used to es restricted by RoHS in Microchip Technology s of the date listed in this form. Microchip Techn te ranges provided in Material Safety Data Sheet n may not have been provided by subcontract as e weight of anticipated significant toxic metals c	entration of th to obtain a ter hold the packin Incorporated's nology Incorpor s provided by ssemblers and	e chemical su st report at ng slip on the s semiconduc rated cannot g raw material s raw material s	bstance, if outer box tor devices guarantee suppliers. suppliers.	0.79	(mg) Total	Total Wire Bond	100.00 % of Total Weight	0.04
corporated's knowledge and belief as of the date of this documen y, is not below the threshold of regulatory concern for any regula olding compounds used by Microchip meet the UL94 V0 flammabi ttp://ul.com/global/eng/pages/offerings/industries/chemicals/plasti he protective "tubes" in which the specific product is shipped are nd certain "reels" may be made from PVC plastic. icrochip Technology Incorporated believes the information in this their original packing materials is true and correct to the best of i upplier information is often protected from disclosure as trade set formation is provided only as estimates of the average weight of i	It, there is no credible reast atory scheme world-wide. ility standard for plastics. Y made from polyvinyl chlor form concerning substanc its knowledge and belief, a been compiled based on th crets and some information these parts and the averagi ntained within silicon device, express or implied, with r	tional ingredient in the semiconductor device an on to believe that the unavoidable impurity conc fou can access the UL iQTM family of databases ide (PVC) plastic. "Window envelopes" used to be restricted by RoHS in Microchip Technology is of the date listed in this form. Microchip Technology the ranges provided in Material Safety Data Sheet nawn on have been provided by subcontract as e weight of anticipated significant toxic metals of the full of the finished parts.	entration of th to obtain a ter- hold the packin Incorporated's iology Incorpo s provided by ssemblers and omponents. Ti ation. The exc	e chemical su st report at ng slip on the s semiconduct rated cannot g raw material s raw material s hese estimate lusive, limited	bstance, if outer box tor devices guarantee suppliers. suppliers. s do not product		(mg) Total Doped Gold (mg) Total	Total Wire Bond 7440-57-5	100.00 % of Total Weight 100	0.04
corporated's knowledge and belief as of the date of this documen y, is not below the threshold of regulatory concern for any regula olding compounds used by Microchip meet the UL94 V0 flammabi tp://ul.com/global/eng/pages/offerings/industries/chemicals/plasti he protective "tubes" in which the specific product is shipped are d certain "reels" may be made from PVC plastic. icrochip Technology Incorporated believes the information in this their original packing materials is true and correct to the best of i e completeness and accuracy of data in this form because it has upplier information is often protected from disclosure as trade see formation is provided only as estimates of the average weight of clude trace levels of dopants, metals, and non-metal materials con- icrochip Technology Incorporated does not provide any warranty, arranties provided by Microchip Technology Incorporated and its	It, there is no credible reas- tatory scheme world-wide. ility standard for plastics. N ics/ made from polyvinyl chlor form concerning substanc its knowledge and belief, a been compiled based on the crets and some information these parts and the average ntained within silicon devic , express or implied, with m subsidiaries are contained a to Material Content Declar	tional ingredient in the semiconductor device ar on to believe that the unavoidable impurity conc fou can access the UL iQTM family of databases ide (PVC) plastic. "Window envelopes" used to ces restricted by RoHS in Microchip Technology s of the date listed in this form. Microchip Technology and the date listed in this form. Microchip Technology reanges provided in Material Safety Data Sheet may not have been provided by subcontract as e weight of anticipated significant toxic metals of ces (silicon IC) in the finished parts. espect to the information provided in this declar in Microchip's standard terms and conditions of rations and shall not be liable for any damages,	entration of th is to obtain a ter- hold the packin incorporated's nology incorpo is provided by issemblers and omponents. The ation. The exci f sale. These a direct or indire	e chemical su st report at ng slip on the s semiconduct rated cannot g raw material s raw material s hese estimate lusive, limited ire provided in ct, consequer	bstance, if outer box tor devices guarantee suppliers. suppliers. s do not product h Microchip's ntial or		(mg) Total Doped Gold (mg) Total	Total Wire Bond 7440-57-5 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1	100.00 % of Total Weight 100 100.00	

		ation Base A oper Alloy (Co			•	ogeneous Materials: .g. pc boards, display		JEDEC 97 Produ Marking and/or Pkg. Labeling e3
Semiconductor Device Type: PT 32 (Lead) TQFP 7x7x1mm (T5)								
"Contained In" Basic Substance CAS Number Sub-Component	% Total Weight	mg/part	ppm	269.96	(mg) Total	Mold Compound	% ot Total Weight	79.8
Silica, vitreous (or fused) 60676-86-0 Mold Compound	67.830	229.469	678,300		Silica, vitreous (or fused)	60676-86-0	85.00	
Epoxy Resin Trade Secret Mold Compound	6.943	23.487	69,426		Epoxy Resin	Trade Secret	8.70	
Phenolic Resin Trade Secret Mold Compound	4.788	16.198	47,880		Phenolic Resin	Trade Secret	6.00	
Carbon Black 1333-86-4 Mold Compound	0.239	0.810	2,394		Carbon Black	1333-86-4	0.30	
Copper 7440-50-8 Lead Frame	10.229	34.603	102,286			Total	100.00	
Tin 7440-31-5 Lead Frame	0.026	0.089	263	35.52	(mg) Total	Lead Frame	% of Total Weight	10.5
Silver 7440-22-4 Lead Frame	0.200	0.677	2,000		Copper	7440-50-8	97.42	
Zinc 7440-66-6 Lead Frame	0.019	0.064	189		Tin	7440-31-5	0.25	
Chromium 7440-47-3 Lead Frame	0.026	0.089	263		Silver	7440-22-4	1.91	
Silver (Ag) 7440-22-4 Die Attach	0.623	2.106	6,225		Zinc	7440-66-6	0.18	
ANHYDRIDE Trade Secret Die Attach	0.068	0.228	675		Chromium	7440-47-3	0.25	
EPOXY RESIN Trade Secret Die Attach	0.060	0.203	600			Total	100.00	
Silicon 7440-21-3 Chip (Die)	7.500	25.373	75,000	2.54	(mg) Total	Die Attach	% of Total Weight	0.75
Gold 7440-57-5 Wire Bond	0.200	0.677	2,000		Silver (Ag)	7440-22-4	83	
Tin 7440-31-5 Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	1.250	4.229	12,500		ANHYDRIDE	Trade Secret	9	
TOTALS:	100.000	338.300	1,000,000		EPOXY RESIN	Trade Secret	8	
0.3383 g Total Mass						Total	100.00	
semiconductor device and its homogenous materials comply with EU Directive 2002/95/EC (RoHS Directive), EU Directive 2011/65/EU (Rol tive 2002/53/EC (End-of-Life Vehicles (ELV) Directive).	HS Recast Dir	ective) and w	ith EU	25.37	Total (mg)	Chip (Die)	% of Total Weight	7.5
pliance with the above EU Directives has been verified via internal design controls, supplier declarations, and /or analytical test data.					Doped Silicon	7440-21-3	100	
hemical substance is absent from the list above, the chemical substance is NOT an intentional ingredient in the semiconductor device and porated's knowledge and belief as of the date of this document, there is no credible reason to believe that the unavoidable impurity concer is not below the threshold of regulatory concern for any regulatory scheme world-wide.	entration of th	e chemical su		0.68	(mg) Total	Wire Bond	% of Total Weight	
/ul.com/global/eng/pages/offerings/industries/chemicals/plastics/		a alin an tha						0.2
protective "tubes" in which the specific product is shipped are made from polyvinyl chloride (PVC) plastic. "Window envelopes" used to h	old the packi	ig slip on the	outer box		Dapad Cald	7440 57 5]	0.2
protective "tubes" in which the specific product is shipped are made from polyvinyl chloride (PVC) plastic. "Window envelopes" used to h tertain "reels" may be made from PVC plastic.	old the packi	ig slip on the	outer box		Doped Gold	7440-57-5	100	0.2
	ncorporated's ology Incorpo s provided by semblers and	s semiconduct rated cannot g raw material s raw material s	tor devices guarantee suppliers. suppliers.		Doped Gold	7440-57-5 Total]	0.2
ertain "reels" may be made from PVC plastic. bothip Technology Incorporated believes the information in this form concerning substances restricted by RoHS in Microchip Technology I bir original packing materials is true and correct to the best of its knowledge and belief, as of the date listed in this form. Microchip Technology I ompleteness and accuracy of data in this form because it has been compiled based on the ranges provided in Material Safety Data Sheets lier information is often protected from disclosure as trade secrets and some information may not have been provided by subcontract as mation is provided only as estimates of the average weight of these parts and the average weight of anticipated significant toxic metals co	incorporated's ology Incorpo s provided by semblers and omponents. The attion. The exc	s semiconduct rated cannot g raw material s raw material s nese estimate	tor devices guarantee suppliers. suppliers. s do not product	4.23	Doped Gold		100	1.25
sertain "reels" may be made from PVC plastic. bothip Technology Incorporated believes the information in this form concerning substances restricted by RoHS in Microchip Technology I bit original packing materials is true and correct to the best of its knowledge and belief, as of the date listed in this form. Microchip Technology I ompleteness and accuracy of data in this form because it has been compiled based on the ranges provided in Material Safety Data Sheets lier information is often protected from disclosure as trade secrets and some information may not have been provided by subcontract as mation is provided only as estimates of the average weight of these parts and the average weight of anticipated significant toxic metals con- de trace levels of dopants, metals, and non-metal materials contained within silicon devices (silicon IC) in the finished parts. whip Technology Incorporated does not provide any warranty, express or implied, with respect to the information provided in this declara anties provided by Microchip Technology Incorporated and its subsidiaries are contained in Microchip's standard terms and conditions of	incorporated's ology Incorpo s provided by semblers and mponents. Ti titon. The exc sale. These a irect or indire	s semiconduc; rated cannot g raw material s raw material s nese estimate usive, limited re provided ir ct, consequer	tor devices guarantee suppliers. suppliers. s do not product n Microchip's ttial or	4.23		Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1	100 100.00	

Міскоснір				nation Base / pper Alloy (C			•	geneous Materials: g. pc boards, display	s)	JEDEC 97 Product Marking and/or Pkg. Labeling
Semiconductor Device Typ	e: PT 44 (Lead)	TQFP 10x10x1mm (T4/TY)								e3
Desile Outestance		"Contained In" Sub-Component	% Total Weight			218.09	(mg) Total	Mold Compound	% ot Total Weight	79.8
Basic Substance	CAS Number			mg/part	ppm				-	1
Silica, vitreous	60676-86-0	Mold Compound	69.354	189.545	693,542		Silica, vitreous	60676-86-0	86.91	
Epoxy Resin (No bromine, No diantimony trioxide) Phenolic Resin (No Br / CL SbO3, No diantimony trioxide)	Trade Secret Trade Secret	Mold Compound Mold Compound	6.121 4.078	16.728 11.145	61,207 40,778		Epoxy Resin Phenolic Resin	Trade Secret	7.67 5.11	
Carbon Black	1333-86-4	Mold Compound	0.247	0.676	2,474		Carbon Black	Trade Secret 1333-86-4	0.31	
Copper	7440-50-8	Lead Frame	10.000	27.331	100.003		Carbon Black	Total		1
Nickel	7440-50-8	Lead Frame	0.267	0.729	2,667	28.70	(mg) Total	Lead Frame	% of Total Weight	
Silver	7440-02-0	Lead Frame	0.267	0.729	1.752	28.70		7440-50-8		10.5
Silicon	7440-22-4 7440-21-3	Lead Frame	0.175	0.479	473		Copper Nickel		95.24	
Magnesium	7439-95-4	Lead Frame	0.047	0.129	473		Silver	7440-02-0 7440-22-4	2.54	
Silver (Ag)	7439-95-4	Die Attach	0.600	1.640	6.000		Silicon	7440-22-4	0.45	
Acrylate Urethane Oligomer	General	Die Attach	0.800	0.410	1,500		Magnesium	7439-95-4	0.45	
Silicon	7440-21-3	Chip (Die)	7.500	20.498	75.000		magnoolam	Total		1
Gold	7440-57-5	Wire Bond	0.200	0.547	2,000	2.05	(mg) Total	Die Attach	% of Total Weight	0.75
Tin	7440-31-5	Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	1.250	3.416	12,500	2.05	Silver (Ag)	7440-22-4	80	0.75
111	7440-31-3	Plaung on external reads (pins) - watter nin/annealed at 150 C for 11000 TOTALS:	100.000	273.300	1,000,000	,	Acrylate Urethane Oligomer	General	20	
	0 0700	g Total Mass		2.0.000	.,,	,	terylate oretinane oligonier	Total		4
•							Doped Silicon	7440-21-3	100	
· a chemical substance is absent from the list above, the chemica chnology Incorporated's knowledge and belief as of the date o	al substance is NOT f this document, the	an intentional ingredient in the semiconductor devic re is no credible reason to believe that the unavoidal	e and, to the b				Doped Silicon	7440-21-3 Total]
chemical substance is absent from the list above, the chemica chnology incorporated's knowledge and belief as of the date o emical substance, if any, is not below the threshold of regulato	al substance is NOT f this document, the ory concern for any r	an intentional ingredient in the semiconductor devic re is no credible reason to believe that the unavoidal egulatory scheme world-wide.	e and, to the b ble impurity co	encentration of	f the	0.55	L	Total	100.00	
c chemical substance is absent from the list above, the chemical chemical substance is absent from the list above, the chemical chology Incorporated's knowledge and belief as of the date or emical substance, if any, is not below the threshold of regulato iding compounds used by Microchip meet the UL94 V0 flamma p://ul.com/global/eng/pages/offerings/industries/chemicals/pla	al substance is NOT f this document, the ory concern for any r ability standard for p stics/	an intentional ingredient in the semiconductor devic re is no credible reason to believe that the unavoidal egulatory scheme world-wide. lastics. You can access the UL iQTM family of databa	e and, to the b ble impurity co ases to obtain	ncentration of a test report a	f the t	0.55	Doped Silicon (mg) Total			
a chemical substance is absent from the list above, the chemical chnology Incorporated's knowledge and belief as of the date o emical substance, if any, is not below the threshold of regulato olding compounds used by Microchip meet the UL94 V0 flamma p://ul.com/global/eng/pages/offerings/industries/chemicals/pla- e protective "tubes" in which the specific product is shipped a	al substance is NOT f this document, the ory concern for any r ability standard for p stics/	an intentional ingredient in the semiconductor devic re is no credible reason to believe that the unavoidal egulatory scheme world-wide. lastics. You can access the UL iQTM family of databa	e and, to the b ble impurity co ases to obtain	ncentration of a test report a	f the t	0.55	L	Total Wire Bond 7440-57-5	100.00 % of Total Weight 100	0.2
Impliance with the above EU Directives has been verified via inta a chemical substance is absent from the list above, the chemic: chnology Incorporated's knowledge and belief as of the date o emical substance, if any, is not below the threshold of regulato olding compounds used by Microchip meet the UL94 V0 flamma p://ul.com/global/eng/pages/offerings/industries/chemicals/pla: e protective "tubes" in which the specific product is shipped a x and certain "reels" may be made from PVC plastic. crochip Technology Incorporated believes the information in the vices in their original packing materials is true and correct to the arantee the completeness and accuracy of data in this form be aterial suppliers. Supplier information is often protected from d w material suppliers. Information is provided only as estimates ese estimates do not include trace levels of dopants, metals, a	al substance is NOT f this document, the ory concern for any r ability standard for p stics/ re made from polyvi his form concerning he best of its knowle icause it has been cr isclosure as trade si	an intentional ingredient in the semiconductor devic re is no credible reason to believe that the unavoidal egulatory scheme world-wide. lastics. You can access the UL iQTM family of databa nyl chloride (PVC) plastic. "Window envelopes" useo substances restricted by RoHS in Microchip Technol dge and belief, as of the date listed in this form. Micr ompiled based on the ranges provided in Material Sa crets and some information may not have been prov to f these parts and the average weight of anticipat	e and, to the b ole impurity co ases to obtain I to hold the pa logy Incorpora rochip Techno fety Data Shee rided by subcc ad significant t	a test report a acking slip on ted's semicon logy Incorpora ets provided bj ontract assemi oxic metals co	f the t the outer iductor ated cannot y raw blers and	0.55	(mg) Total	Total Wire Bond	100.00 % of Total Weight 100	0.2
a chemical substance is absent from the list above, the chemical choology Incorporated's knowledge and belief as of the date of emical substance, if any, is not below the threshold of regulato blding compounds used by Microchip meet the UL94 V0 flamma p://ul.com/global/eng/pages/offerings/industries/chemicals/plate e protective "tubes" in which the specific product is shipped a x and certain "reels" may be made from PVC plastic. crochip Technology Incorporated believes the information in the vices in their original packing materials is true and correct to the arantee the completeness and accuracy of data in this form be aterial suppliers. Supplier information is often protected from d w material suppliers. Information is provided only as estimates	al substance is NOT f this document, the rry concern for any r ability standard for p stics/ re made from polyvi his form concerning he best of its knowle cause it has been co isclosure as trade so of the average weigi nd non-metal materi ty, express or implie ts subsidiaries are c	an intentional ingredient in the semiconductor devic re is no credible reason to believe that the unavoidal egulatory scheme world-wide. lastics. You can access the UL iQTM family of databa nyl chloride (PVC) plastic. "Window envelopes" used substances restricted by RoHS in Microchip Technol dge and belief, as of the date listed in this form. Micr ompiled based on the ranges provided in Material Sa crets and some information may not have been pron to f these parts and the average weight of anticipate als contained within silicon devices (silicon IC) in the d, with respect to the information provided in this de	e and, to the b ole impurity co ases to obtain I to hold the pa logy Incorpora rochip Techno fety Data Shee vided by subcc ed significant t finished parts claration. The	a test report a acking slip on ted's semicon logy Incorpora- ts provided by portract assemi- toxic metals co s. exclusive, lim	f the tt the outer iductor ated cannot y raw blers and pomponents. ited product	0.55	(mg) Total	Total Wire Bond 7440-57-5	100.00 % of Total Weight 100	0.2
a chemical substance is absent from the list above, the chemical chology Incorporated's knowledge and belief as of the date or emical substance, if any, is not below the threshold of regulato beling compounds used by Microchip meet the UL94 V0 flamma tp://ul.com/global/eng/pages/offerings/industries/chemicals/pla: e protective "tubes" in which the specific product is shipped a x and certain "reels" may be made from PVC plastic. crochip Technology Incorporated believes the information in th vices in their original packing materials is true and correct to the arantee the completeness and accuracy of data in this form baterial suppliers. Supplier information is often protected from d w material suppliers. Information is provided only as estimates, a crochip Technology Incorporated does not provide any warran irranties provided by Microchip Technology Incorporated does not provide and warranter the completences.	al substance is NOT f this document, the rry concern for any r ability standard for p stics/ re made from polyvi his form concerning he best of its knowle cause it has been co isclosure as trade si of the average weigh nd non-metal materi ty, express or implie ts subsidiaries are c ces. es to Material Conte ers' reliance on the in	an intentional ingredient in the semiconductor devic re is no credible reason to believe that the unavoidal egulatory scheme world-wide. lastics. You can access the UL iQTM family of databa- nyl chloride (PVC) plastic. "Window envelopes" used substances restricted by RoHS in Microchip Technol dge and belief, as of the date listed in this form. Micr mpiled based on the ranges provided in Material Sa ecrets and some information may not have been pro- t of these parts and the average weight of anticipate als contained within silicon devices (silicon IC) in the d, with respect to the information provided in this de ontained in Microchip's standard terms and conditio nt Declarations and shall not be liable for any damag	e and, to the b ole impurity co ases to obtain i to hold the pa logy Incorpora ochip Techno fety Data Shee vided by subco d significant t e finished parts sclaration. The ns of sale. The	a test report a acking slip on ted's semicon logy Incorpora ts provided b pontract assemi oxic metals co s. exclusive, lim ase are provide	f the tt the outer ated cannot y raw blers and omponents. ited product ed in quential or		(mg) Total	Total Wire Bond 7440-57-5 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for	100.00 % of Total Weight 100 100.00	0.2
chemical substance is absent from the list above, the chemical chemical substance is absent from the list above, the chemical chnology Incorporated's knowledge and belief as of the date or amical substance, if any, is not below the threshold of regulato lding compounds used by Microchip meet the UL94 V0 flamma p://ul.com/global/eng/pages/offerings/industries/chemicals/plate e protective "tubes" in which the specific product is shipped a x and certain "reels" may be made from PVC plastic. crochip Technology Incorporated believes the information in the vices in their original packing materials is true and correct to the tarantee the completeness and accuracy of data in this form be terial suppliers. Supplier information is often protected from div waterial suppliers. Information is provided only as estimates use estimates do not include trace levels of dopants, metals, a crochip Technology Incorporated does not provide any warran tranties provided by Microchip Technology Incorporated and invoid crochip's quotations, sales order acknowledgement, and invoid crochip disclaims any duty to notify users of updates or chang therwise, suffered by users or third parties as a result of the use	al substance is NOT f this document, the rry concern for any r ability standard for p stics/ re made from polyvi his form concerning he best of its knowle cause it has been co isclosure as trade si of the average weigh nd non-metal materi ty, express or implie ts subsidiaries are c ces. es to Material Conte ers' reliance on the in	an intentional ingredient in the semiconductor devic re is no credible reason to believe that the unavoidal egulatory scheme world-wide. lastics. You can access the UL iQTM family of databa- nyl chloride (PVC) plastic. "Window envelopes" used substances restricted by RoHS in Microchip Technol dge and belief, as of the date listed in this form. Micr mpiled based on the ranges provided in Material Sa ecrets and some information may not have been pro- t of these parts and the average weight of anticipate als contained within silicon devices (silicon IC) in the d, with respect to the information provided in this de ontained in Microchip's standard terms and conditio nt Declarations and shall not be liable for any damag	e and, to the b ole impurity co ases to obtain i to hold the pa logy Incorpora ochip Techno fety Data Shee vided by subco d significant t e finished parts sclaration. The ns of sale. The	a test report a acking slip on ted's semicon logy Incorpora ts provided b pontract assemi oxic metals co s. exclusive, lim ase are provide	f the tt the outer ated cannot y raw blers and omponents. ited product ed in quential or		(mg) Total Doped Gold (mg) Total	Total Wire Bond 7440-57-5 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	100.00 % of Total Weight 100 100.00	. 0.2

MICROCHIP Semiconductor Devic	се Туре: 48 TQFP 7х7х1.4 JE			ination Base opper Alloy ((-			ogeneous Materials: e.g. pc boards, displays))	JEDEC 97 Product Marking and/or Pkg. Labeling e3
		"Contained In"	% I otal			100.97	(mg) Total	Mold Compound	% ot Total Weight	57.27
Basic Substance	CAS Number	Sub-Component	Weight	mg/part	ppm					
Silica Fused	60676-86-0	Mold Compound	50.552	89.124	505,522		Silica Fused	60676-86-0	88.27	
Epoxy Resin	Trade Secret	Mold Compound	3.574	6.300	35,736		Epoxy Resin	Trade Secret	6.24	
Phenol Resin	Trade Secret	Mold Compound	2.972	5.240	29,723		Phenol Resin	Trade Secret	5.19	
Carbon Black	1333-86-4	Mold Compound	0.172	0.303	1,718		Carbon Black	1333-86-4	0.30	
Copper	7440-50-8	Lead Frame	33.515	59.087	335,153			Total	100.00	
Nickel	7440-02-0	Lead Frame	0.894	1.576	8,938	62.04	(mg) Total	Lead Frame	% of Total Weight	35.19
Silver	7440-22-4	Lead Frame	0.587	1.035	5,873		Copper	7440-50-8	95.24	
Silicon	7440-21-3	Lead Frame	0.158	0.279	1,584		Nickel	7440-02-0	2.54	
Magnesium	7439-95-4	Lead Frame	0.035	0.062	352		Silver	7440-22-4	1.67	
Silver	7440-22-4	Die Attach	0.930	1.640	9,300		Silicon	7440-21-3	0.45	
Epoxy Resin	Trade secret	Die Attach	0.310	0.547	3,100		Magnesium	7439-95-4	0.10	
Silicon	7440-21-3	Chip (Die)	3.570	6.294	35,700			Total	100.00	
Gold	7440-57-5	Wire Bond	0.230	0.405	2,300	2.19	(mg) Total	Die Attach	% of Total Weight	1.24
Tin	7440-31-5 Plating or	n external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	2.500	4.408	25,000		Silver	7440-22-4	75.00	
		TOTALS:	100.000	176.300	1,000,000		Epoxy Resin	Trade secret	25.00	
	0.1763 g Tot							Total	100.00	
s semiconductor device and its homogenous ma ective 2002/53/EC (End-of-Life Vehicles (ELV) Dire		02/95/EC (RoHS Directive), EU Directive 2011/65/E	U (RoHS Rec	ast Directive) a	and with EU	6.29	(mg) Total	Chip (Die)	% of Total Weight	3.57
npliance with the above EU Directives has been	,	our lies de levetiene, and (ex analytical test date			-					
	-						Doped Silicon	7440-21-3	100	
hnology Incorporated's knowledge and belief as	s of the date of this document, there	n intentional ingredient in the semiconductor devi is no credible reason to believe that the unavoida	ce and, to the				Doped Silicon	7440-21-3 Total	100 100.00	
choology Incorporated's knowledge and belief as emical substance, if any, is not below the thresho Iding compounds used by Microchip meet the UL	s of the date of this document, there old of regulatory concern for any reg L94 V0 flammability standard for pla	n intentional ingredient in the semiconductor devi is no credible reason to believe that the unavoida	ce and, to the ble impurity	concentration	of the	0.41	Doped Silicon (mg) Total			0.23
hnology Incorporated's knowledge and belief as mical substance, if any, is not below the thresho Iding compounds used by Microchip meet the UL s://ul.com/global/eng/pages/offerings/industries/ protective "tubes" in which the specific product	s of the date of this document, there old of regulatory concern for any reg L94 V0 flammability standard for pla (chemicals/plastics/ ct is shipped are made from polyving	n intentional ingredient in the semiconductor devi is no credible reason to believe that the unavoida gulatory scheme world-wide.	ce and, to the ble impurity bases to obta	concentration iin a test repor	of the t at	0.41		Total	100.00	0.23
chnology Incorporated's knowledge and belief as smical substance, if any, is not below the thresho Iding compounds used by Microchip meet the UL p://ul.com/global/eng/pages/offerings/industries/k e protective "tubes" in which the specific product x and certain "reels" may be made from PVC plas crochip Technology Incorporated believes the infr vices in their original packing materials is true an arantee the completeness and accuracy of data in	s of the date of this document, there old of regulatory concern for any reg L94 V0 flammability standard for pla (chemicals/plastics/ ct is shipped are made from polyvin stic. formation in this form concerning sind correct to the best of its knowled in this form because it has been com	intentional ingredient in the semiconductor devi is no credible reason to believe that the unavoida gulatory scheme world-wide. astics. You can access the UL iQTM family of datal yl chloride (PVC) plastic. "Window envelopes" use ubstances restricted by RoHS in Microchip Techni ge and belief, as of the date listed in this form. Mic polied based on the ranges provided in Material Sc	ce and, to the ble impurity bases to obta d to hold the blogy Incorpo rochip Techn fety Data Sho	concentration in a test repor e packing slip o prated's semic nology Incorpo eets provided I	of the t at on the outer onductor orated cannot by raw	0.41	(mg) Total	Total Wire Bond	100.00 % of Total Weight	0.23
chnology Incorporated's knowledge and belief as smical substance, if any, is not below the thresho lding compounds used by Microchip meet the UL p:/ul.com/global/eng/pages/offerings/industries/c e protective "tubes" in which the specific product x and certain "reels" may be made from PVC plas crochip Technology Incorporated believes the infr vices in their original packing materials is true an arantee the completeness and accuracy of data in terial suppliers. Supplier information is often pro v material suppliers. Information is provided only mponents. These estimates do not include trace I	s of the date of this document, there old of regulatory concern for any reg L94 V0 flammability standard for pla (chemicals/plastics/ t is shipped are made from polyving stic. formation in this form concerning si d correct to the best of its knowled n this form because it has been con otected from disclosure as trade sec y as estimates of the average weight levels of dopants, metals, and non-	Intentional ingredient in the semiconductor devi is no credible reason to believe that the unavoida gulatory scheme world-wide. sstics. You can access the UL iQTM family of datal yl chloride (PVC) plastic. "Window envelopes" use ubstances restricted by RoHS in Microchip Techno ge and belief, as of the date listed in this form. Mic npiled based on the ranges provided in Material Sa rests and some information may not have been pro t of these parts and the average weight of anticipa metal materials contained within silicon devices (s	ce and, to the ble impurity pases to obta ed to hold the plogy Incorpo rochip Techn fety Data Sho yvided by sut ted significar ilicon IC) in t	concentration in a test repor packing slip of prated's semicrology Incorpo eets provided 1 coontract asse tt toxic metals the finished pa	of the t at on the outer onductor orated cannot by raw mblers and rts.	0.41	(mg) Total	Total Wire Bond 7440-57-5 Total	100.00 % of Total Weight 100.00	0.23
chnology Incorporated's knowledge and belief as smical substance, if any, is not below the thresho Iding compounds used by Microchip meet the UL p/UL.com/global/eng/pages/offerings/industries/k e protective "tubes" in which the specific product x and certain "reels" may be made from PVC plas crochip Technology Incorporated believes the infr vices in their original packing materials is true an arantee the completeness and accuracy of data in terial suppliers. Supplier information is oriten pro v material suppliers. Supplier information is orivided only mponents. These estimates do not include trace I crochip Technology Incorporated does not provide	s of the date of this document, there old of regulatory concern for any reg L94 V0 flammability standard for pla (chemicals/plastics/ ct is shipped are made from polyving stic. formation in this form concerning sin d correct to the best of its knowled n this form because it has been com otected from disclosure as trade sec y as estimates of the average weight levels of dopants, metals, and non- de any warranty, express or implied ogy Incorporated and its subsidiarie	intentional ingredient in the semiconductor devi is no credible reason to believe that the unavoida gulatory scheme world-wide. astics. You can access the UL iQTM family of datal yl chloride (PVC) plastic. "Window envelopes" uso ubstances restricted by RoHS in Microchip Technig ge and belief, as of the date listed in this form. Mic npiled based on the ranges provided in Material Se crets and some information may not have been pro- to of these parts and the average weight of anticipa	ce and, to the ble impurity pases to obta ed to hold the plogy Incorpo prochip Techn fety Data Shu byvided by sut ted significar illicon IC) in t	concentration in a test repor packing slip of prated's semic nology Incorpo eets provided I pocontract asse tt toxic metals the finished pa he exclusive, I	of the t at on the outer onductor orated cannot by raw mblers and rts. imited	0.41	(mg) Total	Total Wire Bond 7440-57-5	100.00 % of Total Weight 100.00	0.23
chnology Incorporated's knowledge and belief as smical substance, if any, is not below the thresho lding compounds used by Microchip meet the UL J/ul.com/global/eng/pages/offerings/industries// e protective "tubes" in which the specific product and certain "reels" may be made from PVC plas crochip Technology Incorporated believes the infr ices in their original packing materials is true an arantee the completeness and accuracy of data in terial suppliers. Supplier information is often pror material suppliers. Information is provided only mponents. These estimates do not include trace I crochip Technology Incorporated does not provid duct warranties provided by Microchip Technolo Microchip's quotations, sales order acknowledge crochip disclaims any duty to notify users of updi	s of the date of this document, there old of regulatory concern for any reg L94 V0 flammability standard for pla (chemicals/plastics/ ct is shipped are made from polyving stic. formation in this form concerning si d correct to the best of its knowled in this form because it has been con otected from disclosure as trade sec y as estimates of the average weight levels of dopants, metals, and non- de any warranty, express or implied ogy Incorporated and its subsidiarie ament, and invoices. lates or changes to Material Content sult of the users' reliance on the infi-	Intentional ingredient in the semiconductor devi is no credible reason to believe that the unavoida gulatory scheme world-wide. astics. You can access the UL iQTM family of datal yl chloride (PVC) plastic. "Window envelopes" use ubstances restricted by RoHS in Microchip Techni ge and belief, as of the date listed in this form. Mic piled based on the ranges provided in Material Sa rets and some information may not have been pro to of these parts and the average weight of anticipa metal materials contained within silicon devices (s , with respect to the information provided in this do	ce and, to the ble impurity bases to obta d to hold the blogy Incorpo crochip Techr fety Data Sh ovided by sut ted significar illicon IC) in t leclaration. T I conditions o ges, direct or	concentration in a test repor packing slip of packing slip of packing slip of packing slip of packing slip of packing slip packing slip	of the t at on the outer orated cannot by raw mblers and rts. imited are provided equential or		(mg) Total Gold	Total Wire Bond 7440-57-5 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1	100.00 % of Total Weight 100.00 100.00	
hnology Incorporated's knowledge and belief as mical substance, if any, is not below the thresho ding compounds used by Microchip meet the UL J/uL.com/global/eng/pages/offerings/industries//, protective "tubes" in which the specific product and certain "reets" may be made from PVC plas rochip Technology Incorporated believes the infi cises in their original packing materials is true an rantee the completeness and accuracy of data in erial suppliers. Supplier information is often pro material suppliers. Supplier information is provided only sponents. These estimates do not include trace! rochip Technology Incorporated does not provided duct warranties provided by Microchip Technolo licrochip's quotations, sales order acknowledge rochip disclaims any duty to notify users of upda rowlies, suffered by users or third parties as a ree	s of the date of this document, there old of regulatory concern for any reg L94 V0 flammability standard for pla (chemicals/plastics/ ct is shipped are made from polyving stic. formation in this form concerning si d correct to the best of its knowled in this form because it has been con otected from disclosure as trade sec y as estimates of the average weight levels of dopants, metals, and non- de any warranty, express or implied ogy Incorporated and its subsidiarie ament, and invoices. lates or changes to Material Content sult of the users' reliance on the infi-	intentional ingredient in the semiconductor devi is no credible reason to believe that the unavoida gulatory scheme world-wide. astics. You can access the UL iQTM family of datal yl chloride (PVC) plastic. "Window envelopes" use ubstances restricted by RoHS in Microchip Technig ge and belief, as of the date listed in this form. Mic spiled based on the ranges provided in Material Sc rets and some information may not have been pro- to f these parts and the average weight of anticipa metal materials contained within silicon devices (s , with respect to the information provided in this do is are contained in Microchip's standard terms and to clarations and shall not be liable for any dama	ce and, to the ble impurity bases to obta d to hold the blogy Incorpo crochip Techr fety Data Sh ovided by sut ted significar illicon IC) in t leclaration. T I conditions o ges, direct or	concentration in a test repor packing slip of packing slip of packing slip of packing slip of packing slip of packing slip packing slip	of the t at on the outer orated cannot by raw mblers and rts. imited are provided equential or		(mg) Total Gold (mg) Total	Total Wire Bond 7440-57-5 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	100.00 % of Total Weight 100.00 100.00 % of Total Weight	

Semiconductor Device Typ	e. PT 64 (Lead) TOF	- 10v10v1mm (V2NG)		ation Base A oper Alloy (C				ogeneous Materials: .g. pc boards, displa ₎	ys)	JEDEC 97 Product Markin and/or Pkg. Labeling e3
		"Contained In"	% Total	1	1					
Basic Substance	CAS Number	Sub-Component	Weight	mg/part	ppm	228.79	(mg) Total	Mold Compound	% ot Total Weight	79.8
Silica, vitreous	60676-86-0	Mold Compound	69.354	198.838	693,542		Silica, vitreous	60676-86-0	86.91	
Epoxy Resin (No bromine, No diantimony trioxide)	Trade Secret	Mold Compound	6.121	17.548	61,207		Epoxy Resin	Trade Secret	7.67	
Phenolic Resin (No Br / CL SbO3, No diantimony trioxide)	Trade Secret	Mold Compound	4.078	11.691	40,778		Phenolic Resin	Trade Secret	5.11	
Carbon Black	1333-86-4	Mold Compound	0.247	0.709	2,474		Carbon Black	1333-86-4	0.31	
Copper	7440-50-8	Lead Frame	10.000	28.671	100,003		· · · ·	Total	100.00	
Nickel	7440-02-0	Lead Frame	0.267	0.765	2,667	30.10	(mg) Total	Lead Frame	% of Total Weight	10.5
Silver	7440-22-4	Lead Frame	0.175	0.502	1,752		Copper	7440-50-8	95.24	
Silicon	7440-21-3	Lead Frame	0.047	0.135	473		Nickel	7440-02-0	2.54	
Magnesium	7439-95-4	Lead Frame	0.011	0.030	105		Silver	7440-22-4	1.67	
Silver (Ag)	7440-22-4	Die Attach	0.600	1.720	6,000		Silicon	7440-21-3	0.45	
Acrylate Urethane Oligomer	General	Die Attach	0.150	0.430	1,500		Magnesium	7439-95-4	0.10	
Silicon	7440-21-3	Chip (Die)	7.500	21.503	75,000		· · · ·	Total	100.00	
Gold	7440-57-5	Wire Bond	0.200	0.573 3.584	2,000 12,500	2.15	(mg) Total	Die Attach	% of Total Weight	0.75
Tin	7440-31-5 Plating or	n external leads (pins) - Matte Tin / annealed at 150°C for 1 hour TOTALS:	1.250	3.584 286.700	12,500		Silver (Ag) Crylate Urethane Oligomer	7440-22-4 General	80 20	
	0.2867 g To		100.000	200.700	1,000,000	А	crylate Orethane Oligomer	Total	20	
pliance with the above EU Directives has been verified via int hemical substance is absent from the list above, the chemica nology Incorporated's knowledge and belief as of the date of ical substance, if any, is not below the threshold of regulato	al substance is NOT an inte f this document, there is no	entional ingredient in the semiconductor de o credible reason to believe that the unavoid	vice and, to the				Doped Silicon	7440-21-3 Total	100 100.00	
		vrv seheme world wide		concentration	of the					
ling compounds used by Microchip meet the UL94 V0 flamma		•	abases to obtai			0.57	(mg) Total	Wire Bond	% of Total Weight	0.2
ling compounds used by Microchip meet the UL94 V0 flamma ://ul.com/global/eng/pages/offerings/industries/chemicals/plas protective "tubes" in which the specific product is shipped a	stics/	You can access the UL iQTM family of data		n a test repor	t at	0.57	(mg) Total Doped Gold	Wire Bond 7440-57-5	% of Total Weight	0.2
A substance, in any, is not below the timeshold of regulato ding compounds used by Microchip meet the UL94 V0 flamma s://ul.com/global/eng/pages/offerings/industries/chemicals/plas and certain "reels" may be made from PVC plastic. rochip Technology Incorporated believes the information in th ices in their original packing materials is true and correct to th not guarantee the completeness and accuracy of data in this i material suppliers. Information is often protected fro raw material suppliers. Information is provided only as estima ponents. These estimates do not include trace levels of dopa	stics/ re made from polyvinyl chlo is form concerning substa re best of its knowledge an form because it has been c m disclosure as trade secr ates of the average weight o	You can access the UL iQTM family of data oride (PVC) plastic. "Window envelopes" us nces restricted by RoHS in Microchip Techr d belief, as of the date listed in this form. M ompiled based on the ranges provided in M ets and some information may not have bee of these parts and the average weight of an	sed to hold the nology Incorpo licrochip Techr laterial Safety I en provided by ticipated signif	n a test repor packing slip o rated's semic ology Incorp Data Sheets p subcontract i icant toxic me	t at on the outer onductor orated rovided by assemblers etals	0.57			-	
ding compounds used by Microchip meet the UL94 V0 flamma ://ul.com/global/eng/pages/offerings/industries/chemicals/plas protective "tubes" in which the specific product is shipped and and certain "reels" may be made from PVC plastic. rochip Technology Incorporated believes the information in the ices in their original packing materials is true and correct to the not guarantee the completeness and accuracy of data in this for material suppliers. Supplier information is often protected from raw material suppliers. Information is provided only as estima	stics/ re made from polyvinyl chlo is form concerning substa he best of its knowledge an form because it has been c m disclosure as trade secr attes of the average weight nts, metals, and non-metal ty, express or implied, with ed and its subsidiaries are	You can access the UL iQTM family of data oride (PVC) plastic. "Window envelopes" us nces restricted by RoHS in Microchip Techr d belief, as of the date listed in this form. M icompiled based on the ranges provided in M ets and some information may not have bee of these parts and the average weight of an materials contained within silicon devices (respect to the information provided in this	sed to hold the nology Incorpo licrochip Techr laterial Safety I en provided by ticipated signif (silicon IC) in th declaration. Th	n a test repor packing slip o rated's semic ology Incorp Data Sheets p subcontract i cant toxic mo e finished pa ne exclusive, l	t at on the outer onductor orated rovided by assemblers etals rts.			7440-57-5	100	
ding compounds used by Microchip meet the UL94 V0 flamma ://ul.com/global/eng/pages/offerings/industries/chemicals/plas protective "tubes" in which the specific product is shipped and and certain "reels" may be made from PVC plastic. rochip Technology Incorporated believes the information in th ices in their original packing materials is true and correct to th not guarantee the completeness and accuracy of data in this I material suppliers. Supplier information is often protected fro raw material suppliers. Information is provided only as estima aponents. These estimates do not include trace levels of dopa duct warranties provided by Microchip Technology Incorporated duct warranties provided by Microchip Technology Incorporated set and the plane and the pla	stics/ re made from polyvinyl chlo- is form concerning substa te best of its knowledge an form because it has been c m disclosure as trade secr tes of the average weight nts, metals, and non-metal ty, express or implied, with ed and its subsidiaries are oices. es to Material Content Decl rs' reliance on the informar	You can access the UL iQTM family of data oride (PVC) plastic. "Window envelopes" us neces restricted by RoHS in Microchip Techr d belief, as of the date listed in this form. M ompiled based on the ranges provided in M ets and some information may not have bee of these parts and the average weight of an materials contained within silicon devices (respect to the information provided in this contained in Microchip's standard terms ar arations and shall not be liable for any dam	sed to hold the nology Incorpo licrochip Techn laterial Safety I en provided by ticipated signif (silicon IC) in th declaration. Th nd conditions c vages, direct or	n a test repor packing slip o rated's semic ology Incorpo Jata Sheets p subcontract icant toxic me he finished pa he exclusive, I of sale. These indirect, cons	t at on the outer orated rovided by assemblers etals trts. limited are provided sequential or		Doped Gold	7440-57-5 Total Plating on external leads (pins) - Matte Tin	100	
ing compounds used by Microchip meet the UL94 V0 flamma //ul.com/global/eng/pages/offerings/industries/chemicals/plas protective "tubes" in which the specific product is shipped at and certain "reels" may be made from PVC plastic. ochip Technology Incorporated believes the information in th ces in their original packing materials is true and correct to th material suppliers. Supplier information is often protected fro raw material suppliers. Supplier information is provided only as estima ponents. These estimates do not include trace levels of dopa ochip Technology Incorporated does not provide any warrant uct warranties provided by Microchip Technology Incorporat crochip's quotations, sales order acknowledgement, and invo	stics/ re made from polyvinyl chlo- is form concerning substa te best of its knowledge an form because it has been c m disclosure as trade secr tes of the average weight nts, metals, and non-metal ty, express or implied, with ed and its subsidiaries are oices. es to Material Content Decl rs' reliance on the informar	You can access the UL iQTM family of data oride (PVC) plastic. "Window envelopes" us neces restricted by RoHS in Microchip Techr d belief, as of the date listed in this form. M ompiled based on the ranges provided in M ets and some information may not have bee of these parts and the average weight of an materials contained within silicon devices (respect to the information provided in this contained in Microchip's standard terms ar arations and shall not be liable for any dam	sed to hold the nology Incorpo licrochip Techn laterial Safety I en provided by ticipated signif (silicon IC) in th declaration. Th nd conditions c vages, direct or	n a test repor packing slip o rated's semic ology Incorpo Jata Sheets p subcontract icant toxic me he finished pa he exclusive, I of sale. These indirect, cons	t at on the outer orated rovided by assemblers etals trts. limited are provided sequential or		(mg) Total	7440-57-5 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for 4 bour	100 100.00 % of Total Weight 100.00	1.25

Semiconductor Device	• Type: PT 64 (Lead)	TQFP 14x14x1mm (V3 / VH)		nation Base / pper Alloy (C			•	ogeneous Materials: .g. pc boards, display	/s)	JEDEC 97 Product Marking and/or Pkg. Labeling e3
		"Contained In"	% Total							
Basic Substance	CAS Number	Sub-Component	Weight	mg/part	ppm	289.33	(mg) Total	Mold Compound	% ot Total Weight	53.58
Silica, vitreous (or fused)	60676-86-0	Mold Compound	45.543	245.932	455,430		Silica, vitreous (or fused)	60676-86-0	85.00	
Epoxy Resin	Trade Secret	Mold Compound	4.661	25.172	46,615		Epoxy Resin	Trade Secret	8.70	
Phenolic Resin	Trade Secret	Mold Compound	3.215	17.360	32,148		Phenolic Resin	Trade Secret	6.00	
Carbon Black	1333-86-4	Mold Compound	0.161	0.868	1,607		Carbon Black	1333-86-4	0.30	
Copper	7440-50-8	Lead Frame	32.381	174.856	323,807			Total		
Tin	7440-31-5	Lead Frame	0.083	0.449	831	179.50	(mg) Total	Lead Frame	% of Total Weight	33.24
Silver	7440-22-4	Lead Frame	0.633	3.419	6,332		Copper	7440-50-8	97.42	
Zinc	7440-66-6	Lead Frame	0.060	0.323	598		Tin	7440-31-5	0.25	
Chromium	7440-47-3	Lead Frame	0.083	0.449	831		Silver	7440-22-4	1.91	
Silver (Ag)	7440-22-4	Die Attach	1.129	6.096	11,288		Zinc	7440-66-6	0.18	
ANHYDRIDE	Trade Secret	Die Attach	0.122	0.661	1,224		Chromium	7440-47-3	0.25	
EPOXY RESIN	Trade Secret	Die Attach	0.109	0.588	1,088			Total		
Silicon	7440-21-3	Chip (Die)	10.540	56.916	105,400	7.34	(mg) Total	Die Attach	% of Total Weight	1.36
Gold	7440-57-5	Wire Bond	0.340	1.836	3,400		Silver (Ag)	7440-22-4	83	
Tin	7440-31-5	Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	0.940	5.076	9,400		ANHYDRIDE	Trade Secret	9	
		TOTALS:	100.000	540.000	1,000,000		EPOXY RESIN	Trade Secret	8	
	0.5400	g Total Mass						Total	100.00	
semiconductor device and its homogenous materials c tive 2002/53/EC (End-of-Life Vehicles (ELV) Directive).	comply with EU Directive 20	002/95/EC (RoHS Directive), EU Directive 2011/65/EU	(RoHS Recast	Directive) and	d with EU	56.92	Total (mg)	Chip (Die)	% of Total Weight	10.54
							,	•p (=)	x of Fotal Holgin	
pliance with the above EU Directives has been verified	C C		and to the be	ast of Microch	in		Doped Silicon	7440-21-3 Total	100	
emical substance is absent from the list above, the ch iology Incorporated's knowledge and belief as of the d ance, if any, is not below the threshold of regulatory c ng compounds used by Microchip meet the UL94 V0 fi	nemical substance is NOT a date of this document, ther soncern for any regulatory ammability standard for pla	an intentional ingredient in the semiconductor device e is no credible reason to believe that the unavoidabl scheme world-wide.	e impurity cor	ncentration of	the chemical	1.84	<u>`</u>	7440-21-3	100	0.34
emical substance is absent from the list above, the ch ology Incorporated's knowledge and belief as of the d ance, if any, is not below the threshold of regulatory c ng compounds used by Microchip meet the UL94 VO fi ul.com/global/eng/pages/offerings/industries/chemica	nemical substance is NOT a date of this document, ther oncern for any regulatory ammability standard for pl ls/plastics/	an intentional ingredient in the semiconductor device e is no credible reason to believe that the unavoidabl scheme world-wide. astics. You can access the UL iQTM family of databas	e impurity cor ses to obtain a	ncentration of a test report at	the chemical	1.84	(mg) Total	7440-21-3 Total Wire Bond	100 100.00 % of Total Weight	0.34
nemical substance is absent from the list above, the ch nology Incorporated's knowledge and belief as of the d ance, if any, is not below the threshold of regulatory c ng compounds used by Microchip meet the UL94 V0 fi 'ul.com/global/eng/pages/offerings/industries/chemica rotective "tubes" in which the specific product is ship	nemical substance is NOT a date of this document, ther oncern for any regulatory ammability standard for pl ls/plastics/	an intentional ingredient in the semiconductor device e is no credible reason to believe that the unavoidabl scheme world-wide. astics. You can access the UL iQTM family of databas	e impurity cor ses to obtain a	ncentration of a test report at	the chemical	1.84	<u>`</u>	7440-21-3 Total	100 100.00	0.34
bliance with the above EU Directives has been verified hemical substance is absent from the list above, the ch nology Incorporated's knowledge and belief as of the d tance, if any, is not below the threshold of regulatory c ing compounds used by Microchip meet the UL94 V0 fk /ul.com/global/eng/pages/offerings/industries/chemica protective "tubes" in which the specific product is ship rertain "reels" may be made from PVC plastic. whip Technology Incorporated believes the information res in their original packing materials is true and correc antee the completeness and accuracy of data in this for liers. Supplier information is often protected from discl liers. Information is provided only as estimates of the a lates do not include trace levels of dopants, metals, an	nemical substance is NOT a late of this document, ther oncern for any regulatory ammability standard for pl ls/plastics/ ped are made from polyvir n in this form concerning s ct to the best of its knowled rm because it has been co losure as trade secrets and sverage weight of these pa	an intentional ingredient in the semiconductor device e is no credible reason to believe that the unavoidabl scheme world-wide. astics. You can access the UL iQTM family of database yl chloride (PVC) plastic. "Window envelopes" used i ubstances restricted by RoHS in Microchip Technolo Ige and belief, as of the date listed in this form. Micro mpiled based on the ranges provided in Material Safe I some information may not have been provided by si	e impurity cor ses to obtain a to hold the par gy Incorporat ichip Technolo ety Data Sheet ubcontract as oxic metals cc	ncentration of a test report at cking slip on t ed's semicon ogy Incorpora ts provided by semblers and	the chemical the outer box ductor ted cannot raw material	1.84	(mg) Total	7440-21-3 Total Wire Bond	100 100.00 % of Total Weight	0.34
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	DT 90 g			nation Base / pper Alloy (C			•	ogeneous Materials: .g. pc boards, displa ₎	/s)	JEDEC 97 Product Markin and/or Pkg. Labeling e3
Semiconductor Device Typ	e: PI 80 (Lead)									63
		"Contained In"	% Total			292.63	(mg) Total	Mold Compound	% ot Total Weight	79.8
Basic Substance	CAS Number	Sub-Component	Weight	mg/part	ppm	202.00	(inera competina	, ot rota Hoight	
Silica, vitreous	60676-86-0	Mold Compound	69.354	254.322	693,542		Silica, vitreous	60676-86-0	86.91	
Epoxy Resin (No bromine, No diantimony trioxide)	Trade Secret	Mold Compound	6.121	22.444	61,207		Epoxy Resin	Trade Secret	7.67	
Phenolic Resin (No Br / CL SbO3, No diantimony trioxide)	Trade Secret	Mold Compound	4.078	14.953	40,778		Phenolic Resin	Trade Secret	5.11	
Carbon Black	1333-86-4	Mold Compound	0.247	0.907	2,474		Carbon Black	1333-86-4	0.31	
Copper	7440-50-8	Lead Frame	10.000	36.671	100,003			Total	100.00	•
Nickel	7440-02-0	Lead Frame	0.267	0.978	2,667	38.50	(mg) Total	Lead Frame	% of Total Weight	10.5
Silver	7440-22-4	Lead Frame	0.175	0.643	1,752		Copper	7440-50-8	95.24	
Silicon	7440-21-3	Lead Frame	0.047	0.173	473		Nickel	7440-02-0	2.54	
Magnesium	7439-95-4	Lead Frame	0.011	0.039	105		Silver	7440-22-4	1.67	
Silver (Ag)	7440-22-4	Die Attach	0.600	2.200	6,000		Silicon	7440-21-3	0.45	
Acrylate Urethane Oligomer	General	Die Attach	0.150	0.550	1,500		Magnesium	7439-95-4	0.10	
Silicon	7440-21-3	Chip (Die)	7.500	27.503	75.000			Total	100.00	4
Gold	7440-57-5	Wire Bond	0.200	0.733	2,000	2.75	(mg) Total	Die Attach	% of Total Weight	0.75
Tin	7440-31-5	Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	1.250	4.584	12,500		Silver (Ag)	7440-22-4	80	
	1110 01 0	TOTALS:	100.000	366.700	1.000.000		Acrylate Urethane Oligomer	General	20	
	0 3667	g Total Mass			.,,	,	terylate orethane oligonier	Total	100.00	1
	ernal design control	s, supplier declarations, and /or analytical test data.				27.50	Total (mg) Doped Silicon	Chip (Die) 7440-21-3	% of Total Weight	7.5
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). npliance with the above EU Directives has been verified via information of the second state of the second sta	I substance is NOT	an intentional ingredient in the semiconductor device e is no credible reason to believe that the unavoidab				1		,		7.5
pliance with the above EU Directives has been verified via int chemical substance is absent from the list above, the chemica nology Incorporated's knowledge and belief as of the date of stance, if any, is not below the threshold of regulatory concer ling compounds used by Microchip meet the UL94 V0 flamma	I substance is NOT this document, ther n for any regulatory bility standard for pl	an intentional ingredient in the semiconductor device e is no credible reason to believe that the unavoidabl scheme world-wide.	e impurity con	ncentration of	the chemical	0.73		7440-21-3	100	0.2
pliance with the above EU Directives has been verified via in hemical substance is absent from the list above, the chemical nology Incorporated's knowledge and belief as of the date of tance, if any, is not below the threshold of regulatory concer ling compounds used by Microchip meet the UL94 V0 flamma //ul.com/global/eng/pages/offerings/industries/chemicals/plas protective "tubes" in which the specific product is shipped a	al substance is NOT this document, ther n for any regulatory bility standard for pl stics/	an intentional ingredient in the semiconductor device e is no credible reason to believe that the unavoidabl scheme world-wide. astics. You can access the UL iQTM family of databa	e impurity con ses to obtain a	ncentration of a test report at	the chemical		Doped Silicon	7440-21-3 Total	100 100.00	
pliance with the above EU Directives has been verified via int hemical substance is absent from the list above, the chemical nology Incorporated's knowledge and belief as of the date of tance, if any, is not below the threshold of regulatory concer ing compounds used by Microchip meet the UL94 V0 flamma //ul.com/global/eng/pages/offerings/industries/chemicals/plas protective "tubes" in which the specific product is shipped at certain "reels" may be made from PVC plastic. bochip Technology Incorporated believes the information in th res in their original packing materials is true and correct to th antee the completeness and accuracy of data in this form be liers. Supplier information is often protected from disclosure	Il substance is NOT this document, ther n for any regulatory bility standard for pl stics/ re made from polyvir is form concerning e se best of its knowle cause it has been co as trade secrets an	an intentional ingredient in the semiconductor device e is no credible reason to believe that the unavoidabl scheme world-wide. astics. You can access the UL iQTM family of databar nyl chloride (PVC) plastic. "Window envelopes" used substances restricted by RoHS in Microchip Technolo dge and belief, as of the date listed in this form. Micro mpiled based on the ranges provided in Material Saft d some information may not have been provided by s	e impurity con ses to obtain a to hold the par opy Incorporate ochip Technolo ty Data Sheet ubcontract ass	ncentration of a test report at cking slip on t ed's semicon ogy Incorpora s provided by semblers and	the chemical the outer box ductor ted cannot raw material		(mg) Total	7440-21-3 Total	100 100.00 % of Total Weight	
pliance with the above EU Directives has been verified via int hemical substance is absent from the list above, the chemical nology Incorporated's knowledge and belief as of the date of tance, if any, is not below the threshold of regulatory concer ling compounds used by Microchip meet the UL94 V0 flamma //ul.com/global/eng/pages/offerings/industries/chemicals/plas protective "tubes" in which the specific product is shipped an certain "reels" may be made from PVC plastic. ochip Technology Incorporated believes the information in th ces in their original packing materials is true and correct to the antee the completeness and accuracy of data in this form be pliers. Supplier information is often protected from disclosure pliers. Information is provided only as estimates of the averagn nates do not include trace levels of dopants, metals, and non pochip Technology Incorporated does not provide any warran	Il substance is NOT this document, ther n for any regulatory bility standard for pl stics/ re made from polyvir is form concerning s re best of its knowler cause it has been cc as trade secrets an e weight of these pa -metal materials con ty, express or implie	an intentional ingredient in the semiconductor device e is no credible reason to believe that the unavoidabl scheme world-wide. astics. You can access the UL iQTM family of databar nyl chloride (PVC) plastic. "Window envelopes" used substances restricted by RoHS in Microchip Technolo dge and belief, as of the date listed in this form. Micro mpiled based on the ranges provided in Material Saf d some information may not have been provided by s rts and the average weight of anticipated significant i tained within silicon devices (silicon IC) in the finishe d, with respect to the information provided in this dec	e impurity con ses to obtain a to hold the par objective the teching technolo ety Data Sheet ubcontract as: oxic metals co d parts.	ncentration of a test report at cking slip on t ed's semicono gy Incorpora is provided by semblers and pomponents. T exclusive, limi	the chemical the outer box ductor ted cannot raw material nese ted product		(mg) Total Doped Gold	7440-21-3 Total Wire Bond 7440-57-5 Total Plating on external leads (pins) - Matte Tin	100 100.00 % of Total Weight 100	
ppliance with the above EU Directives has been verified via inter- chemical substance is absent from the list above, the chemical stance, if any, is not below the threshold of regulatory concer- ting compounds used by Microchip meet the UL94 V0 flamma //ul.com/global/eng/pages/offerings/industries/chemicals/plar protective "tubes" in which the specific product is shipped at certain "reels" may be made from PVC plastic. ochip Technology Incorporated believes the information in the case in their original packing materials is true and correct to the antee the completeness and accuracy of data in this form be pliers. Supplier information is often protected from disclosure pliers. Information is provided only as estimates of the average nates do not include trace levels of dopants, metals, and non ochip Technology Incorporated does not provide any warram anties provided by Microchip Technology Incorporated and if ochip's quotations, sales order acknowledgement, and invoid ochip disclaims any duty to notify users of updates or change	I substance is NOT this document, ther n for any regulatory bility standard for pl stics/ re made from polyvir is form concerning e e best of its knowle as trade secrets an e weight of these pa -metal materials con vy, express or implie s subsidiaries are co es.	an intentional ingredient in the semiconductor device e is no credible reason to believe that the unavoidable scheme world-wide. astics. You can access the UL iQTM family of database nyl chloride (PVC) plastic. "Window envelopes" used substances restricted by RoHS in Microchip Technolo dge and belief, as of the date listed in this form. Micro- mpiled based on the ranges provided in Material Saft d some information may not have been provided by s rts and the average weight of anticipated significant t tained within silicon devices (silicon IC) in the finishe d, with respect to the information provided in this dec ontained in Microchip's standard terms and condition at Declarations and shall not be liable for any damage	e impurity con ses to obtain a to hold the pac opy Incorporate bochip Technolo ty Data Sheet ubcontract as oxic metals oc d parts. claration. The e s of sale. Thes is, direct or inc	acentration of a test report at cking slip on a ed's semicon ogy Incorpora s provided by semblers and omponents. T exclusive, limi se are provide direct, conseq	the chemical the outer box ductor ted cannot raw material hese ited product id in guential or	0.73	(mg) Total (mg) Total	7440-21-3 Total Wire Bond 7440-57-5 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 howr	100 100.00 % of Total Weight 100 100.00	0.2
pliance with the above EU Directives has been verified via int hemical substance is absent from the list above, the chemical nology Incorporated's knowledge and belief as of the date of tance, if any, is not below the threshold of regulatory concer ing compounds used by Microchip meet the UL94 V0 flamma //ul.com/global/eng/pages/offerings/industries/chemicals/plas protective "tubes" in which the specific product is shipped at certain "reels" may be made from PVC plastic. The completeness and accuracy of data in this form be liers. Supplier information is often protected from disclosure tiers in their original packing materials is true and correct to the attes the completeness and accuracy of data in this form be liers. Supplier information is often protected from disclosure tastes do not include trace levels of dopants, metals, and non exchip Technology Incorporated does not provide any warrant anties provided by Microchip Technology Incorporated and it provide sport actions, sales order acknowledgement, and invoid	Il substance is NOT this document, ther n for any regulatory bility standard for pl stics/ re made from polyvir is form concerning e cause it has been cc as trade secrets an e weight of these pa metal materials con ty, express or implie s subsidiaries are cr es. so to Material Conter rs' reliance on the ir	an intentional ingredient in the semiconductor device e is no credible reason to believe that the unavoidable scheme world-wide. astics. You can access the UL iQTM family of database nyl chloride (PVC) plastic. "Window envelopes" used substances restricted by RoHS in Microchip Technolo dge and belief, as of the date listed in this form. Micro- mpiled based on the ranges provided in Material Saft d some information may not have been provided by s rts and the average weight of anticipated significant t tained within silicon devices (silicon IC) in the finishe d, with respect to the information provided in this dec ontained in Microchip's standard terms and condition at Declarations and shall not be liable for any damage	e impurity con ses to obtain a to hold the pac opy Incorporate bochip Technolo ty Data Sheet ubcontract as oxic metals oc d parts. claration. The e s of sale. Thes is, direct or inc	acentration of a test report at cking slip on a ed's semicon ogy Incorpora s provided by semblers and omponents. T exclusive, limi se are provide direct, conseq	the chemical the outer box ductor ted cannot raw material hese ited product id in guential or	0.73	(mg) Total Doped Gold	7440-21-3 Total Wire Bond 7440-57-5 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for	100 100.00 % of Total Weight 100 100.00	0.2

AICROCHIP Semiconductor Devi	ce Type: PF 80 (Lead	1 TOFP 14x14mm (X3/XE)		nation Base / opper Alloy (C				geneous Materials: g. pc boards, display:	s)	JEDEC 97 Product Markin and/or Pkg. Labeling e3
		"Contained In"	% Total	1	1					
Basic Substance	CAS Number	Sub-Component	Weight	mg/part	ppm	306.01	(mg) Total	Mold Compound	% ot Total Weight	57.52
Silica, vitreous (or fused)	60676-86-0	Mold Compound	48,892	260,105	488.920		Silica, vitreous (or fused)	60676-86-0	85.00	
Epoxy Resin	Trade Secret	Mold Compound	5.004	26.623	50.042		Epoxy Resin	Trade Secret	8.70	
Phenolic Resin	Trade Secret	Mold Compound	3.451	18.360	34,512		Phenolic Resin	Trade Secret	6.00	
Carbon Black	1333-86-4	Mold Compound	0.173	0.918	1,726		Carbon Black	1333-86-4	0.30	
Copper	7440-50-8	Lead Frame	31.426	167.187	314.261			Total	100.00	1
Tin	7440-31-5	Lead Frame	0.081	0.429	807	171.62	(mg) Total	Lead Frame	% of Total Weight	32.26
Silver	7440-22-4	Lead Frame	0.615	3.269	6,146		Copper	7440-50-8	97.42	02.20
Zinc	7440-66-6	Lead Frame	0.058	0.309	581		Tin	7440-31-5	0.25	
Chromium	7440-47-3	Lead Frame	0.081	0.429	807		Silver	7440-22-4	1.91	
Silver (Ag)	7440-22-4	Die Attach	0.830	4.416	8.300		Zinc	7440-66-6	0.18	
ANHYDRIDE	Trade Secret	Die Attach	0.090	0.479	900		Chromium	7440-47-3	0.25	
EPOXY RESIN	Trade Secret	Die Attach	0.080	0.426	800			Total	100.00	
Silicon	7440-21-3	Chip (Die)	7.650	40.698	76,500	5.32	(mg) Total	Die Attach	% of Total Weight	1
Gold	7440-57-5	Wire Bond	0.370	1.968	3,700	5.52	Silver (Ag)	7440-22-4	83	· · · ·
Tin	7440-37-5	Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	1.200	6.384	12,000		ANHYDRIDE	Trade Secret	9	
1111	7440-31-5	Plating on external leads (pins) - Matternin/ annealed at 150°C for 1 hour TOTALS:	100.000	532.000	1,000,000		EPOXY RESIN	Trade Secret	9	
		g Total Mass	100.000	332.000	1,000,000		EPOAT RESIN	Total	100.00	
pliance with the above EU Directives has been verified	ed via internal design contro		S Recast Direc			40.70	Total (mg) Doped Silicon	Chip (Die) 7440-21-3 Total	% of Total Weight 100 100.00	7.65
pliance with the above EU Directives has been verifi hemical substance is absent from the list above, the porated's knowledge and belief as of the date of thi is not below the threshold of regulatory concern for ing compounds used by Microchip meet the UL94 Vi	ed via internal design contro chemical substance is NOT s document, there is no cred any regulatory scheme worl D flammability standard for p	an intentional ingredient in the semiconductor device and ible reason to believe that the unavoidable impurity concert	, to the best of ntration of the	Microchip Te	chnology	40.70		,		0.37
pliance with the above EU Directives has been verifi hemical substance is absent from the list above, the porated's knowledge and belief as of the date of this is not below the threshold of regulatory concern for ling compounds used by Microchip meet the UL94 VI //ul.com/global/eng/pages/offerings/industries/chem protective "tubes" in which the specific product is sl	, ed via internal design contro chemical substance is NOT document, there is no cred any regulatory scheme worl D flammability standard for p icals/plastics/	an intentional ingredient in the semiconductor device and ible reason to believe that the unavoidable impurity concer d-wide.	, to the best of htration of the o obtain a test	Microchip Te chemical sub report at	chnology stance, if		Doped Silicon	7440-21-3 Total	100 100.00	
rporated's knowledge and belief as of the date of this is not below the threshold of regulatory concern for ling compounds used by Microchip meet the UL94 V/ //ul.com/global/eng/pages/offerings/industries/chem protective "tubes" in which the specific product is sl ain "reels" may be made from PVC plastic. ochip Technology Incorporated believes the informa original packing materials is true and correct to the pleteness and accuracy of data in this form because mation is often protected from disclosure as trade si	ed via internal design contro chemical substance is NOT a document, there is no cred any regulatory scheme worl D flammability standard for p icals/plastics/ nipped are made from polyvi tion in this form concerning best of its knowledge and b it has been compiled based ecrets and some informatio	an intentional ingredient in the semiconductor device and ible reason to believe that the unavoidable impurity concer d-wide. alastics. You can access the UL iQTM family of databases t nyl chloride (PVC) plastic. "Window envelopes" used to ho substances restricted by RoHS in Microchip Technology Ir elief, as of the date listed in this form. Microchip Technolog on the ranges provided in Material Safety Data Sheets pro i may not have been provided by subcontract assemblers a ht of anticipated significant toxic metals components. The	, to the best of htration of the o obtain a test old the packing hcorporated's : ny Incorporate vided by raw m and raw materi	Microchip Te chemical sub: report at g slip on the o semiconducto d cannot guar naterial suppli	chnology stance, if uter box and or devices in antee the ers. Supplier nformation is		Doped Silicon (mg) Total	7440-21-3 Total Wire Bond	100 100.00 % of Total Weight	
pliance with the above EU Directives has been verifi- themical substance is absent from the list above, the prorated's knowledge and belief as of the date of this is not below the threshold of regulatory concern for ling compounds used by Microchip meet the UL94 Vi //ul.com/global/eng/pages/offerings/industries/chem protective "tubes" in which the specific product is sl ain "reels" may be made from PVC plastic. ochip Technology Incorporated believes the informa original packing materials is true and correct to the pleteness and accuracy of data in this form because mation is often protected from disclosure as trade sp ided only as estimates of the average weight of thes- opants, metals, and non-metal materials contained w ochip Technology Incorporated does not provide any	ed via internal design contro chemical substance is NOT is document, there is no cred any regulatory scheme worl 0 flammability standard for p icals/plastics/ hipped are made from polyvi tion in this form concerning best of its knowledge and b it has been compiled based ecrets and some informatio e parts and the average weig tithin silicon devices (silicon y warranty, express or implied	an intentional ingredient in the semiconductor device and ible reason to believe that the unavoidable impurity concer d-wide. alastics. You can access the UL iQTM family of databases t nyl chloride (PVC) plastic. "Window envelopes" used to ho substances restricted by RoHS in Microchip Technology Ir elief, as of the date listed in this form. Microchip Technolog on the ranges provided in Material Safety Data Sheets pro i may not have been provided by subcontract assemblers a ht of anticipated significant toxic metals components. The	to the best of htration of the o obtain a test old the packing ty incorporated's : yy incorporate vided by raw m and raw materi se estimates d	Microchip Te chemical sub: report at g slip on the o semiconducto d cannot guar naterial supplie ial suppliers. I do not include usive, limited p	chnology stance, if uter box and or devices in antee the ers. Supplier nformation is trace levels roduct		(mg) Total	7440-21-3 Total Wire Bond 7440-57-5	100 100.00 % of Total Weight	
pliance with the above EU Directives has been verifi- themical substance is absent from the list above, the rporated's knowledge and belief as of the date of this is not below the threshold of regulatory concern for ting compounds used by Microchip meet the UL94 Vi //ul.com/global/eng/pages/offerings/industries/chem protective "tubes" in which the specific product is sl ain "reels" may be made from PVC plastic. ochip Technology Incorporated believes the informa original packing materials is true and correct to the pleteness and accuracy of data in this form because ponts, metals, and non-metal materials contained w ochip Technology Incorporated does not provide any anties provided by Microchip Technology Incorporat ations, sales order acknowledgement, and invoices.	ed via internal design contro chemical substance is NOT a document, there is no cred any regulatory scheme worl D flammability standard for p icals/plastics/ nipped are made from polyvi tion in this form concerning best of its knowledge and b it has been compiled based acrets and some information e parts and the average weig ithin silicon devices (silicon y warranty, express or implife ed and its subsidiaries are c or changes to Material Conte t the users' reliance on the in	an intentional ingredient in the semiconductor device and ible reason to believe that the unavoidable impurity concer d-wide. alastics. You can access the UL iQTM family of databases t nyl chloride (PVC) plastic. "Window envelopes" used to ho substances restricted by RoHS in Microchip Technology Ir elief, as of the date listed in this form. Microchip Technolog on the ranges provided in Material Safety Data Sheets prov a may not have been provided by subcontract assemblers a ht of anticipated significant toxic metals components. The IC) in the finished parts.	to the best of htration of the o obtain a test old the packing ncorporated's - yy Incorporated yided by raw m and raw materi use estimates o ion. The exclu sale. These are rect or indirect	Microchip Te chemical sub: report at g slip on the o semiconducto d cannot guar naterial suppliers. I do not include sive, limited p s provided in N	chnology stance, if uter box and or devices in antee the ers. Supplier nformation is trace levels roduct ficrochip's al or	1.97	(mg) Total	7440-21-3 Total Wire Bond 7440-57-5 Total Plating on external leads (pins) - Matte Tin /	100 100.00 % of Total Weight 100 100.00	0.37

ЛІСКОСНІР				nation Base A pper Alloy (C				ogeneous Materials: e.g. pc boards, display	ys)	JEDEC 97 Produ Marking and/or Pkg. Labeling e3
Semiconductor Device Typ	e: PF 100 (Lead	d) TQFP 12x12x1mm (V7)								
		"Contained In"	% Total			312.02	(mg) Total	Mold Compound	% ot Total Weight	79.8
Basic Substance	CAS Number	Sub-Component	Weight	mg/part	ppm	0.2.02	()	•	•	
Silica, vitreous	60676-86-0	Mold Compound	69.354	271.175	693,542		Silica, vitreous	60676-86-0	86.91	
Epoxy Resin (No bromine, No diantimony trioxide)	Trade Secret	Mold Compound	6.121	23.932	61,207		Epoxy Resin	Trade Secret	7.67	
Phenolic Resin (No Br / CL SbO3, No diantimony trioxide)	Trade Secret	Mold Compound	4.078	15.944	40,778		Phenolic Resin	Trade Secret	5.11	
Carbon Black	1333-86-4 7440-50-8	Mold Compound Lead Frame	0.247	0.967 39.101	2,474 100.003		Carbon Black	1333-86-4	0.31	
Copper Nickel		Lead Frame	0.267	1.043			() =	Total		
	7440-02-0				2,667	41.06	(mg) Total	Lead Frame	% of Total Weight	10.5
Silver	7440-22-4	Lead Frame	0.175	0.685	1,752		Copper	7440-50-8	95.24	
Silicon	7440-21-3 7439-95-4	Lead Frame Lead Frame	0.047	0.185	473 105		Nickel	7440-02-0 7440-22-4	2.54 1.67	
Magnesium Silver (Ag)		Die Attach		2.346			Silver			
Silver (Ag) Acrylate Urethane Oligomer	7440-22-4 General	Die Attach Die Attach	0.600	2.346	6,000 1,500		Silicon Magnesium	7440-21-3 7439-95-4	0.45	
Silicon	7440-21-3		7.500	29.325	75,000	l l	wagnesium	7439-95-4 Total	0.10 100.00	
Gold		Chip (Die)	0.200				() -			
	7440-57-5	Wire Bond		0.782	2,000	2.93	(mg) Total	Die Attach	% of Total Weight	0.75
Tin	7440-31-5	Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	1.250	4.888	12,500	. <u>I</u>	Silver (Ag)	7440-22-4	80	
		g Total Mass	100.000	391.000	1,000,000	A	crylate Urethane Oligomer	General Total	20	
	with EO Directive 20	02/95/EC (RoHS Directive), EU Directive 2011/65/EU (Ro	oHS Recast Di	rective) and w	ith EU	29.33	Total (mg)	Chip (Die)	% of Total Weight	7.5
tive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). pliance with the above EU Directives has been verified via inte hemical substance is absent from the list above, the chemical	ernal design controls I substance is NOT a	, supplier declarations, and /or analytical test data. n intentional ingredient in the semiconductor device ar	nd, to the best	of Microchip 1	Fechnology	29.33	Total (mg) Doped Silicon	Chip (Die) 7440-21-3 Total	% of Total Weight 100 100.00	7.5
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). pliance with the above EU Directives has been verified via inte chemical substance is absent from the list above, the chemical prorated's knowledge and belief as of the date of this documer is not below the threshold of regulatory concern for any regul ling compounds used by Microchip meet the UL94 V0 flammab //ul.com/global/eng/pages/offerings/industries/chemicals/plast	ernal design controls I substance is NOT a nt, there is no credib atory scheme world- bility standard for pla tics/	, supplier declarations, and /or analytical test data. n intentional ingredient in the semiconductor device ar le reason to believe that the unavoidable impurity conc wide. stics. You can access the UL iQTM family of databases	nd, to the best entration of th s to obtain a te	of Microchip 1 le chemical su est report at	Fechnology bstance, if	29.33		7440-21-3	100	0.2
active 2002/53/EC (End-of-Life Vehicles (ELV) Directive). mpliance with the above EU Directives has been verified via inter chemical substance is absent from the list above, the chemical orporated's knowledge and belief as of the date of this documer , is not below the threshold of regulatory concern for any regul lding compounds used by Microchip meet the UL94 V0 flammab b://ul.com/global/eng/pages/offerings/industries/chemicals/plast e protective "tubes" in which the specific product is shipped are	ernal design controls I substance is NOT a nt, there is no credib atory scheme world- bility standard for pla tics/	, supplier declarations, and /or analytical test data. n intentional ingredient in the semiconductor device ar le reason to believe that the unavoidable impurity conc wide. stics. You can access the UL iQTM family of databases	nd, to the best entration of th s to obtain a te	of Microchip 1 le chemical su est report at	Fechnology bstance, if		Doped Silicon	7440-21-3 Total Wire Bond 7440-57-5	100 100.00 % of Total Weight 100	
s semiconductor device and its nonogenous materials comply ective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). mpliance with the above EU Directives has been verified via inte chemical substance is absent from the list above, the chemical orporated's knowledge and belief as of the date of this documer r, is not below the threshold of regulatory concern for any regul lding compounds used by Microchip meet the UL94 V0 flammab J/ul.com/global/eng/pages/offerings/industries/chemicals/plast a protective "tubes" in which the specific product is shipped are d certain "reels" may be made from PVC plastic. crochip Technology Incorporated believes the information in this heir original packing materials is true and correct to the best of completeness and accuracy of data in this form because it has polier information is often protected from disclosure as trade se ormation is provided only as estimates of the average weight of lude trace levels of dopants, metals, and non-metal materials co	ernal design controls i substance is NOT a nt, there is no credib atory scheme world- bility standard for pla tics/ e made from polyviny s form concerning su its knowledge and b been compiled base screts and some info	, supplier declarations, and /or analytical test data. n intentional ingredient in the semiconductor device ar le reason to believe that the unavoidable impurity conc wide. stics. You can access the UL iQTM family of databases /I chloride (PVC) plastic. "Window envelopes" used to l ubstances restricted by RoHS in Microchip Technology elief, as of the date listed in this form. Microchip Technology velief, as of the date listed in this form. Microchip Techr d on the ranges provided in Material Safety Data Sheet rmation may not have been provided by subcontract as average weight of anticipated significant toxic metals c	nd, to the best entration of th s to obtain a te hold the packi Incorporated' nology Incorpo is provided by semblers and	of Microchip T te chemical su est report at ng slip on the s semiconduc orated cannot e raw material s	Fechnology bstance, if outer box tor devices guarantee suppliers. suppliers.		Doped Silicon (mg) Total	7440-21-3 Total Wire Bond	100 100.00 % of Total Weight	
ective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). mpliance with the above EU Directives has been verified via inter chemical substance is absent from the list above, the chemical orporated's knowledge and belief as of the date of this documer , is not below the threshold of regulatory concern for any regul ding compounds used by Microchip meet the UL94 V0 flammab b://ul.com/global/eng/pages/offerings/industries/chemicals/plast e protective "tubes" in which the specific product is shipped are creatin "reels" may be made from PVC plastic. rochip Technology Incorporated believes the information in this heir original packing materials is true and correct to the best of completeness and accuracy of data in this form because it has upplier information is often protected from disclosure as trade se primation is provided only as estimates of the average weight of	ernal design controls i substance is NOT a nt, there is no credib atory scheme world- bility standard for pla tics/ e made from polyviny its knowledge and b been compiled base screts and some info these parts and the pontained within silico r, express or implied,	, supplier declarations, and /or analytical test data. n intentional ingredient in the semiconductor device ar le reason to believe that the unavoidable impurity conc wide. stics. You can access the UL iQTM family of databases /I chloride (PVC) plastic. "Window envelopes" used to l ubstances restricted by RoHS in Microchip Technology elief, as of the date listed in this form. Microchip Technology elief, as of the date listed in this form. Microchip Technology elief, as of the date listed in this form. Microchip Technology elief, as of the date listed in this form. Microchip Technology elief, as of the date listed in this form. Microchip Technology elief, as of the date listed in this form. Microchip Technology elief, as of the date listed in this form. Microchip Technology elief, as of the date listed in this form. Microchip Technology elief, as of the date listed in this form. Microchip Technology elief, as of the date listed in this form. Microchip Technology elief, as of the date listed in this form. Microchip Technology elief, as of the date listed in this form. Microchip Technology elief, as of the date listed in this form. Microchip Technology elief, as of the date listed in this form. Microchip Technology elief, as of the date listed in this form. Microchip Technology elief, as of the date listed in this form. Microchip Technology with respect to the information provided in this declar	nd, to the best entration of th s to obtain a te hold the packi incorporated ¹¹ nology Incorpo is provided by semblers and components. T ation. The exc	of Microchip T e chemical su est report at ng slip on the s semiconduc rated cannot of raw material s hese estimate	Fechnology bstance, if outer box tor devices guarantee suppliers. s do not		(mg) Total	7440-21-3 Total Wire Bond 7440-57-5	100 100.00 % of Total Weight 100	
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). npliance with the above EU Directives has been verified via inter chemical substance is absent from the list above, the chemical orporated's knowledge and belief as of the date of this documer , is not below the threshold of regulatory concern for any regul ding compounds used by Microchip meet the UL94 V0 flammab ://ul.com/global/eng/pages/offerings/industries/chemicals/plast protective "tubes" in which the specific product is shipped are certain "reels" may be made from PVC plastic. rochip Technology Incorporated believes the information in this erior original packing materials is true and correct to the best of completeness and accuracy of data in this form because it has plier information is often protected from disclosure as trade se rmation is provided only as estimates of the average weight of ude trace levels of dopants, metals, and non-metal materials cor rochip Technology Incorporated does not provide any warranty ranties provided by Microchip Technology Incorporated and its	ernal design controls I substance is NOT a nt, there is no credib atory scheme world- bility standard for pla tics/ e made from polyviny s form concerning su its knowledge and b been compiled base crets and some infor these parts and the sontained within silico r, express or implied, s subsidiaries are cor s to Material Content	, supplier declarations, and /or analytical test data. n intentional ingredient in the semiconductor device ar le reason to believe that the unavoidable impurity conc wide. stics. You can access the UL iQTM family of databases /I chloride (PVC) plastic. "Window envelopes" used to i ubstances restricted by RoHS in Microchip Technology elief, as of the date listed in this form. Microchip Tech do n the ranges provided in Material Safety Data Sheet rmation may not have been provided by subcontract as average weight of anticipated significant toxic metals c n devices (silicon IC) in the finished parts. , with respect to the information provided in this declar tained in Microchip's standard terms and conditions o Declarations and shall not be liable for any damages,	nd, to the best entration of th s to obtain a te hold the packi nology Incorpo ssemblers and components. T ation. The exc f sale. These a direct or indire	of Microchip T ee chemical su est report at ng slip on the s semiconduc raw material s raw material hese estimate susive, limited are provided in ect, consequer	Fechnology bstance, if outer box tor devices guarantee suppliers. s do not product n Microchip's ntial or	0.78	(mg) Total	7440-21-3 Total Wire Bond 7440-57-5 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1	100 100.00 % of Total Weight 100 100.00	0.2

Semiconductor Devi	ice Type: PF 100 (Lead) TQF	P 14x14mm (E5 / EQ)		nation Base A pper Alloy (C			•	geneous Materials: g. pc boards, display	s)	JEDEC 97 Product Markin and/or Pkg. Labeling e3
		"Contained In" Sub-Component	% Total	m a la ant		339.65	(mg) Total	Mold Compound	% ot Total Weight	
Basic Substance Silica, vitreous (or fused)	CAS Number 60676-86-0	Mold Compound	58.089	mg/part 288.702	ppm 580.890		Silica, vitreous (or fused)	60676-86-0	85.00	7
Epoxy Resin	Trade Secret	Mold Compound	58.089	288.702	580,890		Epoxy Resin	Trade Secret	85.00	
Phenolic Resin	Trade Secret	Mold Compound	4.100	29.350	41,004		Phenolic Resin	Trade Secret	6.00	
Carbon Black	1333-86-4	Mold Compound	0.205	1.019	2,050		Carbon Black	1333-86-4	0.30	
Copper	7440-50-8	Lead Frame	26.156	129.995	261.559		Salbert Black	Total		4
Tin	7440-31-5	Lead Frame	0.067	0.334	671	133.44	(mg) Total	Lead Frame	% of Total Weight	
0 11										1
Silver	7440-22-4	Lead Frame	0.511	2.542	5,115		Copper	7440-50-8	97.42	
Zinc	7440-66-6	Lead Frame	0.048	0.240	483 671		Tin	7440-31-5	0.25	
Chromium Silver (Ag)	7440-47-3 7440-22-4	Lead Frame Die Attach	0.067	0.334 2.393	4.814		Silver	7440-22-4 7440-66-6	1.91 0.18	
ANHYDRIDE	Trade Secret	Die Attach Die Attach	0.481	0.259	4,814		Zinc Chromium	7440-66-6	0.18	
EPOXY RESIN	Trade Secret	Die Attach	0.032	0.239	464		Chioman	Total		<u>1</u>
Silicon	7440-21-3	Chip (Die)	2.710	13.469	27,100	2.88	(mg) Total	Die Attach	% of Total Weight	
Gold	7440-57-5	Wire Bond	0.420	2.087	4,200	2.00	Silver (Ag)	7440-22-4	83	0.56
Tin		on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	1.100	5.467	4,200		ANHYDRIDE	Trade Secret	9	
1111	7440-31-3 Plating d	n external leads (pins) - Matter In / annealed at 150°C for 1 hour TOTALS:	100.000	497.000	1.000.000		EPOXY RESIN	Trade Secret	8	
	0.4970 g To				.,,		EFOXTILEOIN	Total		1
mance with the above EU Directives has been verifie	ed via internal design controls, sup	plier declarations, and /or analytical test data	ı.				Doped Silicon	7440-21-3	100	
hemical substance is absent from the list above, the nology Incorporated's knowledge and belief as of th	chemical substance is NOT an inte e date of this document, there is no	ntional ingredient in the semiconductor devi o credible reason to believe that the unavoida	ce and, to the				Doped Silicon	7440-21-3 Total		
hemical substance is absent from the list above, the nology Incorporated's knowledge and belief as of th nical substance, if any, is not below the threshold of ing compounds used by Microchip meet the UL94 V(chemical substance is NOT an inte le date of this document, there is no regulatory concern for any regulato 0 flammability standard for plastics.	ntional ingredient in the semiconductor devi o credible reason to believe that the unavoida ory scheme world-wide.	ce and, to the able impurity c	oncentration o	of the	2.09	Doped Silicon (mg) Total			
hemical substance is absent from the list above, the nnology Incorporated's knowledge and belief as of th nical substance, if any, is not below the threshold of ing compounds used by Microchip meet the UL94 V(//ul.com/global/eng/pages/offerings/industries/chemi protective "tubes" in which the specific product is sl	chemical substance is NOT an inte e date of this document, there is no regulatory concern for any regulato 0 flammability standard for plastics. icals/plastics/	ntional ingredient in the semiconductor devi credible reason to believe that the unavoid ory scheme world-wide. You can access the UL iQTM family of datat	ce and, to the able impurity c bases to obtair	oncentration on a test report	of the at	2.09	<u>·</u>	Total	100.00	
chemical substance is absent from the list above, the hnology Incorporated's knowledge and belief as of th mical substance, if any, is not below the threshold of ding compounds used by Microchip meet the UL94 VG .//ul.com/global/eng/pages/offerings/industries/chemi protective "tubes" in which the specific product is sl and certain "reels" may be made from PVC plastic.	chemical substance is NOT an inte e date of this document, there is no regulatory concern for any regulato 0 flammability standard for plastics. icals/plastics/ hipped are made from polyvinyl chlo	ntional ingredient in the semiconductor devi credible reason to believe that the unavoid ory scheme world-wide. You can access the UL iQTM family of datat bride (PVC) plastic. "Window envelopes" use	ce and, to the able impurity c bases to obtair d to hold the p	oncentration o n a test report packing slip or	of the at n the outer	2.09	(mg) Total	Total Wire Bond	100.00 % of Total Weight 100	0.42
pulance with the above EU Directives has been vernit, chemical substance is absent from the list above, the hnology Incorporated's knowledge and belief as of th mical substance, if any, is not below the threshold of ding compounds used by Microchip meet the UL94 V(J'ul.com/global/eng/pages/offerings/industries/chemi protective "tubes" in which the specific product is sl and certain "reels" may be made from PVC plastic. rochip Technology Incorporated believes the informati ices in their original packing materials is true and cor rantee the completeness and accuracy of data in this erial suppliers. Supplier information is often protected material suppliers. Information is provided only as es se estimates do not include trace levels of dopants, n	chemical substance is NOT an inte le date of this document, there is no regulatory concern for any regulato 0 flammability standard for plastics. icals/plastics/ hipped are made from polyvinyl chlo tion in this form concerning substan rect to the best of its knowledge an form because it has been compiled from disclosure as trade secrets a stimates of the average weight of th	ntional ingredient in the semiconductor devi o credible reason to believe that the unavoid ory scheme world-wide. You can access the UL iQTM family of datate oride (PVC) plastic. "Window envelopes" use nces restricted by RoHS in Microchip Techno d belief, as of the date listed in this form. Mic based on the ranges provided in Material S and some information may not have been pro ese parts and the average weight of anticipa	ce and, to the balle impurity c bases to obtain d to hold the p blogy Incorpor crochip Techni afety Data She ovided by subo ted significant	oncentration o n a test report backing slip or ated's semico ology Incorpor ets provided b contract assem toxic metals o	of the at In the outer Inductor rated cannot by raw Inblers and	2.09	(mg) Total	Total Wire Bond 7440-57-5	100.00 % of Total Weight 100	0.42
chemical substance is absent from the list above, the hnology Incorporated's knowledge and belief as of th mical substance, if any, is not below the threshold of ding compounds used by Microchip meet the UL94 VG ://ul.com/global/eng/pages/offerings/industries/chemi protective "tubes" in which the specific product is sl and certain "reels" may be made from PVC plastic. rochip Technology Incorporated believes the informatices is their original packing materials is true and cor- rantee the completeness and accuracy of data in this erial suppliers. Supplier information is often protecter material suppliers. Information is provided only as es-	chemical substance is NOT an inte e date of this document, there is no regulatory concern for any regulato 0 flammability standard for plastics. icals/plastics/ hipped are made from polyvinyl chlor tion in this form concerning substan rect to the best of its knowledge an form because it has been compiled d from disclosure as trade secrets a stimates of the average weight of the netals, and non-metal materials con y warranty, express or implied, with corporated and its subsidiaries are	Intional ingredient in the semiconductor devi oredible reason to believe that the unavoid ory scheme world-wide. You can access the UL iQTM family of datater oride (PVC) plastic. "Window envelopes" use nees restricted by RoHS in Microchip Techno d belief, as of the date listed in this form. Mic I based on the ranges provided in Material S and some information may not have been pro- ese parts and the average weight of anticipa tained within silicon devices (silicon IC) in the respect to the information provided in this d	ce and, to the balle impurity c bases to obtain d to hold the p blogy Incorpor rochip Techna afety Data She ted significant e finished par eclaration. Th	oncentration o n a test report packing slip or ated's semico ology Incorpoi tes provided t sontract assen toxic metals o ts. e exclusive, lir	of the at in the outer inductor rated cannot by raw biblers and components.	2.09	(mg) Total	Total Wire Bond 7440-57-5	100.00 % of Total Weight 100	0.42
whemical substance is absent from the list above, the nology Incorporated's knowledge and belief as of th nical substance, if any, is not below the threshold of ling compounds used by Microchip meet the UL94 V(//ul.com/global/eng/pages/offerings/industries/chemi protective "tubes" in which the specific product is sl and certain "reels" may be made from PVC plastic. ochip Technology Incorporated believes the informan- ces in their original packing materials is true and cor antee the completeness and accuracy of data in this riral suppliers. Supplier information is often protecter material suppliers. Information is provided only as es- se estimates do not include trace levels of dopants, n ochip Technology Incorporated does not provide any uct warranties provided by Microchip Technology In-	chemical substance is NOT an inte e date of this document, there is no regulatory concern for any regulato 0 flammability standard for plastics. icals/plastics/ hipped are made from polyvinyl chlo tion in this form concerning substan- rect to the best of its knowledge an form because it has been complied d from disclosure as trade secrets a stimates of the average weight of the netals, and non-metal materials con y warranty, express or implied, with corporated and its subsidiaries are , and invoices. or changes to Material Content Decl f the users' reliance on the informal	Initional ingredient in the semiconductor devi oredible reason to believe that the unavoid ory scheme world-wide. You can access the UL iQTM family of datator oride (PVC) plastic. "Window envelopes" use neces restricted by RoHS in Microchip Techni d belief, as of the date listed in his form. Mic based on the ranges provided in Material S and some information may not have been pre ese parts and the average weight of anticipa tained within silicon devices (silicon IC) in the respect to the information provided in this di- contained in Microchip's standard terms and arations and shall not be liable for any dama	ce and, to the bable impurity c bases to obtain d to hold the p proching Techning afety Data She vided by subc ted significant e claration. Thi d conditions of ges, direct or i	oncentration of a test report packing slip or ated's semico ology Incorpor dets provided t contract assen toxic metals of ts. e exclusive, lir f sale. These a indirect, conse	of the at n the outer nductor rated cannot components. mited re provided equential or		(mg) Total	Total Wire Bond 7440-57-5 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for	100.00 % of Total Weight 100 100.00	0.42
hemical substance is absent from the list above, the nology Incorporated's knowledge and belief as of th sical substance, if any, is not below the threshold of ing compounds used by Microchip meet the UL94 V0 /ul.com/global/eng/pages/offerings/industries/chemi protective "tubes" in which the specific product is st and certain "reels" may be made from PVC plastic. Suchip Technology Incorporated believes the informat es in their original packing materials is true and cor antee the completeness and accuracy of data in this rial suppliers. Supplier information is often protected eaterial suppliers. Information is provided only as es e estimates do not include trace levels of dopants, n suchip Technology Incorporated does not provide any uct warranties provided by Microchip Technology In prochip's quotations, sales order acknowledgement, sochip disclaims any duty to notify users of updates of wise, suffered by users or third parties as a result of	chemical substance is NOT an inte e date of this document, there is no regulatory concern for any regulato 0 flammability standard for plastics. icals/plastics/ hipped are made from polyvinyl chlo tion in this form concerning substan- rect to the best of its knowledge an form because it has been complied d from disclosure as trade secrets a stimates of the average weight of the netals, and non-metal materials con y warranty, express or implied, with corporated and its subsidiaries are , and invoices. or changes to Material Content Decl f the users' reliance on the informal	Initional ingredient in the semiconductor devi oredible reason to believe that the unavoid ory scheme world-wide. You can access the UL iQTM family of datator oride (PVC) plastic. "Window envelopes" use neces restricted by RoHS in Microchip Techni d belief, as of the date listed in his form. Mic based on the ranges provided in Material S and some information may not have been pre ese parts and the average weight of anticipa tained within silicon devices (silicon IC) in the respect to the information provided in this di- contained in Microchip's standard terms and arations and shall not be liable for any dama	ce and, to the bable impurity c bases to obtain d to hold the p proching Techni afety Data She vided by subc ted significant e claration. Thi d conditions of ges, direct or i	oncentration of a test report packing slip or ated's semico ology Incorpor dets provided t contract assen toxic metals of ts. e exclusive, lir f sale. These a indirect, conse	of the at n the outer nductor rated cannot components. mited re provided equential or		(mg) Total Doped Gold (mg) Total	Total Wire Bond 7440-57-5 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	100.00 % of Total Weight 100 100.00 % of Total Weight	: 0.42

Semiconductor Device	Type: MS 100 QFP	14x20x2.7 TS		nation Base A oper Alloy (C	-		Package Hom	ogeneous Materials		JEDEC 97 Product Markin and/or Pkg. Labeling e3
Basic Substance	CAS Number	"Contained In" Sub-Component	% Total Weight	mg/part	ppm	1175.15	(mg) Total	Mold Compound	% ot Total Weight	69.56
Silica Fused	60676-86-0	Mold Compound	61.401	1037.302	614.006		Silica Fused	60676-86-0	88.27	
Epoxy Resin	Trade Secret	Mold Compound	4.341	73.329	43,405		Epoxy Resin	Trade Secret	6.24	
Phenol Resin	Trade Secret	Mold Compound	3.610	60.990	36,102		Phenol Resin	Trade Secret	5.19	
Carbon Black	1333-86-4	Mold Compound	0.209	3.525	2,087		Carbon Black	1333-86-4	0.30	
Copper	7440-50-8	Lead Frame	24.153	408.043	241,531		<u>.</u>	Total	100.00	
Nickel	7440-02-0	Lead Frame	0.644	10.882	6,441	428.43	(mg) Total	Lead Frame	% of Total Weight	25.36
Silver	7440-22-4	Lead Frame	0.423	7.151	4,233		Copper	7440-50-8	95,241	
Silicon	7440-21-3	Lead Frame	0.114	1.928	1,141		Nickel	7440-02-0	2.54	
Magnesium	7439-95-4	Lead Frame	0.025	0.428	254		Silver	7440-22-4	1.669	
Silver	7440-22-4	Die Attach	0.038	0.634	375		Silicon	7440-21-3	0.45	
Epoxy Resin	Trade secret	Die Attach	0.005	0.084	50		Magnesium	7439-95-4	0.1	
Diluent	Trade secret	Die Attach	0.005	0.084	50			Total	100.00	
Hardener	Trade secret	Die Attach	0.003	0.042	25	0.84	(mg) Total	Die Attach	% of Total Weight	0.05
Silicon	7440-21-3	Chip (Die)	3.390	57.271	33,900	0.04	Silver	7440-22-4	75	0.05
Copper	7440-21-5	Wire Bond palladium coated copper (CuPd)	0.069	1.162	688		Epoxy Resin	Trade secret	10.00	
Palladium	7440-05-3	Wire Bond palladium coated copper (CuPd)	0.003	0.021	12		Diluent	Trade secret	10.00	
Tin	7440-31-5	Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	1.570	26.524	15,700		Hardener	Trade secret	5.00	
111	7440-51-5	TOTALS:		1.689.400	1.000.000		liaidenei	Total	100.00	
	4 000 4		100.000	1,009.400	1,000,000			i otal	100.00	
		g Total Mass 002/95/EC (RoHS Directive), EU Directive 2011/65/8	EU (RoHS Reca	st Directive) a	nd with EU	57.27	Total (mg) Doped Silicon	Chip (Die) 7440-21-3	% of Total Weight	3.39
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). pliance with the above EU Directives has been verified v	omply with EU Directive 20	02/95/EC (RoHS Directive), EU Directive 2011/65/ s, supplier declarations, and /or analytical test dat	a.			57.27		7440-21-3 Total		3.39
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). apliance with the above EU Directives has been verified vishemical substance is absent from the list above, the che hnology Incorporated's knowledge and belief as of the da mical substance, if any, is not below the threshold of regu	omply with EU Directive 20 ia internal design controls emical substance is NOT a ate of this document, ther ulatory concern for any re	02/95/EC (RoHS Directive), EU Directive 2011/65/ s, supplier declarations, and /or analytical test dat an intentional ingredient in the semiconductor dev e is no credible reason to believe that the unavoid egulatory scheme world-wide.	a. rice and, to the able impurity co	best of Microconcentration c	hip If the	57.27		7440-21-3	100	3.39 0.07
tive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). pliance with the above EU Directives has been verified v hemical substance is absent from the list above, the che nology incorporated's knowledge and belief as of the da nical substance, if any, is not below the threshold of regu ing compounds used by Microchip meet the UL94 V0 fla //ul.com/global/eng/pages/offerings/industries/chemicals	omply with EU Directive 20 ia internal design controls emical substance is NOT a ate of this document, there ulatory concern for any re immability standard for pla s/plastics/	02/95/EC (RoHS Directive), EU Directive 2011/65/ s, supplier declarations, and /or analytical test dat an intentional ingredient in the semiconductor dev e is no credible reason to believe that the unavoid sgulatory scheme world-wide. astics. You can access the UL iQTM family of data	a. rice and, to the able impurity co bases to obtain	best of Microconcentration of a test report	hip vf the at		Doped Silicon	7440-21-3 Total Wire Bond palladium coated	100 100.00	
s semiconductor device and its homogenous materials co active 2002/53/EC (End-of-Life Vehicles (ELV) Directive). mpliance with the above EU Directives has been verified v chemical substance is absent from the list above, the che chnology Incorporated's knowledge and belief as of the da mical substance, if any, is not below the threshold of reg Iding compounds used by Microchip meet the UL94 V0 fla S/ul.com/global/eng/pages/offerings/industries/chemicals protective "tubes" in which the specific product is shipp and certain "reels" may be made from PVC plastic.	omply with EU Directive 20 ia internal design controls emical substance is NOT a ate of this document, there ulatory concern for any re immability standard for pla s/plastics/	02/95/EC (RoHS Directive), EU Directive 2011/65/ s, supplier declarations, and /or analytical test dat an intentional ingredient in the semiconductor dev e is no credible reason to believe that the unavoid sgulatory scheme world-wide. astics. You can access the UL iQTM family of data	a. rice and, to the able impurity co bases to obtain	best of Microconcentration of a test report	hip vf the at		Doped Silicon (mg) Total	Vire Bond palladium coated copper (CuPd) 7440-50-8 7440-05-3	100 100.00 % of Total Weight 98 2	
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). npliance with the above EU Directives has been verified v chemical substance is absent from the list above, the che hnology Incorporated's knowledge and belief as of the da mical substance, if any, is not below the threshold of reg ding compounds used by Microchip meet the UL94 V0 fla ://ul.com/global/eng/pages/offerings/industries/chemicals protective "tubes" in which the specific product is shipp	amply with EU Directive 20 ia internal design controls amical substance is NOT a ate of this document, there ulatory concern for any re mmability standard for pla s/plastics/ wed are made from polyvin in this form concerning s to the best of its knowled m disclosure as trade see ates of the average weigh	02/95/EC (RoHS Directive), EU Directive 2011/65/ s, supplier declarations, and /or analytical test dat an intentional ingredient in the semiconductor dev e is no credible reason to believe that the unavoid egulatory scheme world-wide. astics. You can access the UL iQTM family of data nyl chloride (PVC) plastic. "Window envelopes" us substances restricted by RoHS in Microchip Techn dge and belief, as of the date listed in this form. Mi mpiled based on the ranges provided in Material S crets and some information may not have been pr t of these parts and the average weight of anticipa	a. ice and, to the i able impurity cr bases to obtain ed to hold the p ology Incorpora crochip Techno safety Data She civided by subc ted significant	best of Microconcentration of a test report a acking slip on ated's semicoo plogy Incorpor ets provided b ontract assem toxic metals of	hip of the at the outer nductor ated cannot y raw bibers and		Copper	Total Wire Bond palladium coated copper (CuPd) 7440-50-8	100 100.00 % of Total Weight 98 2	
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). npliance with the above EU Directives has been verified vi- chemical substance is absent from the list above, the che hnology Incorporated's knowledge and belief as of the da mical substance, if any, is not below the threshold of regu- ding compounds used by Microchip meet the UL94 V0 fla .//ul.com/global/eng/pages/offerings/industries/chemicals protective "tubes" in which the specific product is shipp and certain "reels" may be made from PVC plastic. rochip Technology Incorporated believes the information ices in their original packing materials is true and correct rantee the completeness and accuracy of data in this forr erial suppliers. Supplier information is often protected from material suppliers. Mormation is provided only as estime	amply with EU Directive 20 ia internal design controls emical substance is NOT a tee of this document, there ulatory concern for any re mmability standard for pla s/plastics/ wed are made from polyvin in this form concerning s to the best of its knowled m because it has been coi om disclosure as trade sea ates of the average weigh als, and non-metal materia arrranty, express or impliec porated and its subsidiarie d invoices.	002/95/EC (RoHS Directive), EU Directive 2011/65/ s, supplier declarations, and /or analytical test dat an intentional ingredient in the semiconductor dev e is no credible reason to believe that the unavoid egulatory scheme world-wide. astics. You can access the UL iQTM family of data nyl chloride (PVC) plastic. "Window envelopes" us substances restricted by RoHS in Microchip Techn dge and belief, as of the date listed in this form. Mi mpiled based on the ranges provided in Material S crets and some information may not have been pr t of these parts and the average weight of anticipa ls contained within silicon devices (silicon IC) in t d, with respect to the information provided in this form as are contained in Microchip's standard terms an t Declarations and shall not be liable for any dama	a. ice and, to the l able impurity cr bases to obtain ed to hold the p lology Incorpora crochip Techno safety Data She ovided by subc ted significant he finished part declaration. The d conditions of ages, direct or i	best of Microconcentration of a test report a acking slip or ated's semicor plogy Incorpor ets provided b ontract assem toxic metals of s. e exclusive, lim sale. These a ndirect, conse	hip of the at the outer ated cannot y raw ublers and omponents. nited re provided equential or		Copper	Vire Bond palladium coated copper (CuPd) 7440-50-8 7440-05-3	100 100.00 % of Total Weight 98 2	

1,689.4

		D0 44 44 4 (78)		nination Base Copper Alloy (•	geneous Materials: g. pc boards, display:	s)	JEDEC 97 Produc Marking and/or Pkg. Labeling e3
Semiconductor Device	e Type: NU TQFP 12	28 14x14x1mm (Z2) "Contained In"	% Total	1						
Basic Substance	CAS Number	Sub-Component	Weight	mg/part	ppm	372.52	(mg) Total	Mold Compound	% ot Total Weight	66.82
Silica, vitreous (or fused)	60676-86-0	Mold Compound	56.797	316.643	567,970		Silica, vitreous (or fused)	60676-86-0	85.00	
Epoxy Resin	Trade Secret	Mold Compound	5.813	32.409	58,133		Epoxy Resin	Trade Secret	8.70	
Phenolic Resin	Trade Secret	Mold Compound	4.009	22.351	40,092		Phenolic Resin	Trade Secret	6.00	
Carbon Black	1333-86-4	Mold Compound	0.200	1.118	2,005		Carbon Black	1333-86-4	0.30	
Copper	7440-50-8	Lead Frame	25.658	143.043	256,579			Total	100.00	
Nickel	7440-02-0	Lead Frame	0.684	3.815	6,843	150.19	(mg) Total	Lead Frame	% of Total Weight	26.94
Silver	7440-22-4	Lead Frame	0.450	2.507	4,496		Copper	7440-50-8	95.24	
Silicon	7440-21-3	Lead Frame	0.121	0.676	1,212		Nickel	7440-02-0	2.54	
Magnesium	7439-95-4	Lead Frame	0.027	0.150	269		Silver	7440-22-4	1.67	
Silver	7440-22-4	Die Attach	0.052	0.288	517		Silicon	7440-21-3	0.45	
Epoxy Resin	9003-36-5	Die Attach	0.013	0.073	132		Magnesium	7439-95-4	0.10	
t-Butyl phenyl glycidyl ether	3101-60-8	Die Attach	0.004	0.025	44			Total	100.00	
Phenolic hardener	92-88-6	Die Attach	0.000	0.001	2	0.39	(mg) Total	Die Attach	% of Total Weight	0.07
Butyl cellosolve acetate	112-07-2	Die Attach	0.001	0.003	6		Silver	7440-22-4	73.80	
Silicon	7440-21-3	Chip (Die)	4.760	26.537	47,600		Epoxy Resin	9003-36-5	18.80	
Gold	7440-57-5	Wire Bond	0.250	1.394	2,500		t-Butyl phenyl glycidyl ether	3101-60-8	6.30	
Tin	7440-31-5	Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	1.160	6.467	11,600		Phenolic hardener	92-88-6	0.30	
		TOTALS:	100.000	557.500	1,000,000		Butyl cellosolve acetate	112-07-2	1	
	0.5575	n Total Mass						Total	100.00	
ive 2002/53/EC (End-of-Life Vehicles (ELV) Directive).	mply with EU Directive 2002		(RoHS Recast	t Directive) and	l with EU	26.54	(mg) Total	Chip (Die)	% of Total Weight	4.76
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). pliance with the above EU Directives has been verified vi hemical substance is absent from the list above, the cher	mply with EU Directive 2002 a internal design controls, s mical substance is NOT an i	995/EC (RoHS Directive), EU Directive 2011/65/EU (upplier declarations, and /or analytical test data.	and, to the be	est of Microchi	ip Technology	26.54	(mg) Total Doped Silicon			4.76
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). pliance with the above EU Directives has been verified vi themical substance is absent from the list above, the cher rporated's knowledge and belief as of the date of this doc is not below the threshold of regulatory concern for any i	mply with EU Directive 2002 a internal design controls, s mical substance is NOT an i ument, there is no credible regulatory scheme world-wi	995/EC (RoHS Directive), EU Directive 2011/65/EU (upplier declarations, and /or analytical test data. intentional ingredient in the semiconductor device reason to believe that the unavoidable impurity co de.	and, to the be	est of Microchi f the chemical	ip Technology substance, if		Doped Silicon	Chip (Die) 7440-21-3 Total	% of Total Weight 100 100.00	
stive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). pliance with the above EU Directives has been verified vi hemical substance is absent from the list above, the che porated's knowledge and belief as of the date of this doc is not below the threshold of regulatory concern for any i ing compounds used by Microchip meet the UL94 V0 flan //ul.com/global/eng/pages/offerings/industries/chemicals/	mply with EU Directive 2002 a internal design controls, s mical substance is NOT an i ument, there is no credible regulatory scheme world-wi nmability standard for plast (plastics/	995/EC (RoHS Directive), EU Directive 2011/65/EU (upplier declarations, and /or analytical test data. intentional ingredient in the semiconductor device reason to believe that the unavoidable impurity co de. ics. You can access the UL iQTM family of databas	and, to the be ncentration o ses to obtain a	est of Microchi of the chemical a test report at	ip Technology substance, if	26.54		Chip (Die) 7440-21-3	% of Total Weight	4.76 0.25
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). pliance with the above EU Directives has been verified via chemical substance is absent from the list above, the cher rporated's knowledge and belief as of the date of this doc is not below the threshold of regulatory concern for any I ling compounds used by Microchip meet the UL94 V0 flan //ul.com/global/eng/pages/offerings/industries/chemicals/ protective "tubes" in which the specific product is shippe	mply with EU Directive 2002 a internal design controls, s mical substance is NOT an i ument, there is no credible regulatory scheme world-wi nmability standard for plast (plastics/	995/EC (RoHS Directive), EU Directive 2011/65/EU (upplier declarations, and /or analytical test data. intentional ingredient in the semiconductor device reason to believe that the unavoidable impurity co de. ics. You can access the UL iQTM family of databas	and, to the be ncentration o ses to obtain a	est of Microchi of the chemical a test report at	ip Technology substance, if		Doped Silicon	Chip (Die) 7440-21-3 Total	% of Total Weight 100 100.00	
semiconductor device and its homogenous materials cor ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). upliance with the above EU Directives has been verified via chemical substance is absent from the list above, the cher prorated's knowledge and belief as of the date of this doc is not below the threshold of regulatory concern for any ding compounds used by Microchip meet the UL94 V0 flan //ul.com/global/eng/pages/offerings/industries/chemicals/ protective "tubes" in which the specific product is shippe certain "reels" may be made from PVC plastic. ochip Technology Incorporated believes the information i eir original packing materials is true and correct to the be completeness and accuracy of data in this form because i piler information is often protected from disclosure as tra- mation is provided only as estimates of the average weig ude trace levels of dopants, metals, and non-metal materia	mply with EU Directive 2002 a internal design controls, s mical substance is NOT an i ument, there is no credible regulatory scheme world-wi nmability standard for plast /plastics/ ed are made from polyvinyl n this form concerning sub: st of its knowledge and beli t has been compiled based de secrets and some inform ht of these parts and the av	995/EC (RoHS Directive), EU Directive 2011/65/EU (upplier declarations, and /or analytical test data. intentional ingredient in the semiconductor device reason to believe that the unavoidable impurity co de. ics. You can access the UL iQTM family of databas chloride (PVC) plastic. "Window envelopes" used t stances restricted by RoHS in Microchip Technolo ief, as of the date listed in this form. Microchip Tec on the ranges provided in Material Safety Data She lation may not have been provided by subcontract erage weight of anticipated significant toxic metal	and, to the be ncentration o ses to obtain a to hold the pa gy Incorporat chnology Inco sets provided assemblers a	est of Microchi of the chemical a test report at a test seport at cking slip on t read's semicond rporated cann by raw materi and raw materi	ip Technology substance, if he outer box luctor devices of guarantee al suppliers. ial suppliers.		Doped Silicon	Chip (Die) 7440-21-3 Total Wire Bond	% of Total Weight 100 100.00 % of Total Weight	
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). upliance with the above EU Directives has been verified via themical substance is absent from the list above, the cherr prorated's knowledge and belief as of the date of this doc is not below the threshold of regulatory concern for any in ting compounds used by Microchip meet the UL94 V0 flam //ul.com/global/eng/pages/offerings/industries/chemicals/ protective "tubes" in which the specific product is shippe certain "reels" may be made from PVC plastic. ochip Technology Incorporated believes the information i eir original packing materials is true and correct to the be completeness and accuracy of data in this form because i plier information is often protected from disclosure as trai mation is provided only as estimates of the average weig	mply with EU Directive 2002 a internal design controls, s mical substance is NOT an i ument, there is no credible regulatory scheme world-wi plastics/ and are made from polyvingl to this form concerning sub- ts of its knowledge and beli t has been compiled based de secrets and some inform ht of these parts and the av als contained within silicon- ranty, express or implied, w	995/EC (RoHS Directive), EU Directive 2011/65/EU (upplier declarations, and /or analytical test data. intentional ingredient in the semiconductor device reason to believe that the unavoidable impurity co de. ics. You can access the UL iQTM family of databas chloride (PVC) plastic. "Window envelopes" used f stances restricted by RoHS in Microchip Technolo ief, as of the date listed in this form. Microchip Tec on the ranges provided in Material Safety Data She aton may not have been provided by subcontract erage weight of anticipated significant toxic metals devices (silicon IC) in the finished parts.	and, to the be ncentration o ses to obtain a to hold the pa gy Incorporat chnology Inco sets provided assemblers a s components laration. The e	est of Microchi of the chemical a test report at a test semicond riporated cann by raw materi and raw materi s. These estim exclusive, limi	ip Technology substance, if he outer box luctor devices of guarantee al suppliers. ial suppliers. ial suppliers. ted product		(mg) Total (mg) Total	Chip (Die) 7440-21-3 Total Wire Bond 7440-57-5	% of Total Weight 100 100.00 % of Total Weight 100.00	
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rochip Technology Incorporated believes the information in this form concerning substances restricted by RoHS in Microchip Technology Incorporated's semiconductor devices heir original packing materials is true and correct to the best of its knowledge and belief, as of the date listed in this form. Microchip Technology Incorporated cannot guarantee completeness and accuracy of data in this form because it has been compiled based on the ranges provided in Material Safety Data Sheets provided by raw material suppliers. spiler information is often protected from disclosure as trade secrets and some information may not have been provided by subcontract assemblers and raw material suppliers. rormation is provided only as estimates of the average weight of these parts and the average weight of anticipated significant toxic metals components. These estimates do not ude trace levels of dopants, metals, and non-metal materials contained within silicon devices (silicon IC) in the finished parts. rochip Technology Incorporated does not provide any warranty, express or implied, with respect to the information provided in this declaration. The exclusive, limited product ranties provided by Microchip Technology Incorporated and its subsidiaries are contained in Microchip's standard terms and conditions of sale. These are provided in Microchip's 8.36 (mg) Total Plating on external leads (pins)- Matte Tin / % of Total Weight 1.22					ination Base opper Alloy (nogeneous Materials: e.g. pc boards, display	s)	JEDEC 97 Produc Marking and/or Pkg. Labeling e3	
Baic Sub-Component Weight ngpn 447.72 (mg) Total Mold Company Vie Trait Weight 64.33 Silve untrong (or function) Trait Sector Mold Company 6.33 40.33<	Semiconductor Devic	e Type: PH 144 (Lead) TQF		A/ - - 1								
Encode Real Totals Scoret Modi Compound 6.938 40.891 69.302 Circuit 1146 Scoret 1146 Scoret 6.700 10.000 10.000 Circuit 1146 Scoret 10.000 10.000 10.000 10.000 10.000 Circuit 1146 Scoret 10.000	Basic Substance	CAS Number			mg/part	ppm	467.72	(mg) Total	Mold Compound	% ot Total Weight	68.23	
Private Rean Trade Sector Noted Compound 4.003 2000 4.003 2000 4.003 Private Rean Trade Sector 0.000 Color 1733-86-4 Mod Compound 0.000 164.07 20.000 164.07 20.000 164.07 20.000 164.07 20.000 164.07 20.000 164.07 20.000 164.07 20.000 164.07 20.000 164.07 20.000 100.00	Silica, vitreous (or fused)	60676-86-0						Silica, vitreous (or fused)	60676-86-0	85.0000		
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$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$								Carbon Black				
Sher 7440-02-4 Lead Frame 0.527 3.613 5.271 The 7440-36 0.72 Discrimin 7440-66 Lead Frame 0.050 0.341 488 20<									Total			
$\frac{2 \text{ nc}}{2 \text{ cm}} \frac{7440.966}{4 \text{ cm}} \frac{1440.73}{4 \text{ cm}} \frac{1440.74}{4 \text{ cm}} 144$					-		189.68	(mg) Total	Lead Frame	% of Total Weight	27.67	
Chromium 7440-47-3 Lead Frame 0.0693 0.474 6.927 NWW (K)0) Tride Statu Die Attach 0.0423 2.020 4.233 Chromium 7440-64-7.3 0.011 Die Attach 0.0423 2.020 4.233 Chromium 7440-64-7.3 0.010 Die Attach 0.0421 0.016 0.015 4.053 Chromium 7440-64-7.3 0.020 Die Attach 0.016 0.0216 0.135 4.053 0.020 0.011 7440-24-4 0.010<								Copper				
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Doped Gold 7440-57-5 Wire Bord 0.280 1.91 2.800 Ster (Aq) 7440-22-4 83.00 Tin 740-31-5 Purge ownerwal water (more the True and ear of tool tool tool tool tool tool tool t												
Tin Trade Server Trade Server Trade Server					-		3.50	(mg) Total		% of Total Weight	0.51	
Output Display TOTALS: 100.000 685.500 1,000,000 OTALS: 100.000 685.500 1,000,000 BENCH Take Secret 8.00 Total Mass Total Mass Colspan="2">Total Mass Total Chip (Die) % of Total Weight 2.09 Total States (ELV) Directive). Total States (ELV) Directive and the homogenous materials company with EU Directive 2002/95/EC (RoHS Directive), EU Directive 2011/65/EU (RoHS Recast Directive) and with EU Check (ELV) Directives has been verified via internal design controls, supplier declarations, and /or analytical test data. Check (ELV) Directives has been verified via internal design controls, supplier declarations, and /or analytical test data. Check (ELV) Directives has been verified via internal design controls, supplier declarations, and /or analytical test data. Check (ELV) Directive Notes (ELV) Directive). (In the back (ELV) Directive). <td colsp<="" td=""><td>Doped Gold</td><td></td><td>Wire Bond</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td>	<td>Doped Gold</td> <td></td> <td>Wire Bond</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	Doped Gold		Wire Bond								
Outcome Total <	Tin	7440-31-5 Plating of										
s semiconductor device and its homogenous materials comply with EU Directive 2002/BC/C (R46) FDirective), EU Directive 2011/65/EU (R4HS Recast Directive) and with EU to the 2002/SU2C (Edi-of-Life Vehicles (EU) Directive). Phalance with the above EU Directives has been verified via internal design controls, supplier declarations, and /or analytical test data. chemical substance is absent from the list above, the chemical substance is NOT an intentional ingredient in the semiconductor device and, to the best of Microchip Technology proprated's knowledge and belief as of the date of this document, there is no credible reason to believe that the unavoidable impurity concentration of the chemical substance, if is no below the threshold of regulatory concern for any regulatory scheme world-wide. ding compounds used by Microchip meet the UL94 V0 flammability standard for plastics. You can access the UL IQTM family of databases to obtain a test report at is no below the information in this form concerning substances restricted by R0HS in Microchip Technology Incorporated believes the information in this form concerning substances restricted by R0HS in Microchip Technology Incorporated cannon gluarantee beit original packing manufals is true and correct to the best of its knowledge and belief, as of the date listed in Microchip Technology Incorporated does not provided part as strue and correct to the best of an information may not have been provided by subcontract assemblers and raw material suppliers. Total 100.00 Total 40/2 - 21-3 100.00 Tota			TOTALS:	100.000	685.500	1,000,000		EPOXY RESIN				
scieve 2002/33/EC (End-of-Life Vehicles (ELV) Directive). 14.33 (mg) Total Chip (Die) % of Total Weight 2.09 npliance with the above EU Directives has been verified via internal design controls, supplier declarations, and /or analytical test data. Doped Selicon 7.440-21:3 100 orapicated*s knowledge and belief as of the dato of this document, there is no credible reason to believe that the unavoidable impurity concentration of the chemical substance, if 14.33 (mg) Total Doped Selicon 7.440-21:3 100 oraging compounds used by Microchip meet the ULAV 0 finamability standard for plastics. You can access the UL iQTM family of databases to obtain a test report at 1.92 (mg) Total Wire Bond %, of Total Weight 0.28 oracing compounds used by Microchip meet the ULAV 0 finamability standard for plastics. You can access the UL iQTM family of databases to obtain a test report at 1.92 (mg) Total Wire Bond %, of Total Weight 0.28 vi/ul. completeness mask of the specific product is shipped are made from polyvinyl chloride (PVC) plastic. "Window envelopes" used to hold the packing slip on the outro box Doped Gold 7.440-57.5 100.00 Total 100.00 Total 100.00 Wire Bond % of Total Weight 1.22 total weight and correct to the best of its knowledge and beilef, as of the date listed in this form because it has bere complete bease pa		0.6855 g To	tal Mass						Total	100.00		
cerice 2002/32/L (End-of-Life Venice's (Expl) Directive). mpliance with the above EU Directives has been verified via internal design controls, supplier declarations, and /or analytical test data. chemical substance is absent from the list above, the chemical substance is NOT an intertional ingredient in the semiconductor device and, to the best of Microchip Technology proprated's knowledge and belief as of the date of this document, there is no credible reason to believe that the unavoidable impurity concentration of the chemical substance, is in obtaining single transmission of or any regulatory concern for approximation is specific product is shipped are made from polyvinyl chloride (PVC) plastic. "Window envelopes" used to hold the packing slip on the outer box the reals" may be made from PVC plastic. Total Total 192 (mg) Total Wire Bond % of Total Weight 0.28 Deped Gold 7440-57-5 100.00 Total 100.00 Total 192 (mg) Total Wire Bond % of Total Weight 0.28 Deped Gold 7440-57-5 100.00 Total 100.00 Tot		omply with EU Directive 2002/95/EC	(RoHS Directive), EU Directive 2011/65/EU (F	RoHS Recast	Directive) and	with EU	14 33	(mg) Total	Chin (Die)	% of Total Weight	2.09	
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chemical substance is absent from the list above, the chemical substance is NOT an interfulorial angretation of the document, there is no credible reason to believe that the unavoidable impurity concentration of the chemical substance, if is not below the threshold of regulatory concern for any regulatory scheme world-wide. ding compounds used by Microchip meet the UL94 V0 flammability standard for plastics. You can access the UL IQTM family of databases to obtain a test report at sivul.com/global/eng/pages/offerings/industries/chemicals/plastics/ protective "tubes" in which the specific product is shipped are made from polyvinyl chloride (PVC) plastic. "Window envelopes" used to hold the packing slip on the outer box I certain "reels" may be made from PVC plastic. Total 100.00 Total 00.00 Total	mpliance with the above EU Directives has been verified v	/ia internal design controls, supplie	r declarations, and /or analytical test data.					Doped Silicon	7440-21-3	100		
In certain "reels" may be made from PVC plastic. Doped Gold 7440-57-5 100.00 Total Total 100.00 In certain "reels" may be made from PVC plastic. Total 100.00 rochip Technology Incorporated believes the information in this form concerning substances restricted by RoHS in Microchip Technology Incorporated cannot guarantee completeness and accuracy of data in this form because it has been compiled based on the ranges provided in Material Salety Data Sheets provided by raw material suppliers. provided only as estimates of the average weight of these parts and the average weight of anticipated significant toxic metals components. These estimates do not use trace levels of dopants, metals, and non-metal materials contained within silicon devices (silicon IC) in the finished parts. Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour rochip Technology Incorporated does not provide on to more the information in Material Content Declarations (MCD) or independent third party test reports (SGS) Tin 7440-31-5 100.00	corporated's knowledge and belief as of the date of this do y, is not below the threshold of regulatory concern for any	ocument, there is no credible reason										
rochip Technology Incorporated believes the information in this form concerning substances restricted by RoHS in Microchip Technology Incorporated's semiconductor devices heir original packing materials is true and correct to the best of its knowledge and belief, as of the date listed in this form. Microchip Technology Incorporated cannot guarantees completeness and accuracy of data in this form because it has been compiled based on the ranges provided by subcontract assemblers and raw material suppliers. pplier information is often protected from disclosure as trade secrets and some information may not have been provided by subcontract assemblers and raw material suppliers. primation is provided only as estimates of the average weight of these parts and the average weight of anticipated significant toxic metals components. These estimates do not ude trace levels of dopants, metals, and non-metal materials contained within silicon devices (silicon IC) in the finished parts. rochip Technology Incorporated does not provide any warranty, express or implied, with respect to the information provided in this declaration. The exclusive, limited product ranties provided by Microchip Technology Incorporated and its subsidiaries are contained in Microchip's standard terms and conditions of sale. These are provided in Microchip's rochip technology Incorporated on the users' reliance on the information in Material Content Declarations (MCD) or independent third party test reports (SGS) of this Certificate of Compliance for semiconductor products.			ou can access the UL iQTM family of database	es to obtain a	test report at		1.92	(mg) Total	Wire Bond	% of Total Weight	0.28	
Note: In the provide and warranty, express of implicit, with respect to the information provided in this declaration. The exclusive, nimed product and warranty, express of implicit, with respect to the information provided in this declaration. The exclusive, nimed product and its ubsidiaries are contained in Microchip's standard terms and conditions of sale. These are provided in Microchip's 8.36 (mg) Total (pins) - Matte Tin / annealed at 150°C for 1 hour % of Total Weight 1.22 training provided by Microchip Technology incorporated and its subsidiaries are contained in Microchip's standard terms and conditions of sale. These are provided in Microchip's 8.36 (mg) Total (pins) - Matte Tin / annealed at 150°C for 1 hour % of Total Weight 1.22 tations, sales order acknowledgement, and invoices. rochip disclaims any duty to notify users of updates or changes to Material Content Declarations and shall not be liable for any damages, direct or indirect, consequential or revise, suffered by users or third parties as a result of the users' reliance on the information in Material Content Declarations (MCD) or independent third party test reports (SGS) Tin Tin 7440-31-5 100.00	tp://ul.com/global/eng/pages/offerings/industries/chemical	s/plastics/	-			e outer box	1.92		7440-57-5	100.00	0.28	
erwise, suffered by users or third parties as a result of the users' reliance on the information in Material Content Declarations (MCD) or independent third party test reports (SGS) Tin 7440-31-5 100.00 of this Certificate of Compliance for semiconductor products.	tp://ul.com/global/eng/pages/offerings/industries/chemical: ne protective "tubes" in which the specific product is shipp ad certain "reels" may be made from PVC plastic. icrochip Technology Incorporated believes the information their original packing materials is true and correct to the e completeness and accuracy of data in this form because upplier information is often protected from disclosure as tr formation is provided only as estimates of the average wei	s/plastics/ bed are made from polyvinyl chloric in this form concerning substance best of its knowledge and belief, as it has been compiled based on the ade secrets and some information ight of these parts and the average	de (PVC) plastic. "Window envelopes" used to es restricted by RoHS in Microchip Technology of the date listed in this form. Microchip Tech ranges provided in Material Safety Data Shee may not have been provided by subcontract a weight of anticipated significant toxic metals	hold the pac y Incorporate nology Incor ets provided to assemblers an	king slip on th d's semicondu porated canno by raw materia nd raw materia	uctor devices t guarantee I suppliers. Il suppliers.	1.92		7440-57-5	100.00	0.28	
	tp://ul.com/global/eng/pages/offerings/industries/chemical: te protective "tubes" in which the specific product is shipp d certain "reels" may be made from PVC plastic. crochip Technology Incorporated believes the information their original packing materials is true and correct to the b e completeness and accuracy of data in this form because upplier information is often protected from disclosure as tr formation is provided only as estimates of the average wei clude trace levels of dopants, metals, and non-metal mater crochip Technology Incorporated does not provide any we	s/plastics/ bed are made from polyvinyl chloric in this form concerning substance best of its knowledge and belief, as it has been compiled based on the ade secrets and some information ight of these parts and the average rials contained within silicon device arranty, express or implied, with res	de (PVC) plastic. "Window envelopes" used to es restricted by RoHS in Microchip Technology of the date listed in this form. Microchip Tech e ranges provided in Material Safety Data Shee may not have been provided by subcontract a weight of anticipated significant toxic metals es (silicon IC) in the finished parts. spect to the information provided in this decla	y Incorporate nology Incorp ets provided to ssemblers ar components.	king slip on th d's semicondu oorated canno oy raw materia dl raw materia These estima kclusive, limite	uctor devices t guarantee I suppliers. I suppliers. tes do not ed product		Doped Gold	7440-57-5 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1	100.00 100.00		
10tai 100.00	p://ul.com/global/eng/pages/offerings/industries/chemical: e protective "tubes" in which the specific product is shipp d certain "reels" may be made from PVC plastic. crochip Technology Incorporated believes the information their original packing materials is true and correct to the b completeness and accuracy of data in this form because pplier information is often protected from disclosure as tr ormation is provided only as estimates of the average wei dude trace levels of dopants, metals, and non-metal mater crochip Technology Incorporated does not provide any wa rranties provided by Microchip Technology Incorporated otations, sales order acknowledgement, and invoices.	s/plastics/ bed are made from polyvinyl chloric in this form concerning substance best of its knowledge and belief, as it has been compiled based on the ade secrets and some information ight of these parts and the average rials contained within silicon device arranty, express or implied, with re- and its subsidiaries are contained in hanges to Material Content Declara ie users' reliance on the information	de (PVC) plastic. "Window envelopes" used to es restricted by RoHS in Microchip Technology of the date listed in this form. Microchip Tech e ranges provided in Material Safety Data Shee may not have been provided by subcontract a weight of anticipated significant toxic metals is (silicon IC) in the finished parts. spect to the information provided in this decla n Microchip's standard terms and conditions of thom shall not be liable for any damages,	y Incorporate nology Incorp ets provided th sesemblers an components. aration. The e of sale. These , direct or ind	king slip on th d's semicondu porated canno py raw materia d raw materia These estima xclusive, limitu e are provided irect, consequ	Ictor devices t guarantee I suppliers. I suppliers. I suppliers. tes do not et s do not ad product in Microchip's ential or		Doped Gold (mg) Total	7440-57-5 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	100.00 100.00 % of Total Weight		

ICROCHIP Semiconductor Device Type	•• ST 08 // and) TCC	SOP 44mm (C5/CN/A4)		nation Base A pper Alloy (C				ogeneous Materials: .g. pc boards, displa		JEDEC 97 Product Marki and/or Pkg. Labeling e3
		"Contained In"	% Total			19.49	(mg) Total	Mold Compound	% ot Total Weight	
Basic Substance	CAS Number	Sub-Component	Weight	mg/part	ppm	19.49				59.06
Silica, vitreous	60676-86-0	Mold Compound	50.201	16.566	502,010		Silica, vitreous	60676-86-0	85.00	
Epoxy Resin (No bromine, No diantimony trioxide)	Trade Secret	Mold Compound	3.617	1.194	36,174		Epoxy Resin	Trade Secret	6.13	
Phenolic Resin (No Br / CL SbO3, No diantimony trioxide)	Trade Secret	Mold Compound	3.617	1.194	36,174		Phenolic Resin	Trade Secret	6.13	
Epoxy, Cresol Novolac	29690-82-2	Mold Compound	1.447	0.478	14,470		Epoxy, Cresol Novolac	29690-82-2	2.45	
Carbon Black	1333-86-4	Mold Compound	0.177	0.058	1,772		Carbon Black	1333-86-4	0.30	
Copper	7440-50-8	Lead Frame	30.020	9.907	300,200		-	Total	100.00	
Nickel	7440-02-0	Lead Frame	0.801	0.264	8,006	10.40	(mg) Total	Lead Frame	% of Total Weight	31.52
Silver	7440-22-4	Lead Frame	0.526	0.174	5,261		Copper	7440-50-8	95.24	
Silicon	7440-21-3	Lead Frame	0.142	0.047	1,418		Nickel	7440-02-0	2.54	
Magnesium	7439-95-4	Lead Frame	0.032	0.010	315		Silver	7440-22-4	1.67	
Silver	7440-22-4	Die Attach	0.840	0.277	8,400		Silicon	7440-21-3	0.45	
Diester Resin	94-80-4	Die Attach	0.168	0.055	1,680		Magnesium	7439-95-4	0.10	
Functionalized Urethane Resin	72869-86-4	Die Attach	0.056	0.018	560			Total	100.00	
Epoxy Resin	9003-36-5	Die Attach	0.028	0.009	280	0.37	(mg) Total	Die Attach	% of Total Weight	1.12
Epoxy Resin	13561-08-5	Die Attach	0.028	0.009	280		Silver	7440-22-4	75	
Silicon	7440-21-3	Chip (Die)	6.300	2.079	63,000		Diester Resin	94-80-4	15	
Gold	7440-57-5	Wire Bond	0.180	0.059	1,800	Fun	ctionalized Urethane Resin	72869-86-4	5	
Tin	7440-31-5 Platin	g on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	1.820	0.601	18,200		Epoxy Resin	9003-36-5	3	
				33.000	1.000.000		E. D. C.			
	0.0330 g T with EU Directive 2002/9				,,	2.08	Epoxy Resin	13561-08-5 Total Chip (Die)	3 100.00 % of Total Weight	6.3
tive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). Diance with the above EU Directives has been verified via inte	with EU Directive 2002/9	otal Mass 95/EC (RoHS Directive), EU Directive 2011/65/E 199/Ier declarations, and /or analytical test date	EU (RoHS Reca a.	ast Directive) a	nd with EU	2.08		Total	100.00	6.3
tive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). Diance with the above EU Directives has been verified via inte nemical substance is absent from the list above, the chemica nology Incorporated's knowledge and belief as of the date of ical substance, if any, is not below the threshold of regulator ng compounds used by Microchip meet the UL94 V0 flammal	with EU Directive 2002/s ernal design controls, su I substance is NOT an in this document, there is i y concern for any regula pillity standard for plastic	otal Mass D5/EC (RoHS Directive), EU Directive 2011/65/E applier declarations, and /or analytical test data tentional ingredient in the semiconductor dev no credible reason to believe that the unavoid atory scheme world-wide.	EU (RoHS Reca a. vice and, to the lable impurity c	ast Directive) and best of Microconcentration of the second secon	nd with EU hip of the	2.08	Total (mg)	Total Chip (Die) 7440-21-3	100.00 % of Total Weight 100	6.3
semiconductor device and its homogenous materials comply tive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). bliance with the above EU Directives has been verified via inte nemical substance is absent from the list above, the chemica nology Incorporated's knowledge and belief as of the date of ical substance, if any, is not below the threshold of regulator ng compounds used by Microchip meet the UL94 V0 flammal /ul.com/global/eng/pages/offerings/industries/chemicals/plas orotective "tubes" in which the specific product is shipped ar ind certain "reels" may be made from PVC nlastic.	with EU Directive 2002/s ernal design controls, su I substance is NOT an in this document, there is I y concern for any regula pillty standard for plastic tics/	Otal Mass D5/EC (RoHS Directive), EU Directive 2011/65/E upplier declarations, and /or analytical test data tentional ingredient in the semiconductor dev no credible reason to believe that the unavoid atory scheme world-wide.	EU (RoHS Reca a. vice and, to the lable impurity c ubases to obtain	ast Directive) a best of Microc concentration o n a test report a	nd with EU hip of the		Total (mg) Doped Silcon	Total Chip (Die) 7440-21-3 Total	100.00 % of Total Weight 100 100.00	
tive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). Diance with the above EU Directives has been verified via inte nemical substance is absent from the list above, the chemica nology Incorporated's knowledge and belief as of the date of ical substance, if any, is not below the threshold of regulator ng compounds used by Microchip meet the UL94 V0 flammal /ul.com/global/eng/pages/offerings/industries/chemicals/plas	with EU Directive 2002/s ernal design controls, su I substance is NOT an in this document, there is I y concern for any regula oility standard for plastic tics/ e made from polyvinyl cl s form concerning subst a best of its knowledge a ause it has been compil icclosure as trade secrets of the average weight of I	otal Mass 25/EC (RoHS Directive), EU Directive 2011/65/E applier declarations, and /or analytical test data itentional ingredient in the semiconductor dev no credible reason to believe that the unavoid atory scheme world-wide. Is. You can access the UL iQTM family of datal hloride (PVC) plastic. "Window envelopes" use tances restricted by RoHS in Microchip Techn and belief, as of the date listed in this form. Mic ed based on the ranges provided in Material S s and some information may not have been pro- these parts and the average weight of anticipa	EU (RoHS Reca a. vice and, to the lable impurity c ubases to obtain ed to hold the p nology Incorpor icrochip Techn Safety Data She ovided by subo	ast Directive) and best of Microco concentration of n a test report a packing slip or rated's semico ology Incorpor sets provided b contract assem t toxic metals of	nd with EU ship of the at n the outer nductor rated cannot ny raw bilers and		Total (mg) Doped Silcon (mg) Total	Total Chip (Die) 7440-21-3 Total Wire Bond	100.00 % of Total Weight 100 100.00 % of Total Weight	
tive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). bliance with the above EU Directives has been verified via inter- nemical substance is absent from the list above, the chemica nology Incorporated's knowledge and belief as of the date of ical substance, if any, is not below the threshold of regulator ng compounds used by Microchip meet the UL94 V0 flammal /ul.com/global/eng/pages/offerings/industries/chemicals/plas rotective "tubes" in which the specific product is shipped ar- ind certain "reels" may be made from PVC plastic. hepip Technology Incorporated believes the information in thi es in their original packing materials is true and correct to the inter the completeness and accuracy of data in this form bec- rial suppliers. Information is provided only as estimates co- senting suppliers.	with EU Directive 2002/5 ernal design controls, su I substance is NOT an in this document, there is i y concern for any regula bility standard for plastic tics/ e made from polyvinyl cl s form concerning subst best of its knowledge a ause it has been compil closure as trade secrets f the average weight of d non-metal materials co y, express or implied, wit d and its subsidiaries ar	Otal Mass D5/EC (RoHS Directive), EU Directive 2011/65/E applier declarations, and /or analytical test data itentional ingredient in the semiconductor dev no credible reason to believe that the unavoid atory scheme world-wide. S. You can access the UL iQTM family of data hloride (PVC) plastic. "Window envelopes" use tances restricted by RoHS in Microchip Techn and belief, as of the date listed in this form. Mil ed based on the ranges provided in Material S and some information may not have been pr these parts and the average weight of anticipa pontained within silicon devices (silicon IC) in th th respect to the information provided in this of	EU (RoHS Reca a. vice and, to the lable impurity c abases to obtain ed to hold the p nology Incorpor icrochip Techn Safety Data She ovided by subc ated significant he finished par declaration. Th	ast Directive) and best of Microco concentration of n a test report a packing slip or rated's semico ology Incorpor bets provided b contract ase toxic metals of ts. e exclusive, lir	nd with EU ship of the at the outer nductor rated cannot yy raw blers and components. nited		Total (mg) Doped Silcon (mg) Total Doped Gold (mg) Total	Total Chip (Die) 7440-21-3 Total Wire Bond 7440-57-5	100.00 % of Total Weight 100 100.00 % of Total Weight 100	
tive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). bliance with the above EU Directives has been verified via inter- memical substance is absent from the list above, the chemica- nology Incorporated's knowledge and belief as of the date of ical substance, if any, is not below the threshold of regulator ng compounds used by Microchip meet the UL94 V0 flammal ful.com/global/eng/pages/offerings/industries/chemicals/plas rotective "tubes" in which the specific product is shipped ar- nd certain "reels" may be made from PVC plastic. chip Technology Incorporated believes the information in thi es in their original packing materials is true and correct to the intere the completeness and accuracy of data in this form bec ial suppliers. Supplier information is often protected from dis- e estimates do not include trace levels of dopants, metals, and chip Technology Incorporated does not provide any warranty ict warranties provided by Microchip Technology Incorporated the varianties provided by Microchip Technology Incorporated the varianties provided by Microchip Technology Incorporated besence of the provide any warranty ict warranties provided by Microchip Technology Incorporated besence of the provide any warranty ict warranties provided by Microchip Technology Incorporated besence of the provide any warranty ict warranties provided by Microchip Technology Incorporated besence of the provide any warranty ict warranties provided by Microchip Technology Incorporated besence of the provide any warranty ict warranties do not include trace levels of dopants, metals, and the technology Incorporated besence of the provide any warranty ict warranties provided by Microchip Technology Incorporated besence of the provide any warranty ict warranties do not provide any warranty ict warranty is provided by Microchip Technology Incorporated besence of the provide any warranty ict warranty is provided by Microchip Technology Incorporated besence of the provide any warranty ict warranty is provided by Mi	with EU Directive 2002/s ernal design controls, su I substance is NOT an in this document, there is I y concern for any regula bility standard for plastic tics/ e made from polyvinyl cl s form concerning subst e best of its knowledge a ause it has been compil iclosure as trade secrets f the average weight of f d non-metal materials cc y, express or implied, wil d and its subsidiaries ar ices. s to Material Content De s' reliance on the inform	Total Mass D5/EC (RoHS Directive), EU Directive 2011/65/E applier declarations, and /or analytical test data tentional ingredient in the semiconductor dev no credible reason to believe that the unavoid atory scheme world-wide. The scheme wo	EU (RoHS Reca ia. vice and, to the lable impurity c abases to obtain ed to hold the p nology Incorpor icrochip Techn Techno Techno Safety Data She rovided by subc ated significant he finished par declaration. Th id conditions of ages, direct or	ast Directive) and best of Microco concentration of n a test report packing slip or rated's semico ology Incorpor bets provided t contract assem toxic metals of ts. e exclusive, lin f sale. These a indirect, conse	nd with EU ship of the at n the outer nductor rated cannot yy raw ublers and components. nited re provided equential or	0.06	Total (mg) Doped Silcon (mg) Total Doped Gold (mg) Total	Total Chip (Die) 7440-21-3 Total Wire Bond 7440-57-5 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for	100.00 % of Total Weight 100 100.00 % of Total Weight 100 100.00	0.18

				nation Base A pper Alloy (C			•	nogeneous Materials: e.g. pc boards, displa	ys)	JEDEC 97 Produc Marking and/or Pkg. Labeling e3
Semiconductor Devic	e Type: ST 14 (Lead) TSS									
Basic Substance	CAS Number	"Contained In" Sub-Component	% Total Weight	mg/part	ppm	28.10	(mg) Total	Mold Compound	% ot Total Weight	46.84
Silica, vitreous (or fused)	60676-86-0	Mold Compound	39.814	23.888	398,140		Silica, vitreous (or fused)	60676-86-0	85.00	
Epoxy Resin	Trade Secret	Mold Compound	4.075	2.445	40,751		Epoxy Resin	Trade Secret	8.70	
Phenolic Resin	Trade Secret	Mold Compound	2.810	1.686	28,104		Phenolic Resin	Trade Secret	6.00	
Carbon Black	1333-86-4	Mold Compound	0.141	0.084	1,405		Carbon Black	1333-86-4	0.30	
Copper Nickel	7440-50-8 7440-02-0	Lead Frame Lead Frame	43.249	25.949 0.692	432,489 11,534			Total		
					1	27.25	(mg) Total	Lead Frame	% of Total Weight	45.41
Silver Silicon	7440-22-4 7440-21-3	Lead Frame Lead Frame	0.758	0.455	7,579 2,043		Copper Nickel	7440-50-8 7440-02-0	95.24 2.54	
Magnesium	7439-95-4	Lead Frame	0.204	0.123	454		Silver	7440-02-0	2.54	
Silver	7439-95-4	Die Attach	1.214	0.728	12.136		Silicon	7440-22-4 7440-21-3	0.45	
Epoxy resin	Trade Secret	Die Attach	0.328	0.197	3,280		Magnesium	7439-95-4	0.40	
Metal oxide	Trade Secret	Die Attach	0.049	0.030	492		Magnoolam	Total		Ш
Gamma-butyrolactone	96-48-0	Die Attach	0.049	0.030	492	0.98	(mg) Total	Die Attach	% of Total Weight	
Silicon	7440-21-3	Chip (Die)	3.340	2.004	33,400	0.00	Silver	7440-22-4	74	
Gold	7440-57-5	Wire Bond	0.490	0.294	4,900		Epoxy resin	Trade Secret	20	
Tin		g on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	2.280	1.368	22.800		Metal oxide	Trade Secret	3	
		TOTALS:	100.000	60.000	1,000,000		Gamma-butyrolactone	96-48-0	3	
	0.0600 g T	otal Mass						Total	100.00	Ш
			RoHS Recast D	irective) and v	vith EU	2.00	Total (mg)	Chin (Die)	% of Total Weight	3 34
ective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). npliance with the above EU Directives has been verified	omply with EU Directive 2002/95/ via internal design controls, supp	/EC (RoHS Directive), EU Directive 2011/65/EU (2.00	Total (mg) Doped Silicon	Chip (Die) 7440-21-3 Total	% of Total Weight 100 100.00	
ective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). npliance with the above EU Directives has been verified chemical substance is absent from the list above, the ch proprated's knowledge and belief as of the date of this dc , is not below the threshold of regulatory concern for any ding compounds used by Microchip meet the UL94 V0 fla	omply with EU Directive 2002/95/ via internal design controls, supp emical substance is NOT an inte boument, there is no credible rea v regulatory scheme world-wide. ammability standard for plastics.	EC (RoHS Directive), EU Directive 2011/65/EU (blier declarations, and /or analytical test data. ntional ingredient in the semiconductor device a son to believe that the unavoidable impurity cor	and, to the best acentration of th	of Microchip he chemical se	Technology	2.00		7440-21-3	100	
s semiconductor device and its homogenous materials c ective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). mpliance with the above EU Directives has been verified of chemical substance is absent from the list above, the ch orporated's knowledge and belief as of the date of this do r, is not below the threshold of regulatory concern for any lding compounds used by Microchip meet the UL94 V0 fla o://ul.com/global/eng/pages/offerings/industries/chemical e protective "tubes" in which the specific product is shipp d certain "reels" may be made from PVC plastic.	omply with EU Directive 2002/95/ via internal design controls, supp emical substance is NOT an inte ocument, there is no credible rea y regulatory scheme world-wide. ammability standard for plastics. s/plastics/	/EC (RoHS Directive), EU Directive 2011/65/EU (olier declarations, and /or analytical test data. ntional ingredient in the semiconductor device i son to believe that the unavoidable impurity cor You can access the UL iQTM family of database	and, to the best acentration of the set to obtain a te	of Microchip he chemical si est report at	Technology ubstance, if		Doped Silicon	7440-21-3 Total Wire Bond 7440-57-5	100 100.00 % of Total Weight 100	0.49
ective 2002/53/EC (End-of-Life Vehicle's (ELV) Directive). mpliance with the above EU Directives has been verified of chemical substance is absent from the list above, the ch orporated's knowledge and belief as of the date of this dd r, is not below the threshold of regulatory concern for any lding compounds used by Microchip meet the UL94 V0 file o://ul.com/global/eng/pages/offerings/industries/chemical e protective "tubes" in which the specific product is shipp d certain "reels" may be made from PVC plastic. crochip Technology Incorporated believes the information heir original packing materials is true and correct to the I completeness and accuracy of data in this form because opplier information is often protected from disclosure as tr mration is provided only as estimates of the average we lude trace levels of dopants, metals, and non-metal mater	with EU Directive 2002/95/ via internal design controls, supp emical substance is NOT an inte scument, there is no credible rea y regulatory scheme world-wide. ammability standard for plastics. s/plastics/ bed are made from polyvinyl chlor in this form concerning substar pest of its knowledge and belief, it has been compiled based on ade secrets and some informatio glpt of these parts and the avera rials contained within silicon dev	EC (RoHS Directive), EU Directive 2011/65/EU (olier declarations, and /or analytical test data. Intional ingredient in the semiconductor device a son to believe that the unavoidable impurity cor You can access the UL iQTM family of database oride (PVC) plastic. "Window envelopes" used to the carges provided in Microchip Technolog as of the date listed in this form. Microchip Tech the ranges provided in Material Safety Data She on may not have been provided by subcontract ge weight of anticipated significant toxic metals ices (silicon IC) in the finished parts.	and, to the best acentration of the ses to obtain a to be hold the pack y Incorporated honology Incorp ets provided by assemblers and components. T	t of Microchip he chemical so est report at ing slip on the 's semiconduc orated cannot r raw material d raw material fhese estimate	Technology ubstance, if e outer box ctor devices guarantee suppliers. suppliers. es do not		(mg) Total	7440-21-3 Total Wire Bond 7440-57-5 Total	100 100.00 % of Total Weight	0.49
active 2002/53/EC (End-of-Life Vehicles (ELV) Directive). mpliance with the above EU Directives has been verified of chemical substance is absent from the list above, the ch orporated's knowledge and belief as of the date of this do t, is not below the threshold of regulatory concern for any lding compounds used by Microchip meet the UL94 V0 fit o://ul.com/global/eng/pages/offerings/industries/chemical e protective "tubes" in which the specific product is shipp I certain "reels" may be made from PVC plastic. rochip Technology Incorporated believes the information heir original packing materials is true and correct to the I completeness and accuracy of data in this form because pplier information is often protected from disclosure as tor rmation is provided only as estimates of the average we lude trace levels of dopants, metals, and non-metal mater rochip Technology Incorporated does not provide any we rranties provided by Microchip Technology Incorporated rochip's quotations, sales order acknowledgement, and i	with EU Directive 2002/95/ via internal design controls, supp emical substance is NOT an inte bournent, there is no credible rea y regulatory scheme world-wide. ammability standard for plastics. s/plastics/ bed are made from polyvinyl chlor in this form concerning substar best of its knowledge and belief, it has been compiled based on i de secrets and some informatic light of these parts and the avera rials contained within silicon dev arranty, express or implied, with and its subsidiaries are containe invoices.	EC (RoHS Directive), EU Directive 2011/65/EU (olier declarations, and /or analytical test data. Intional ingredient in the semiconductor device is son to believe that the unavoidable impurity cor You can access the UL iQTM family of database oride (PVC) plastic. "Window envelopes" used to the carges provided by RoHS in Microchip Technolog as of the date listed in this form. Microchip Tech the ranges provided in Material Safety Data She on may not have been provided by subcontract ge weight of anticipated significant toxic metals ices (silicon IC) in the finished parts. respect to the information provided in this decl d in Microchip's standard terms and conditions	and, to the best iccentration of the es to obtain a to b hold the pack y Incorporated hnology Incorp ets provided by assemblers and components. 1 aration. The exc of sale. These	t of Microchip he chemical si est report at ing slip on the 's semiconduc orated cannot r aw material d raw material These estimate clusive, limited are provided i	Technology ubstance, if e outer box ctor devices guarantee suppliers. suppliers. es do not d product in		(mg) Total	7440-21-3 Total Wire Bond 7440-57-5 Total	100 100.00 % of Total Weight 100	0.49
Active 2002/53/EC (End-of-Life Vehicles (ELV) Directive). Inpliance with the above EU Directives has been verified of chemical substance is absent from the list above, the ch proprated's knowledge and belief as of the date of this dd , is not below the threshold of regulatory concern for any ding compounds used by Microchip meet the UL94 V0 file c//ul.com/global/eng/pages/offerings/industries/chemical protective "tubes" in which the specific product is shipp certain "reels" may be made from PVC plastic. rochip Technology Incorporated believes the information rear original packing materials is true and correct to the I completeness and accuracy of data in this form because uplier information is often protected from disclosure as tri rmation is provided only as estimates of the average we ude trace levels of dopants, metals, and non-metal materi- rochip Technology Incorporated does not provide any we ranties provided by Microchip Technology Incorporated	with EU Directive 2002/95/ via internal design controls, supp emical substance is NOT an inte ocument, there is no credible rea y regulatory scheme world-wide. ammability standard for plastics. s/plastics/ bed are made from polyvinyl chic in this form concerning substar pest of its knowledge and belief, i thas been compiled based on a de secrets and some informatic ight of these parts and the avera rials contained within silicon dev arranty, express or implied, with and its subsidiaries are containe invoices. hanges to Material Content Deckie e users' reliance on the informat	EC (RoHS Directive), EU Directive 2011/65/EU (olier declarations, and /or analytical test data. Intional ingredient in the semiconductor device a son to believe that the unavoidable impurity cor You can access the UL iQTM family of database oride (PVC) plastic. "Window envelopes" used to the case restricted by RoHS in Microchip Technolog as of the date listed in this form. Microchip Tech the ranges provided in Material Safety Data She on may not have been provided by subcontract. ge weight of anticipated significant toxic metals ices (silicon IC) in the finished parts. respect to the information provided in this decl d in Microchip's standard terms and conditions arations and shall not be liable for any damages	and, to the best iccentration of the es to obtain a to b hold the pack y Incorporated nuology Incorp ets provided by assemblers and components. The aration. The exist of sale. These , direct or indir	of Microchip he chemical si est report at ing slip on the 's semiconduc orated cannot y raw material fraw material fhese estimate clusive, limited are provided i ect, conseque	Technology ubstance, if e outer box ctor devices guarantee suppliers. suppliers. es do not d product in	0.29	(mg) Total	7440-21-3 Total Wire Bond 7440-57-5 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1	100 100.00 % of Total Weight 100 100.00	0.49

AICROCHIP Semiconductor Device	e Type: ST 16 (Lead)	TSSOP 4.4mm (D8)		nation Base A pper Alloy (C			•	nogeneous Materials: e.g. pc boards, displa		JEDEC 97 Product Markin and/or Pkg. Labeling e3
		"Contained In"	% Total			22.50	(mg) Total	Mold Compound	% ot Total Weight	34.62
Basic Substance	CAS Number	Sub-Component	Weight	mg/part	ppm	22.30	,	•		34.02
Silica, vitreous (or fused)	60676-86-0	Mold Compound	29.427	19.128	294,270		Silica, vitreous (or fused)	60676-86-0	85.00	
Epoxy Resin	Trade Secret	Mold Compound	3.012	1.958	30,119		Epoxy Resin	Trade Secret	8.70	
Phenolic Resin	Trade Secret	Mold Compound	2.077	1.350	20,772		Phenolic Resin	Trade Secret	6.00	
Carbon Black	1333-86-4	Mold Compound	0.104	0.068	1,039		Carbon Black	1333-86-4	0.30	
Copper	7440-50-8	Lead Frame	44.468	28.904	444,680			Total		
Nickel	7440-02-0	Lead Frame	1.186	0.771	11,859	30.35	(mg) Total	Lead Frame	% of Total Weight	46.69
Silver	7440-22-4	Lead Frame	0.779	0.507	7,793		Copper	7440-50-8	95.24	
Silicon	7440-21-3	Lead Frame	0.210	0.137	2,101		Nickel	7440-02-0	2.54	
Magnesium	7439-95-4	Lead Frame	0.047	0.030	467		Silver	7440-22-4	1.67	
Silver	7440-22-4	Die Attach	2.472	1.607	24,716		Silicon	7440-21-3	0.45	
Epoxy resin	Trade Secret	Die Attach	0.668	0.434	6,680		Magnesium	7439-95-4	0.10	
Metal oxide	Trade Secret	Die Attach	0.100	0.065	1,002		·	Total	100.00	2
Gamma-butyrolactone	96-48-0	Die Attach	0.100	0.065	1,002	2.17	(mg) Total	Die Attach	% of Total Weight	3.34
Silicon	7440-21-3	Chip (Die)	12.340	8.021	123,400		Silver	7440-22-4	74	
Gold	7440-57-5	Wire Bond	0.610	0.397	6.100		Epoxy resin	Trade Secret	20	
Tin	7440-31-5	Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	2.400	1.560	24,000		Metal oxide	Trade Secret	3	
	7440 01 0	TOTALS:	100.000	65.000	1,000,000		Gamma-butyrolactone	96-48-0	3	
		TOTALS.		00.000	1,000,000		Gamma-butyrolacione		100.00	1
tive 2002/53/EC (End-of-Life Vehicles (ELV) Directive).	comply with EU Directive 2			ast Directive) a	nd with EU	8.02	Total (mg) Doped Silicon	Total Chip (Die) 7440-21-3	% of Total Weight	12.34
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). Ipliance with the above EU Directives has been verified chemical substance is absent from the list above, the ch	comply with EU Directive 2 via internal design control nemical substance is NOT	002/95/EC (RoHS Directive), EU Directive 2011/65/ s, supplier declarations, and /or analytical test dat an intentional ingredient in the semiconductor dev	a. ice and, to the	best of Micro	chip	8.02	,	Chip (Die)	% of Total Weight	12.34
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). pliance with the above EU Directives has been verified u themical substance is absent from the list above, the ch anology Incorporated's knowledge and belief as of the d nical substance, if any, is not below the threshold of reg ling compounds used by Microchip meet the UL94 V0 fla //ul.com/global/eng/pages/offerings/industries/chemical	with EU Directive 2 via internal design control nemical substance is NOT date of this document, they gulatory concern for any r ammability standard for pl Is/plastics/	D02/95/EC (RoHS Directive), EU Directive 2011/65/ s, supplier declarations, and /or analytical test dat an intentional ingredient in the semiconductor dev e is no credible reason to believe that the unavoid agulatory scheme world-wide. astics. You can access the UL iQTM family of data	a. rice and, to the able impurity o bases to obtai	best of Microc concentration n a test report	chip of the at	8.02	,	Chip (Die) 7440-21-3	% of Total Weight	12.34
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MICROCHIP Semiconductor Device Type	ST 20 (Lood	TSSOP 4 4mm (62 / 65)		ation Base A oper Alloy (C	-		•	nogeneous Materials: e.g. pc boards, displa	ys)	JEDEC 97 Product Marking and/or Pkg. Labeling e3
Semiconductor Device Type	SI 20 (Lead)	"Contained In"	% Total		1					
Basic Substance	CAS Number	Sub-Component	Weight	mg/part	ppm	37.22	(mg) Total	Mold Compound	% ot Total Weight	47.72
Silica, vitreous (or fused)	60676-86-0	Mold Compound	40,562	31.638	405.620		Silica, vitreous (or fused)	60676-86-0	85.00	
Epoxy Resin	Trade Secret	Mold Compound	4.152	3.238	41,516		Epoxy Resin	Trade Secret	8.70	
Phenolic Resin	Trade Secret	Mold Compound	2.863	2.233	28,632		Phenolic Resin	Trade Secret	6.00	
Carbon Black	1333-86-4	Mold Compound	0.143	0.112	1,432		Carbon Black	1333-86-4	0.30	
Copper	7440-50-8	Lead Frame	40.725	31.766	407.251			Total	100.00	
Nickel	7440-02-0	Lead Frame	1.086	0.847	10,861	33.35	(mg) Total	Lead Frame	% of Total Weight	42.76
							(
Silver	7440-22-4	Lead Frame	0.714	0.557	7.137		Copper	7440-50-8	95.24	
Silicon	7440-21-3	Lead Frame	0.192	0.150	1.924		Nickel	7440-02-0	2.54	
Magnesium	7439-95-4	Lead Frame	0.043	0.033	428		Silver	7440-22-4	1.67	
Silver	7440-22-4	Die Attach	1.317	1.027	13.172		Silicon	7440-21-3	0.45	
Epoxy resin	Trade Secret	Die Attach	0.356	0.278	3,560		Magnesium	7439-95-4	0.10	
Metal oxide	Trade Secret	Die Attach	0.053	0.042	534		Magnesium	Total	100.00	
							/ _			
Gamma-butyrolactone	96-48-0	Die Attach	0.053	0.042	534	1.39	(mg) Total	Die Attach	% of Total Weight	1.78
Silicon	7440-21-3	Chip (Die)	4.690	3.658	46,900		Silver	7440-22-4	74	
Gold	7440-57-5	Wire Bond	0.540	0.421	5,400		Epoxy resin	Trade Secret	20	
Tin	7440-31-5	Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	2.510	1.958	25,100		Metal oxide	Trade Secret	3	
		TOTALS:	100.000	78.000	1,000,000		Gamma-butyrolactone	96-48-0	3	
	0.0780	g Total Mass						Total	100.00	-
Directive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). Compliance with the above EU Directives has been verified via inter If a chemical substance is absent from the list above, the chemical Technology Incorporated's knowledge and belief as of the date of t chemical substance, if any, is not below the threshold of regulatory Molding compounds used by Microchip meet the UL94 V0 flammab http://ul.com/global/eng/pages/offerings/industries/chemicals/plast The protective "tubes" in which the specific product is shipped are box and certain "reels" may be made from PVC plastic.	substance is NOT his document, the concern for any lity standard for p cs/	an intentional ingredient in the semiconductor de re is no credible reason to believe that the unavoid regulatory scheme world-wide. Jastics. You can access the UL iQTM family of data	vice and, to the dable impurity o abases to obtai	concentration	of the t at	0.42	Doped Silicon (mg) Total Doped Gold	7440-21-3 Total Wire Bond 7440-57-5	100 100.00 % of Total Weight	
Microchip Technology Incorporated believes the information in this devices in their original packing materials is true and correct to the cannot guarantee the completeness and accuracy of data in this for raw material suppliers. Supplier information is often protected from and raw material suppliers. Information is provided only as estimate components. These estimates do not include trace levels of dopant Microchip Technology Incorporated does not provide any warranty product warranties provided by Microchip Technology Incorporater in Microchip's quotations, sales order acknowledgement, and invoi Microchip disclaims any duty to notify users of updates or changes (SGS) or of this Certificate of Compliance for semiconductor produ	best of its knowle m because it has disclosure as tra ss of the average s, metals, and now express or implie l and its subsidiar ces. to Material Conte ' reliance on the i	edge and belief, as of the date listed in this form. M been compiled based on the ranges provided in M de secrets and some information may not have bee weight of these parts and the average weight of an n-metal materials contained within silicon devices (ed, with respect to the information provided in this ies are contained in Microchip's standard terms ar nt Declarations and shall not be liable for any dam	icrochip Techn laterial Safety I en provided by ticipated signif (silicon IC) in th declaration. Th nd conditions o ages, direct or	ology Incorpo Data Sheets pr subcontract a icant toxic me he finished par he exclusive, li f sale. These indirect, cons	orated rovided by assemblers etals rts. imited are provided sequential or	1.96	(mg) Total Tin	Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour 7440-31-5	100.00 % of Total Weight 100.00	
						78.000		Total	100.00	100.000

ICROCHIP Semiconductor Device	Type: QU8E 08/	.ead) USON/UDFN 2x2x0.55mm (QN)		ation Base A oper Alloy (C				nogeneous Materials: (e.g. pc boards, displays	5)	JEDEC 97 Produ Marking and/or Pkg. Labeling e3
	, Type: 4002 00("Contained In"	% Total			9.40	() =	Mold Compound		75.18
Basic Substance	CAS Number	Sub-Component	Weight	mg/part	ppm	9.40	(mg) Total	Mola Compound	% ot Total Weight	/5.18
Silica, fused	60676-86-0	Mold Compound	67.662	8.458	676,620		Silica, fused	60676-86-0	90.00	
Epoxy Resin	Trade Secret	Mold Compound	3.646	0.456	36,462		Epoxy Resin	Trade Secret	4.85	
Phenolic Resin	Trade Secret	Mold Compound	3.646	0.456	36,462		Phenolic Resin	Trade Secret	4.85	
Carbon Black	1333-86-4	Mold Compound	0.226	0.028	2,255		Carbon Black	1333-86-4	0.30	
Copper	7440-50-8	Lead Frame	20.505	2.563	205,054			Total	100.00	
Nickel	7440-02-0	Lead Frame	0.547	0.068	5,469	2.69	(mg) Total	Lead Frame	% of Total Weight	21.53
Silicon	7440-21-3	Lead Frame	0.097	0.012	969		Copper	7440-50-8	95.24	
Magnesium	7439-95-4	Lead Frame	0.022	0.003	215		Nickel	7440-02-0	2.54	
Silver	7440-22-4	Lead Frame	0.359	0.045	3,593		Silicon	7440-21-3	0.45	
Silver	7440-22-4	Die Attach	0.800	0.100	8,000		Magnesium	7439-95-4	0.10	
Epoxy Resin	Trade secret	Die Attach	0.200	0.025	2,000		Silver	7440-22-4	1.67	
Gallium arsenide (GaAs)	1303-00-0	Chip (Die)	1.090	0.136	10,900			Total	100.00	
Doped Gold	7440-57-5	Wire Bond	0.310	0.039	3,100	0.13	(mg) Total	Die Attach	% of Total Weight	1.00
Tin	7440-31-5	Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	0.890 100.000	0.111 12.500	8,900 1,000,000		Silver	7440-22-4 Trade secret	80.00	
		TOTALS:	100.000	12.500	1,000,000		Epoxy Resin	Trade secret	20.00 100.00	
ve 2002/53/EC (End-of-Life Vehicles (ELV) Directive). ance with the above EU Directives has been verified via	nply with EU Directive 200 a internal design controls,	supplier declarations, and /or analytical test data.		·	ith EU	0.14 Doped GaAs	(mg) Total Gallium arsenide	Chip (Die) 1303-00-0 Total	% of Total Weight 100 100.00	
ive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). liance with the above EU Directives has been verified via emical substance is absent from the list above, the cher ology Incorporated's knowledge and belief as of the date	nply with EU Directive 200 a internal design controls, nical substance is NOT an e of this document, there i	2/95/EC (RoHS Directive), EU Directive 2011/65/EU (Ro supplier declarations, and /or analytical test data. intentional ingredient in the semiconductor device and s no credible reason to believe that the unavoidable im	I, to the best	of Microchip				Chip (Die) 1303-00-0	100	
ive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). liance with the above EU Directives has been verified via emical substance is absent from the list above, the cher ology Incorporated's knowledge and belief as of the dat ance, if any, is not below the threshold of regulatory con ng compounds used by Microchip meet the UL94 V0 flam	nply with EU Directive 200 a internal design controls, nical substance is NOT an e of this document, there i ccern for any regulatory sc nmability standard for plas	2/95/EC (RoHS Directive), EU Directive 2011/65/EU (Ro supplier declarations, and /or analytical test data. intentional ingredient in the semiconductor device and s no credible reason to believe that the unavoidable im neme world-wide.	I, to the best purity conce	of Microchip ntration of the				Chip (Die) 1303-00-0	100	
ve 2002/53/EC (End-of-Life Vehicles (ELV) Directive). iance with the above EU Directives has been verified via emical substance is absent from the list above, the cher ology incorporated's knowledge and belief as of the data nce, if any, is not below the threshold of regulatory con g compounds used by Microchip meet the UL94 V0 flam I.com/global/eng/pages/offerings/industries/chemicals/ otective "tubes" in which the specific product is shippe	nply with EU Directive 200 a internal design controls, mical substance is NOT an e of this document, there is icern for any regulatory sc mability standard for plas plastics/	2/95/EC (RoHS Directive), EU Directive 2011/65/EU (Ro supplier declarations, and /or analytical test data. intentional ingredient in the semiconductor device and s no credible reason to believe that the unavoidable im neme world-wide. tics. You can access the UL iQTM family of databases	l, to the best purity conce to obtain a te	of Microchip ntration of the st report at	chemical	Doped GaAs	Gallium arsenide	Chip (Die) 1303-00-0 Total	100 100.00 % of Total Weight 100.00	
ve 2002/53/EC (End-of-Life Vehicles (ELV) Directive). iance with the above EU Directives has been verified via emical substance is absent from the list above, the cher ology Incorporated's knowledge and belief as of the dat ince, if any, is not below the threshold of regulatory con g compounds used by Microchip meet the UL94 V0 flam IL.com/global/eng/pages/offerings/industries/chemicals/ otective "tubes" in which the specific product is shippe wrain "reels" may be made from PVC plastic. The Technology Incorporated believes the information in is in their original packing materials is true and correct to the the completeness and accuracy of data in this form ers. Supplier information is often protected from discloss ers. Information is provided only as estimates of the ave	nply with EU Directive 200 a internal design controls, nical substance is NOT an e of this document, there i iccern for any regulatory sc unability standard for plas plastics/ d are made from polyvinyl n this form concerning sut to the best of its knowledg because it has been comp sure as trade secrets and s orage weight of these parts	295/EC (RoHS Directive), EU Directive 2011/65/EU (Ro supplier declarations, and /or analytical test data. intentional ingredient in the semiconductor device and s no credible reason to believe that the unavoidable im neme world-wide. tics. You can access the UL iQTM family of databases chloride (PVC) plastic. "Window envelopes" used to h estances restricted by RoHS in Microchip Technology I e and belief, as of the date listed in this form. Microchi illed based on the ranges provided in Material Safety D ome information may not have been provided by subc and the average weight of anticipated significant toxi	I, to the best purity concer to obtain a te old the packi p Technology rata Sheets p ontract asser c metals com	of Microchip Intration of the st report at ng slip on the s semiconduc Incorporated rovided by rax noblers and ray	outer box outer box cannot w material	Doped GaAs	Gallium arsenide	Chip (Die) 1303-00-0 Total Wire Bond	100 100.00 % of Total Weight	
emiconductor device and its homogenous materials con ive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). liance with the above EU Directives has been verified via emical substance is absent from the list above, the cher tology Incorporated's knowledge and belief as of the dat ance, if any, is not below the threshold of regulatory con ng compounds used by Microchip meet the UL94 V0 flam ul.com/global/eng/pages/offerings/industries/chemicals/ rotective "tubes" in which the specific product is shippe artain "reels" may be made from PVC plastic. Chip Technology Incorporated believes the information in ses in their original packing materials is true and correct to nete the completeness and accuracy of data in this form iers. Supplier information is often protected from disclos ers. Information is provided only as estimates of the ave ates do not include trace levels of dopants, metals, and r chip Technology Incorporated does not provide any warn thes provided by Microchip Technology Incorporated ar chip's quotations, sales order acknowledgement, and im	nply with EU Directive 200: a internal design controls, nical substance is NOT an e of this document, there i iccern for any regulatory sc umability standard for plas plastics/ d are made from polyvinyl n this form concerning sut to the best of its knowledg because it has been comp sure as trade secrets and s orage weight of these parts non-metal materials contai ranty, express or implied, d its subsidiaries are cont	295/EC (RoHS Directive), EU Directive 2011/65/EU (Ro supplier declarations, and /or analytical test data. Intentional ingredient in the semiconductor device and s no credible reason to believe that the unavoidable im neme world-wide. tics. You can access the UL iQTM family of databases chloride (PVC) plastic. "Window envelopes" used to h stances restricted by RoHS in Microchip Technology I a and belief, as of the date listed in this form. Microchi piled based on the ranges provided in Material Safety D ome information may not have been provided by subc and the average weight of anticipated significant toxin ned within silicon devices (silicon IC) in the finished pa with respect to the information provided in this declaration of the sectors of the	I, to the best purity concer to obtain a te old the packi p Technology rata Sheets p ontract ass contract ass metals com rts.	of Microchip tration of the st report at ng slip on the s semiconduc incorporated ovided by ras ponents. Thes lusive, limited	outer box tor cannot w material w material se	Doped GaAs	Gallium arsenide	Chip (Die) 1303-00-0 Total Wire Bond 7440-57-5	100 100.00 % of Total Weight 100.00	
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papilance with the above EU Directives has been verified via internal design controls, supplier declarations, and /or analytical test data. Chemical substance is absent from the list above, the chemical substance is NOT an intentional ingredient in the semiconductor device and, to the best of Microchip stance, if any, is not below the threshold of regulatory concern for any regulatory scheme world-wide. ding compounds used by Microchip meet the UL94 V0 flammability standard for plastics. You can access the UL iQTM family of databases to obtain a test report at './/ul.com/global/eng/pages/offerings/industries/chemicals/plastics/ protective "tubes" in which the specific product is shipped are made from polyvinyl chloride (PVC) plastic. "Window envelopes" used to hold the packing slip on the outer box	Міскоснір				nation Base / pper Alloy (C	-		•	nogeneous Materials: e.g. pc boards, display	s)	JEDEC 97 Produ Marking and/o Pkg. Labeling e3
Basic Substance CAS Number Sub-Component Weight mg/part mg/part mg/part Mode (mg) Total Multiple Total Societ Mode (mg) Mod	Semiconductor Device	ce Type: QUAE 08	(Lead) USON 2x2x0.55mm (UA)								
Steps Note: Other Steps Note: Other Steps	Basic Substance	CAS Number			mg/part	ppm	9.40	(mg) Total	Mold Compound	% ot Total Weight	75.18
Epop Resn Table Serier Modi Compound 3.646 0.456 35.442 Component Table Serier Add Compound 3.646 0.456 35.442 Component Table Serier 4.65 Canopart 17440-55/3 Name 0.016 0.556 0.006 7.64 7.64 0.01 0.017 0.001 1.033-004 0.017 0.017 0.016 0.017 0.016 0.017 0.016 0.017 0.017 0.016 0.017 0.017 0.016 0.017 0.016 0.017 0.012 0.016 0.017 0.012 0.016 0.017 0.012 0.016 0.017 0.012			Mold Compound	67 662	•••			Silica fused	60676-86-0	90.00	
Pierwick Ream Trade Securit Mold Compound 0.264 0.865 0.845 <t< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>,</td><td></td><td></td><td></td></t<>								,			
Coper 7440 50.8 Lead Frame 22.50.5 226.563 200.564 Lead Frame Victal Total Total Total Total Total Total Total 2.5.5 Silicon 7440.21.3 Lead Frame 0.007 0.012 0.003 215 Exponential 7430.22.4 0.003 215 Exponential 7430.22.4 0.003 215 Exponential 7430.22.4 0.011 2000 215 Exponential 7430.22.4 0.011 1.000 0.012 0.003 2000 0.010 8.000 Exponential 0.011 1.000 0.012 0.001 0.010 8.000 1.001 0.011 8.000 1.001 0.011 8.000 1.001 0.011 8.000 1.001 1.000 0.13 1.000 0.13 1.000 0.13 1.000 1.001 1.001 1.000 1.001 1.001 1.001 1.001 1.001 1.001 1.001 1.001 1.001 1.001 1.001 1.001 1.001 </td <td></td>											
Note: 7440-05-0 Lad Frame 0.547 0.086 5.49 2.09 Comp Test Lead Frame 5.100 Magnesium 7430-95-13 Lad Frame 0.027 0.003 216 Note: Note: Note: Note: 7440-59-0 95.24 Magnesium 7430-92-1 Lad Frame 0.032 0.003 216 Note: Note: Note: 7440-59-0 2.64 Note: Note: Note: 7440-59-0 2.64 Note: Note: Note: 7440-59-0 2.64 Note: Note: Note: 7440-59-0 0.64 Note:	Carbon Black	1333-86-4	Mold Compound					Carbon Black	1333-86-4	0.30	
Billion 7440 21:3 Lead Frame 0.007 0.012 099 002 0.028 0.03 0.013 0.013 0.012 0.00 0.013 0.012 0.00 0.013 0.012 0.012 0.00 0.013 0.012 0.00 0.012 0.00 0.012 0.00 0.012 0.00 0	Copper	7440-50-8	Lead Frame	20.505	2.563	205,054			Total	100.00	•
Magnetium 7439 59-4 Lead Frame 0.022 0.003 215 Biver 7440 224 Lead Frame 0.026 0.033 100 0.003 215 Biver 7440 224 Dis Attach 0.800 0.100 6.800 0.000 7440 21-4 0.00 Galum arrende (GA) 7440 25-5 Wire Bond 0.310 0.039 3.100 0.13 6.000 100 100 0.000 100 0.000 100 0.000 100 0.000 100 0.000 100 0.000 100 0.000 100 0.000 100 0.000 100 0.000 100 0.000 100 0.000 100 100 0.000 100 </td <td>Nickel</td> <td>7440-02-0</td> <td>Lead Frame</td> <td>0.547</td> <td>0.068</td> <td>5,469</td> <td>2.69</td> <td>(mg) Total</td> <td>Lead Frame</td> <td>% of Total Weight</td> <td>21.53</td>	Nickel	7440-02-0	Lead Frame	0.547	0.068	5,469	2.69	(mg) Total	Lead Frame	% of Total Weight	21.53
Silver 7440-22-4 Lead Frame 0.359 0.045 3.563 Biver 7440-22-4 De Attach 0.200 0.010 8.000 Boory Resin Trade secret De Attach 0.200 0.025 2.000 Galum attende (GMA) 1333-00-0 Chip (De) 0.010 0.030 0.011 1.090 0.0125 2.000 De Attach 1.00 0.0125 2.000 De Attach 0.200 0.012 10.000 De Attach 1.00 De Attach 0.200 0.011 1.000,000 De Attach 1.00 De Attach 0.000 0.011 1.000,000 De Attach 0.000 De Attach	Silicon	7440-21-3	Lead Frame	0.097	0.012			Copper	7440-50-8	95.24	
Silver 7440-22-4 Dia Attach 0.200 0.002 8.000 Galium arsende (GaAs) 1303-00-0 Chip (Die) 1.000 0.138 10.000 5.000	Magnesium	7439-95-4	Lead Frame					Nickel	7440-02-0	2.54	
Epopy Resin Trade secret De Attach 0.200 0.026 2.000 Gallum arsende (GAs) 1330.00.0 Chp (Die) 1.000 0.136 1.00.00 1.000 1.000 0.136 1.000 1.000 1.000 0.136 1.000 1.000 1.000 0.137 1.000.00 1.000 1.000 0.012 Trade secret 20.00 1.000 1.000.000								-			
Gailum artenide (GaAs) 1303:000 Chip (De) 1.000 0.136 10.000 Total 100.000 Tin 7.440:31:5 Parago an essentiate genes. Mans Transmits for Cert Toto 0.380 0.013 3.00 0.13 (mg) Total Dip Attach % of Total Weight 1.00 Tin 7.440:31:5 Parago an essentiate genes. Mans Transmits Total 1.000 1.000.000 Eposy Resin Trads correct 80.000 1.000.000 Total											
Opped Gold 7440-57-5 Wree Bond 0.310 0.039 3.100 0.13 (mail Teal Mergent								Silver			
Tin 7440-31-5 Parting on entimation to the tiggen. Mather Tri- Januardia ut 1907: 00 + 100 0.111 8.800 Start Start Parting on entimation to the tiggen. Mather Tri- Januardia ut 1907: 00 + 100 0.111 8.800 Expose Resin Trade sector 0.0125 g Total Mass 0.0125 g Total Mass 100.000 1.2500 1.00000 1.2500 100.000 Epony Resin Trade sector 2000 100.000 to 2025/REC (End-d-Life Values (ELV) Directive). Directive 2002/95/EC (Rold-d-Life Values (ELV) Directive). 0.14 (mg) Total Chip (Die) % of Total Weight 1.09 nonical sets after from the list above, the chemical singendance is NOT an intentional ingrediate reason to believe that the unavoidable impurity concentration of the chemical singendance is NOT an intentional ingrediate reason to believe that the unavoidable impurity concentration of the chemical figure and for pastics. You can access the UL IQTM family of databases to obtain a test report at '//// Comglobal/96/20/Eriorg/direing/industries/chemicals/plastics' 0.04 (mg) Total Wire Bond % of Total Weight 0.31 protective "Libes" with the reason completed bild regulatory concern for any regulatory scheme world-wide. Microchip Technology Incorporated sector and inclustory in the date listed on this form. 0.04 (mg) Total Wire Bond % of Total Weight											
TOTALS: 100.00 12.500 1,000,000 Barbon State Total Mass Total 100.00 Total 100.00 s emiconductor device and its homogenous materials comply with EU Directive 2002/95/EC (RoHS Directive), EU Directive 2002/95/EC (RoHS Directive), EU Directive 2002/95/EC (RoHS Directive), EU Directives has been vertified via internal design controls, supplier declarations, and /or analytical test data. 0.14 (mg) Total Chip (Die) %, of Total Weight 1.09 pinace with the above EU Directives has been vertified via internal design controls, supplier declarations, and /or analytical test data. Total 100.00 100 Total 100.00 chemical substance is absent from the list above, the chemical substance is NOT an intentional ingredient in the semiconductor device and, to the best of his document, there is no credible reason to believe that the unavoidable impurity concentration of any regulatory scheme world-wide. Total 100.00 (rincompounds used by Microchip meet the UL94 V0 fiammability standard for plastics. You can access the UL iQTM family of databases to obtain a test report at 0.04 (mg) Total Wire Bond %, of Total Weight 0.31 protective "tubes" in which the specific product is shipped are made from polyving choride (PVC) plastic. "Window envelopes" used to hold the packing slip on the outer box 0.04 (mg) Total Doped Gold <td< td=""><td></td><td></td><td>Wire Bond</td><td></td><td></td><td></td><td>0.13</td><td>(mg) Total</td><td></td><td>% of Total Weight</td><td>1.00</td></td<>			Wire Bond				0.13	(mg) Total		% of Total Weight	1.00
Out25 g Total Mass Total Total 100.00 semiconductor device and its homogenous materials comply with EU Directive 2002/85/EC (RoHS Directive), EU Directive 2002/85/EC (RoHS	Tin	7440-31-5									
semiconductor device and its homogenous materials comply with EU Directive 2002/95/EC (End-of-Like Vehicles (ELV) Directive). plance with the above EU Directives has been verified via internal design controls, supplier declarations, and <i>for</i> analytical test data. chemical substance is absent from the list above, the chemical substance is NOT an intentional ingredient in the semiconductor device and, to the best of Microchip mology incorporated's knowledge and belief as of the date of this document, there is no credible reason to believe that the unavoidable impurity concentration of the chemical stance, if any, is no below the threshold of regulatory concern for any regulatory scheme world-wide. ding compounds used by Microchip meet the ULS4 V0 flammability standard for plastics. You can access the UL iQTM family of databases to obtain a test report at <i>full-com/globale/ng/ages/offering/findustries/chemicals/plastics/</i> protective "tubes" in which the specific product is shipped are made from polyvinyl chloride (PVC) plastic. "Window envelopes" used to hold the packing startist is true and correct to the best of its knowledge and belief, as of the date listed in this form. Microchip Technology Incorporated 's semiconductor rates the completeness and accuracy of data in this form concerning substances restricted by RoHS in Microchip Technology Incorporated significant toxic metals components. These mades don on thordinate race levels of data in this form because it has been compiled base on the ranges provided by Microchip Technology Incorporated significant toxic metals components. These motohy function is provided only as estimates of the acter start and the average weight of these parts and the avera				100.000	12.500	1,000,000		Epoxy Resin			
citive 2002/S3/EC (End-of-Life Vehicles (ELV) Directive).Characterizations, and /or analytical test data.plance with the above EU Directives has been verified via internal design controls, supplier declarations, and /or analytical test data.0.14 (mg) TotalChip (Die)% of Total Weight1.09plance with the above EU Directives has been verified via internal design controls, supplier declarations, and /or analytical test data.0.14 (mg) TotalChip (Die)% of Total Weight1.09internal design controls, supplier declarations, and /or analytical test data.0.14 (mg) TotalChip (Die)% of Total Weight1.09ing compounds used by Microchip meet the ULBAV (framality standard for plastics. You can access the UL iQTM family of databases to obtain a test report at //uLcom/global/eng/pages/offerings/industries/chemicals/plastics/0.04 (mg) TotalWire Bond% of Total Weight0.31ing compounds used by Microchip meet the ULBAV (framality standard for plastics. You can access the UL iQTM family of databases to obtain a test report at //uLcom/global/eng/pages/offerings/industries/chemicals/plastics/0.04 (mg) TotalWire Bond% of Total Weight0.31ing compounds is thas been compiled based on the ranges provided in range provided in range provided praw material is the original packing materials is thas of the acting weight of these page weight of anticipated significant toxic metals components. These are provided in range and raw material is form balax are at and exercise and some information provide displant materials components. These are provided in range provided in ram database or the avrage weight of these page weight of anticipated significant toxic metals components. These are provided in ram database or the avrage weight of these page are										100.00	
//ul.com/global/eng/pages/offerings/industries/chemicals/plastics/ 0.04 (mg) Total Wire Bond % of Total Weight 0.31 //ul.com/global/eng/pages/offerings/industries/chemicals/plastics/ 0.04 (mg) Total Wire Bond % of Total Weight 0.31	pliance with the above EU Directives has been verified	u .		d to the hest	of Microchin				1303-00-0	100	1.09
certain "reels" may be made from PVC plastic. Doped Gold 7440-57-5 100.00 certain "reels" may be made from PVC plastic. Doped Gold 7440-57-5 100.00 crochip Technology Incorporated believes the information in this form concerning substances restricted by RoHS in Microchip Technology Incorporated cannot rantee the completeness and accuracy of data in this form because it has been compiled based on the ranges provided by subcontract assemblers and raw material pliers. Information is often protected from disclosure as trade secrets and some information may not have been provided by subcontract assemblers and raw material pliers. Information is provided only as estimates of the average weight of these parts and the average weight of anticipated significant toxic metals components. These maters do not include trace levels of dopants, metals, and non-metal materials contained within silicon devices (silicon IC) in the finished parts. Total 100.00 ronchip Technology Incorporated does not provide does not provided by Microchip Technology Incorporated and its subsidiaries are contained in Microchip's standard terms and conditions of sale. These are provided in ronchip's quotations, sales order acknowledgement, and invoices. Total 100.00 ronchip Signal and Wight to notify users of updates or changes to Material Content Declarations and shall not be liable for any damages, direct or indirect, consequential or semiconductor products. Image: Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 % of Total Weight 0.89 sport of this Certificate of Compliance for semiconductor products. So or this Certificate of Compliance	npliance with the above EU Directives has been verified v chemical substance is absent from the list above, the ch hnology incorporated's knowledge and belief as of the d	emical substance is NOT an ate of this document, there i	intentional ingredient in the semiconductor device an s no credible reason to believe that the unavoidable in			e chemical			1303-00-0	100	1.09
ices in their original packing materials is true and correct to the best of its knowledge and belief, as of the date listed in this form. Microchip Technology Incorporated cannot rantee the completeness and accuracy of data in this form because it has been compiled based on the ranges provided in Material Safety Data Sheets provided by raw material pilers. Supplier information is often protected from disclosure as trade secrets and some information may not have been provided by subcontract assemblers and raw material pilers. Information is provided only as estimates of the average weight of anticipated significant toxic metals components. These mates do not include trace levels of dopants, metals, and non-metal materials contained within silicon devices (silicon IC) in the finished parts. Total 100.00 Total 100.00 Total 0000 Plating on external leads (pins) - Matter Tin / annealed at 150°C for 1 hour % of Total Weight 0.89 %) or of this Certificate of Compliance for semiconductor products.	npliance with the above EU Directives has been verified or chemical substance is absent from the list above, the ch hnology incorporated's knowledge and belief as of the d stance, if any, is not below the threshold of regulatory co ding compounds used by Microchip meet the UL94 V0 fla	emical substance is NOT an ate of this document, there i oncern for any regulatory sc ammability standard for plas	intentional ingredient in the semiconductor device an is no credible reason to believe that the unavoidable in heme world-wide.	npurity conce	entration of th	e chemical	Doped GaAs	Gallium arsenide	1303-00-0 Total	100 100.00	
rochip Technology Incorporated does not provide any warranty, express or implied, with respect to the information provided in this declaration. The exclusive, limited product any warranty, express or implied, with respect to the information provided in this declaration. The exclusive, limited product any warranty provide any warranty, express or implied, with respect to the information provided in this declaration. The exclusive, limited product any warranty provide any warranty, express or implied, with respect to the information provided in this declaration. The exclusive, limited product any warranty provide any warranty, express or implied, with respect to the information provided in this declaration. The exclusive, limited product any warranty provide any and any provide any and any provide	mpliance with the above EU Directives has been verified or chemical substance is absent from the list above, the ch- hnology incorporated's knowledge and belief as of the di- stance, if any, is not below the threshold of regulatory co- ding compounds used by Microchip meet the UL94 V0 fit o://ul.com/global/eng/pages/offerings/industries/chemical e protective "tubes" in which the specific product is shipp	emical substance is NOT an ate of this document, there i oncern for any regulatory sc ammability standard for plas s/plastics/	intentional ingredient in the semiconductor device an s no credible reason to believe that the unavoidable in heme world-wide. ttics. You can access the UL IQTM family of databases	npurity conce	entration of the		Doped GaAs	Gallium arsenide	1303-00-0 Total Wire Bond	100 100.00 % of Total Weight	
or of this Certificate of Compliance for semiconductor products.	chemical substance is absent from the list above, the ch chonology Incorporated's knowledge and belief as of the di stance, if any, is not below the threshold of regulatory co lding compounds used by Microchip meet the UL94 V0 fla c//ul.com/global/eng/pages/offerings/industries/chemical a protective "tubes" in which the specific product is ship d certain "reels" may be made from PVC plastic. srochip Technology Incorporated believes the information rices in their original packing materials is true and correc arantee the completeness and accuracy of data in this for oppliers. Supplier information is often protected from discl opliers. Information is provided only as estimates of the a	emical substance is NOT an ate of this document, there i oncern for any regulatory sc ammability standard for plas s/plastics/ bed are made from polyvinyl in this form concerning sult t to the best of its knowledg m because it has been com osure as trade secrets and s verage weight of these parts	intentional ingredient in the semiconductor device an is no credible reason to believe that the unavoidable in theme world-wide. tics. You can access the UL iQTM family of databases I chloride (PVC) plastic. "Window envelopes" used to I bestances restricted by RoHS in Microchip Technology e and belief, as of the date listed in this form. Microch piled based on the ranges provided in Material Safety J some information may not have been provided by subc s and the average weight of anticipated significant toxi	to obtain a to nold the pack Incorporated ip Technolog Data Sheets p contract asse c metals con	entration of th est report at ing slip on the 's semicondu y Incorporate provided by ra mblers and ra	e outer box ctor d cannot w material w material	Doped GaAs	Gallium arsenide	1303-00-0 Total Wire Bond 7440-57-5	100 100.00 % of Total Weight 100.00	0.31
Tin 7440-31-5 100.00	mpliance with the above EU Directives has been verified of chemical substance is absent from the list above, the ch chology Incorporated's knowledge and belief as of the di stance, if any, is not below the threshold of regulatory co liding compounds used by Microchip meet the UL94 V0 fla c//ul.com/global/eng/pages/offerings/industries/chemical e protective "tubes" in which the specific product is ship d certain "reels" may be made from PVC plastic. prochip Technology Incorporated believes the information rices in their original packing materials is true and correc arantee the completeness and accuracy of data in this for ppliers. Supplier information is often protected from disci- pliers. Supplier information is often protected from disci- tionates do not include trace levels of dopants, metals, and prochip Technology Incorporated does not provide any wir rranties provided by Microchip Technology Incorporated	emical substance is NOT an ate of this document, there i oncern for any regulatory sc ammability standard for plas s/plastics/ bed are made from polyvinyl in this form concerning sult t to the best of its knowledg m because it has been com osure as trade secrets and a verage weight of these parts d non-metal materials contai arranty, express or implied, and its subsidiaries are com	intentional ingredient in the semiconductor device an is no credible reason to believe that the unavoidable in theme world-wide. titos. You can access the UL iQTM family of databases I chloride (PVC) plastic. "Window envelopes" used to I obstances restricted by RoHS in Microchip Technology e and belief, as of the date listed in this form. Microch piled based on the ranges provided in Material Safety J some information may not have been provided by subd s and the average weight of anticipated significant toxi ined within silicon devices (silicon IC) in the finished p with respect to the information provided in this declar.	to obtain a te nold the pack Incorporated ip Technolog Data Sheets contract asse c metals com arts.	entration of the est report at ing slip on the 's semicondu y Incorporate provided by ra mblers and ra aponents. The clusive, limite	e outer box ctor d cannot w material w material se d product	Doped GaAs	Gallium arsenide	Total	100 100.00 % of Total Weight 100.00	0.31
	npliance with the above EU Directives has been verified of chemical substance is absent from the list above, the ch hnology incorporated's knowledge and belief as of the distance, if any, is not below the threshold of regulatory conditions of the stance, if any, is not below the threshold of regulatory conditions of the stance, if any, is not below the threshold of regulatory conditions of the stance, if any, is not below the threshold of regulatory conditions of the stance, if any, is not below the threshold of regulatory conditions of the stance, if any, is not below the threshold of regulatory conditions of the stance, if any, is not below the threshold of regulatory conditions of the stance, if any, is not below the threshold of regulatory conditions of the stance, if any, is not below the threshold of regulatory conditions is protective "tubes" in which the specific product is shipp is certain "reels" may be made from PVC plastic. Torchip Technology Incorporated believes the information is provided only as estimates of the a mates do not include trace levels of dopants, metals, and conchip Technology Incorporated does not provide any we ranties provided by Microchip Technology Incorporated of a conchip signal subfactions, sales order acknowledgement, and is rochip disclaims any duty to notify users of updates or cerwise, suffered by users or third parties as a result of the formation is the suffered by users or third parties as a result of the suffered by users or third parties as a result of the suffered by users or third parties as a result of the suffered by users or third parties as a result of the suffered by users or third parties as a result of the suffered by users or third parties as a result of the suffered by users or third parties as a result of the suffered by users or third parties as a result of the suffered by users or third parties as a result of the suffered by users or third parties as a result of the suffered by users or third parties as a result of the suffered by users of the suffer	emical substance is NOT an ate of this document, there is oncern for any regulatory so ammability standard for plas s/plastics/ bed are made from polyvinyl in this form concerning sult to the best of its knowledg m because it has been com osure as trade secrets and s verage weight of these parts d non-metal materials contai arranty, express or implied, and its subsidiaries are com nvoices.	intentional ingredient in the semiconductor device an is no credible reason to believe that the unavoidable in theme world-wide. titos. You can access the UL iQTM family of databases i chloride (PVC) plastic. "Window envelopes" used to h obstances restricted by RoHS in Microchip Technology is and belief, as of the date listed in this form. Microch piled based on the ranges provided in Material Safety I some information may not have been provided by sub- some information may not have been provided by sub- in ed within silicon devices (silicon IC) in the finished p with respect to the information provided in this declar- tained in Microchip's standard terms and conditions of Declarations and shall not be liable for any damages, of	npurity conce to obtain a to hold the pack incorporated ip Technolog Data Sheets p contract asse contract asse contract asse contract asse for the pack incorporated in the pack in the pa	entration of the est report at ing slip on the 's semicondu y Incorporate provided by ra mblers and ra nponents. The clusive, limite are provided ect, conseque	e outer box ctor d cannot w material w material se d product in ential or	Doped GaAs	Gallium arsenide (mg) Total Doped Gold	Total Wire Bond 7440-57-5 Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1	100 100.00 % of Total Weight 100.00 100.00	0.31

Basic Substance Silica, fused Epoxy Resin Phenolic Resin Carbon Black Copper Nickel Silicon	CAS Number 60676-86-0 Trade Secret Trade Secret 1333-86-4	"Contained In" Sub-Component Mold Compound Mold Compound	% Total Weight	mg/part	ppm	4.18	(mg) Total	Mold Compound		
Silica, fused Epoxy Resin Phenolic Resin Carbon Black Copper Nickel Silicon	60676-86-0 Trade Secret Trade Secret	Mold Compound		mg/part				word compound	% ot Total Weight	68.55
Epoxy Resin Phenolic Resin Carbon Black Copper Nickel Silicon	Trade Secret Trade Secret			3,763			Silica, fused	60676-86-0	90.00	1
Phenolic Resin Carbon Black Copper Nickel Silicon	Trade Secret		61.695 3.325	0.203	616,950 33,247		Epoxy Resin	Trade Secret	4.85	
Carbon Black Copper Nickel Silicon		Mold Compound	3.325	0.203	33,247		Phenolic Resin	Trade Secret	4.85	
Nickel Silicon		Mold Compound	0.206	0.013	2,057		Carbon Black	1333-86-4	0.30	
Nickel Silicon	7440-50-8	Lead Frame	23.696	1.445	236,960			Total	100.00	1
	7440-02-0	Lead Frame	0.632	0.039	6,320	1.52	(mg) Total	Lead Frame	% of Total Weight	24.88
	7440-21-3	Lead Frame	0.112	0.007	1,120		Copper	7440-50-8	95.24	
Magnesium	7439-95-4	Lead Frame	0.025	0.002	249		Nickel	7440-02-0	2.54	
Silver	7440-22-4	Lead Frame	0.415	0.025	4,152		Silicon	7440-21-3	0.45	
Ag	7440-22-4	Die Attach	0.990	0.060	9,900		Magnesium	7439-95-4	0.10	
Epoxy resin	Trade secret	Die Attach	0.198	0.012	1,980		Silver	7440-22-4	1.67	
Aliphatic anhydride	Trade secret	Die Attach	0.066	0.004	660			Total	100.00	
2-Butoxyethyl acetate	112-07-2	Die Attach	0.033	0.002	330	0.08	(mg) Total	Die Attach	% of Total Weight	1.32
Polymeric material	Trade secret	Die Attach	0.033	0.002	330		Ag	7440-22-4	75.00	
Silicon	1303-00-0	Chip (Die)	3.630	0.221	36,300		Epoxy resin	Trade secret	15.00	
Au	7440-57-5	Wire Bond	0.590	0.036	5,899		Aliphatic anhydride	Trade secret	5.00	
impurity	Misc.	Wire Bond	0.000	0.000	1		2-Butoxyethyl acetate	112-07-2	2.50	
Tin	7440-31-5	Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	1.030	0.063	10,300		Polymeric material	Trade secret Total	3 100.00	
		g Total Mass	100.000	6.100	1,000,000	0.22	(mg) Total	I otal Chip (Die)	100.00 % of Total Weight	
mpliance with the above EU Directives has been verified via in	ternal design controls	, supplier declarations, and /or analytical test data.						Total	100.00	1
chemical substance is absent from the list above, the chemic chnology Incorporated's knowledge and belief as of the date o emical substance, if any, is not below the threshold of regulate	of this document, there	is no credible reason to believe that the unavoidable				0.04	(mg) Total	Wire Bond	% of Total Weight	0.59
lding compounds used by Microchip meet the UL94 V0 flamm p://ul.com/global/eng/pages/offerings/industries/chemicals/pla		stics. You can access the UL iQTM family of database	es to obtain a	a test report at	t		Au	7440-57-5	99.99	
e protective "tubes" in which the specific product is shipped a k and certain "reels" may be made from PVC plastic.	are made from polyviny	I chloride (PVC) plastic. "Window envelopes" used to	o hold the pa	cking slip on t	the outer		impurity	Misc.	0.01	
crochip Technology Incorporated believes the information in the vices in their original packing materials is true and correct to the arantee the completeness and accuracy of data in this form be terial suppliers. Supplier information is often protected from co- material suppliers. Information is provided only as estimates ese estimates do not include trace levels of dopants, metals, a	the best of its knowled ecause it has been con lisclosure as trade sec s of the average weight	ge and belief, as of the date listed in this form. Micro npiled based on the ranges provided in Material Safet rets and some information may not have been provid of these parts and the average weight of anticipated	chip Technol ty Data Shee led by subco significant to	ogy Incorpora ts provided by ntract assemt oxic metals co	ated cannot / raw blers and			Total	100.00	
	nty, express or implied,							Plating on external leads (pins) - Matte Tin /		
crochip Technology Incorporated does not provide any warrar rranties provided by Microchip Technology Incorporated and crochip's quotations, sales order acknowledgement, and invoi		ntained in Microchip's standard terms and conditions	s of sale. The	se are provide	ed in	0.06		annealed at 150°C for 1	% of Total Weight	1.03

	e Type: QX8F 08 ()	ead) XSON 2x2x0.45mm (Q7)		nation Base / pper Alloy (C				ogeneous Materials: .g. pc boards, display:	s)	JEDEC 97 Produc Marking and/or Pkg. Labeling e3
Schildendeter Bevie		"Contained In"	% Total	1	-					
Basic Substance	CAS Number	Sub-Component	Weight	mg/part	ppm	8.14	(mg) Total	Mold Compound	% ot Total Weight	79.8
Silica, fused	60676-86-0	Mold Compound	71.820	7.326	718,200		Silica, fused	60676-86-0	90.00	
Epoxy Resin	Trade Secret	Mold Compound	3.870	0.395	38,703		Epoxy Resin	Trade Secret	4.85	
Phenolic Resin	Trade Secret	Mold Compound	3.870	0.395	38,703		Phenolic Resin	Trade Secret	4.85	
Carbon Black	1333-86-4	Mold Compound	0.239	0.024	2,394		Carbon Black	1333-86-4	0.30	
Copper	7440-50-8	Lead Frame	10.000	1.020	100,003			Total	100.00	
Nickel	7440-02-0	Lead Frame	0.267	0.027	2,667	1.07	(mg) Total	Lead Frame	% of Total Weight	10.5
Silicon	7440-21-3	Lead Frame	0.047	0.005	473		Copper	7440-50-8	95.24	
Magnesium	7439-95-4	Lead Frame	0.011	0.001	105		Nickel	7440-02-0	2.54	
Silver	7440-22-4	Lead Frame	0.175	0.018	1,752		Silicon	7440-21-3	0.45	
Ag	7440-22-4	Die Attach	0.563	0.057	5,625		Magnesium	7439-95-4	0.10	
Epoxy resin	Trade secret	Die Attach	0.113	0.011	1,125		Silver	7440-22-4	1.67	
Aliphatic anhydride	Trade secret	Die Attach	0.038	0.004	375			Total	100.00	
2-Butoxyethyl acetate	112-07-2	Die Attach	0.019	0.002	188	0.08	(mg) Total	Die Attach	% of Total Weight	0.75
Polymeric material	Trade secret	Die Attach	0.019	0.002	188		Ag	7440-22-4	75.00	
GaAs	1303-00-0	Chip (Die)	7.500	0.765	75,000		Epoxy resin	Trade secret	15.00	
Gold	7440-57-5	Wire Bond	0.200	0.020	2,000		Aliphatic anhydride	Trade secret	5.00	
Tin	7440-31-5	Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	1.250	0.128	12,500		2-Butoxyethyl acetate	112-07-2	2.50	
		TOTALS:	100.000	10.200	1,000,000		Polymeric material	Trade secret	3	
	0.0102	g Total Mass						Total	100.00	
	omply with EU Directive 200	2/95/EC (RoHS Directive), EU Directive 2011/65/EU (Ro	HS Recast Di	irective) and v	vith EU	0.77	(mg) Total	Chip (Die)	% of Total Weight	7.5
s semiconductor device and its homogenous materials co active 2002/53/EC (End-of-Life Vehicles (ELV) Directive). mpliance with the above EU Directives has been verified v			HS Recast Di	irective) and v	vith EU	0.77 Doped GaAs	(mg) Total GaAs	1303-00-0	100	
ective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). npliance with the above EU Directives has been verified v chemical substance is absent from the list above, the che hnology Incorporated's knowledge and belief as of the da	ria internal design controls, emical substance is NOT an ate of this document, there is	supplier declarations, and /or analytical test data. intentional ingredient in the semiconductor device an s no credible reason to believe that the unavoidable in	d, to the best	of Microchip			· -·		100	
ective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). npliance with the above EU Directives has been verified v chemical substance is absent from the list above, the che hnology Incorporated's knowledge and belief as of the da stance, if any, is not below the threshold of regulatory co ding compounds used by Microchip meet the UL94 V0 fla	ria internal design controls, emical substance is NOT an ate of this document, there i ncern for any regulatory sc mmability standard for plas	supplier declarations, and /or analytical test data. intentional ingredient in the semiconductor device and s no credible reason to believe that the unavoidable in heme world-wide.	d, to the best apurity conce	of Microchip Intration of the			· -·	1303-00-0	100	-
sective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). npliance with the above EU Directives has been verified v chemical substance is absent from the list above, the che hnology incorporated's knowledge and belief as of the da istance, if any, is not below the threshold of regulatory co ding compounds used by Microchip meet the UL94 V0 fla st/ul.com/global/eng/pages/offerings/industries/chemicals protective "tubes" in which the specific product is shipp	via internal design controls, emical substance is NOT an ate of this document, there is incern for any regulatory sc immability standard for plas s/plastics/	supplier declarations, and /or analytical test data. intentional ingredient in the semiconductor device and s no credible reason to believe that the unavoidable in heme world-wide. tics. You can access the UL iQTM family of databases	d, to the best npurity conce to obtain a te	of Microchip entration of the est report at	e chemical	Doped GaAs	GaAs	1303-00-0 Total Wire Bond 7440-57-5	100 100.00 % of Total Weight 100.00	0.2
ective 2002/53/EC (End-of-Life Vehicles (ELV) Directive).	via internal design controls, emical substance is NOT an ate of this document, there is procern for any regulatory sc immability standard for plas s/plastics/ ped are made from polyvinyl in this form concerning subt t to the best of its knowledge m because it has been comp source as trade secrets and s verage weight of these parts	supplier declarations, and /or analytical test data. intentional ingredient in the semiconductor device and s no credible reason to believe that the unavoidable im heme world-wide. tics. You can access the UL iQTM family of databases chloride (PVC) plastic. "Window envelopes" used to h ostances restricted by RoHS in Microchip Technology I e and belief, as of the date listed in this form. Microchi olied based on the ranges provided in Material Safety D come information may not have been provided by subc and the average weight of anticipated significant toxic	d, to the best apurity conce to obtain a te hold the packing p Technology Data Sheets p contract asse c metals com	of Microchip Intration of the est report at ing slip on the 's semicondur y incorporated provided by ra moblers and ra	e chemical e outer box ctor d cannot w material w material	Doped GaAs	GaAs (mg) Total	1303-00-0 Total Wire Bond	100 100.00 % of Total Weight	0.2
active 2002/53/EC (End-of-Life Vehicles (ELV) Directive). mpliance with the above EU Directives has been verified v chemical substance is absent from the list above, the che- hnology Incorporated's knowledge and belief as of the da stance, if any, is not below the threshold of regulatory co- lding compounds used by Microchip meet the UL94 V0 fla s://ul.com/global/eng/pages/offerings/industries/chemicals e protective "tubes" in which the specific product is shipp I certain "reels" may be made from PVC plastic. rochip Technology Incorporated believes the information rices in their original packing materials is true and correct rantee the completeness and accuracy of data in this forr pliers. Supplier information is often protected from discle pliers. Information is provided only as estimates of the a	via internal design controls, emical substance is NOT an ate of this document, there is porcern for any regulatory sc immability standard for plas s/plastics/ wed are made from polyvinyl in this form concerning sub t to the best of its knowledg m because it has been comp osure as trade secrets and s verage weight of these parts I non-metal materials contai urranty, express or implied, and its subsidiaries are cont	supplier declarations, and /or analytical test data. intentional ingredient in the semiconductor device and s no credible reason to believe that the unavoidable im heme world-wide. tics. You can access the UL iQTM family of databases chloride (PVC) plastic. "Window envelopes" used to h ostances restricted by RoHS in Microchip Technology I e and belief, as of the date listed in this form. Microchi piled based on the ranges provided in Material Safety I come information may not have been provided by subc and the average weight of anticipated significant toxis ned within silicon devices (silicon IC) in the finished pa with respect to the information provided in this declaration of the sector.	d, to the best apurity conce to obtain a te hold the pack incorporated p Technolog Data Sheets p contract ass c metals com arts.	of Microchip Intration of the est report at ing slip on the 's semicondury y Incorporate rovided by ra mblers and ra uponents. The clusive, limite	e chemical e outer box d cannot w material se d product	Doped GaAs	GaAs (mg) Total	1303-00-0 Total Wire Bond 7440-57-5	100 100.00 % of Total Weight 100.00	0.2
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). npliance with the above EU Directives has been verified v chemical substance is absent from the list above, the che hnology Incorporated's knowledge and belief as of the da stance, if any, is not below the threshold of regulatory co ding compounds used by Microchip meet the UL94 V0 fla c//ul.com/global/eng/pages/offerings/industries/chemicals protective "tubes" in which the specific product is shipp certain "reels" may be made from PVC plastic. rochip Technology Incorporated believes the information ices in their original packing materials is true and correct rantee the completeness and accuracy of data in this forr pliers. Information is provided only as estimates of the a mates do not include trace levels of dopants, metals, and rochip Technology Incorporated does not provide any wa ranties provided by Microchip Technology Incorporated a	via internal design controls, emical substance is NOT an ate of this document, there is oncern for any regulatory sc ummability standard for plas s/plastics/ bed are made from polyvinyl in this form concerning sub t to the best of its knowledging m because it has been comp usure as trade secrets and s verage weight of these parts I non-metal materials contai arranty, express or implied, and its subsidiaries are cont nvoices.	supplier declarations, and /or analytical test data. intentional ingredient in the semiconductor device and s no credible reason to believe that the unavoidable im heme world-wide. tics. You can access the UL iQTM family of databases chloride (PVC) plastic. "Window envelopes" used to h estances restricted by RoHS in Microchip Technology I e and belief, as of the date listed in this form. Microchi biled based on the ranges provided in Material Safety I come information may not have been provided by subc and the average weight of anticipated significant toxi ned within silicon devices (silicon IC) in the finished pa with respect to the information provided in this declara- ained in Microchip's standard terms and conditions of Declarations and shall not be liable for any damages, d	d, to the best spurity conce to obtain a te nold the packing p Technology Data Sheets p contract asse c metals com arts. ation. The exc i sale. These lirect or indir	of Microchip intration of the est report at ing slip on the 's semicondur y Incorporated rovided by ra mblers and ra iponents. The clusive, limite are provided i	e chemical e outer box ctor d cannot w material se d product in mitial or	Doped GaAs	GaAs (mg) Total Gold	Vire Bond 7440-57-5 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1	100 100.00 % of Total Weight 100.00 100.00	0.2

AICROCHIP Semiconductor Devic	:e Type: XX8E 08 (∟	ead) X2SON 2x2x0.35mm (X8)		nination Base Copper Alloy	•		•	ogeneous Materials: a.g. pc boards, display	rs)	JEDEC 97 Product Markin and/or Pkg. Labeling e3
		"Contained In"	% Total			2.86	(mg) Total	Mold Compound	% ot Total Weight	51.99
Basic Substance	CAS Number	Sub-Component	Weight	mg/part	ppm	2.00	(ing) rotai	mora compound	// or rotal weight	01.55
Silica, fused	60676-86-0	Mold Compound	46.791	2.574	467,910		Silica, fused	60676-86-0	90.00	
Epoxy Resin	Trade Secret	Mold Compound	2.522	0.139	25,215		Epoxy Resin	Trade Secret	4.85	
Phenolic Resin	Trade Secret	Mold Compound	2.522	0.139	25,215		Phenolic Resin	Trade Secret	4.85	
Carbon Black	1333-86-4	Mold Compound	0.156	0.009	1,560		Carbon Black	1333-86-4	0.30	
Copper	7440-50-8	Lead Frame	38.649	2.126	386,488			Total		
Nickel	7440-02-0	Lead Frame	1.031	0.057	10,307	2.23	(mg) Total	Lead Frame	% of Total Weight	40.58
Silicon	7440-21-3	Lead Frame	0.183	0.010	1,826		Copper	7440-50-8	95.24	
Magnesium	7439-95-4	Lead Frame	0.041	0.002	406		Nickel	7440-02-0	2.54	
Silver	7440-22-4	Lead Frame	0.677	0.037	6,773		Silicon	7440-21-3	0.45	
Silver	7440-22-4	Die Attach	1.888	0.104	18,880]	Magnesium	7439-95-4	0.10	
Epoxy Resin	Trade secret	Die Attach	0.472	0.026	4,720		Silver	7440-22-4	1.67	
Gallium arsenide (GaAs)	1303-00-0	Chip (Die)	2.360	0.130	23,600			Total	100.00	
Doped Gold	7440-57-5	Wire Bond	0.720	0.040	7.200	0.13	(mg) Total	Die Attach	% of Total Weight	2.36
Tin	7440-31-5	Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	1.990	0.109	19,900		Silver	7440-22-4	80.00	
	1110 01 0	TOTALS:	100.000	5.500	1,000,000		Epoxy Resin	Trade secret	20.00	
	0.0055	g Total Mass			.,,		Epoxy Room	Total		J
s semiconductor device and its homogenous materials c Directive 2002/53/EC (End-of-Life Vehicles (ELV) Directiv npliance with the above EU Directives has been verified chemical substance is absent from the list above, the ch	comply with EU Directive 200 ve). via internal design controls	02/95/EC (RoHS Directive), EU Directive 2011/ , supplier declarations, and /or analytical test	data.		,	0.13 Doped GaAs	(mg) Total Gallium arsenide	Chip (Die) 1303-00-0 Total	% of Total Weight	2.36
Directive 2002/53/EC (End-of-Life Vehicles (ELV) Directiv	comply with EU Directive 200 ve). via internal design controls nemical substance is NOT ar date of this document, there	22/95/EC (RoHS Directive), EU Directive 2011/ , supplier declarations, and /or analytical test n intentional ingredient in the semiconductor is no credible reason to believe that the unav	data. device and,	to the best of	Microchip		,	Chip (Die) 1303-00-0	% of Total Weight	2.36
Directive 2002/53/EC (End-of-Life Vehicles (ELV) Directiv npliance with the above EU Directives has been verified chemical substance is absent from the list above, the ch hnology Incorporated's knowledge and belief as of the d	comply with EU Directive 200 ve). via internal design controls nemical substance is NOT and date of this document, there gulatory concern for any reg lammability standard for pla	22/95/EC (RoHS Directive), EU Directive 2011/ , supplier declarations, and /or analytical test n intentional ingredient in the semiconductor is no credible reason to believe that the unav gulatory scheme world-wide.	data. device and, voidable imp	to the best of urity concentr	Microchip ation of the		,	Chip (Die) 1303-00-0	% of Total Weight	2.36
Directive 2002/53/EC (End-of-Life Vehicles (ELV) Directive npliance with the above EU Directives has been verified chemical substance is absent from the list above, the ch hnology Incorporated's knowledge and belief as of the d mical substance, if any, is not below the threshold of reg ding compounds used by Microchip meet the UL94 V0 fil	comply with EU Directive 20 ve). via internal design controls nemical substance is NOT al date of this document, there gulatory concern for any reg ammability standard for pla us/plastics/ uped are made from polyviny	22/95/EC (RoHS Directive), EU Directive 2011/ , supplier declarations, and /or analytical test n intentional ingredient in the semiconductor is no credible reason to believe that the unav gulatory scheme world-wide. stics. You can access the UL iQTM family of c	data. device and, voidable imp latabases to	to the best of urity concentr obtain a test r	Microchip ation of the eport at	Doped GaAs	Gallium arsenide	Chip (Die) 1303-00-0 Total Wire Bond 7440-57-5	% of Total Weight 100 100.00 % of Total Weight 100.00	
Directive 2002/53/EC (End-of-Life Vehicles (ELV) Directive npliance with the above EU Directives has been verified chemical substance is absent from the list above, the ch hnology Incorporated's knowledge and belief as of the d mical substance, if any, is not below the threshold of reg ding compounds used by Microchip meet the UL94 V0 fli ://ul.com/global/eng/pages/offerings/industries/chemical protective "tubes" in which the specific product is ship	comply with EU Directive 20 ve). via internal design controls nemical substance is NOT at date of this document, there gulatory concern for any reg lammability standard for pla lis/plastics/ oped are made from polyviny c. n in this form concerning su ct to the best of its knowledge n this form because it has be ted from disclosure as trade ded only as estimates of the	2/95/EC (RoHS Directive), EU Directive 2011/ , supplier declarations, and /or analytical test n intentional ingredient in the semiconductor is no credible reason to believe that the unay gulatory scheme world-wide. stics. You can access the UL iQTM family of o /I chloride (PVC) plastic. "Window envelopes" ubstances restricted by RoHS in Microchip Te ge and belief, as of the date listed in this form een compiled based on the ranges provided in secrets and some information may not have a average weight of these parts and the averag	data. device and, roidable imp latabases to ' used to hole chnology Ind . Microchip 1 n Material Sa been provide ge weight of	to the best of urity concentr obtain a test r d the packing corporated's s Technology In faty Data She ed by subcont anticipated si	Microchip ation of the eport at slip on the emiconductor corporated ets provided by ract gnificant toxic	Doped GaAs	Gallium arsenide	Chip (Die) 1303-00-0 Total Wire Bond 7440-57-5 Total	% of Total Weight 100 100.00 % of Total Weight 100.00	
Directive 2002/53/EC (End-of-Life Vehicles (ELV) Directive appliance with the above EU Directives has been verified chemical substance is absent from the list above, the ch hnology Incorporated's knowledge and belief as of the d mical substance, if any, is not below the threshold of reg ding compounds used by Microchip meet the UL94 V0 fl ://ul.com/global/eng/pages/offerings/industries/chemica protective "tubes" in which the specific product is ship er box and certain "reels" may be made from PVC plastic rochip Technology Incorporated believes the information ices in their original packing materials is true and correc not guarantee the completeness and accuracy of data in material suppliers. Supplier information is often protect	comply with EU Directive 20 via internal design controls nemical substance is NOT at date of this document, there gulatory concern for any reg lammability standard for pla lis/plastics/ oped are made from polyviny c. n in this form concerning su ct to the best of its knowleden n this form because it has but ted from disclosure as trade ded only as estimates of the evels of dopants, metals, an varranty, express or implied, rporated and its subsidiarie	2/95/EC (RoHS Directive), EU Directive 2011/ , supplier declarations, and /or analytical test n intentional ingredient in the semiconductor is no credible reason to believe that the unav gulatory scheme world-wide. stics. You can access the UL iQTM family of c (I chloride (PVC) plastic. "Window envelopes" ubstances restricted by RoHS in Microchip Te ge and belief, as of the date listed in this form een compiled based on the ranges provided in secrets and some information may not have o average weight of these parts and the average d non-metal materials contained within silicoo , with respect to the information provided in the	data. device and, roidable imp latabases to ' used to hole . Microchip T n Material Sa been provid ge weight of n devices (si nis declaratio	to the best of urity concentr obtain a test i d the packing corporated's s Fechnology In fety Data She ed by subcont anticipated si licon IC) in the on. The exclus	Microchip ation of the eport at slip on the emiconductor corporated ets provided by ract gnificant toxic finished parts. ive, limited	Doped GaAs	Gallium arsenide	Chip (Die) 1303-00-0 Total Wire Bond 7440-57-5	% of Total Weight 100 100.00 % of Total Weight 100.00	
Directive 2002/53/EC (End-of-Life Vehicles (ELV) Directive apliance with the above EU Directives has been verified chemical substance is absent from the list above, the ch hnology Incorporated's knowledge and belief as of the d mical substance, if any, is not below the threshold of reg ding compounds used by Microchip meet the UL94 V0 fi ://ul.com/global/eng/pages/offerings/industries/chemica protective "tubes" in which the specific product is ship er box and certain "reels" may be made from PVC plastik rochip Technology Incorporated believes the information ices in their original packing materials is true and correc not guarantee the completeness and accuracy of data in material suppliers. Supplier information is often protect emblers and raw material suppliers. Information is provia als components. These estimates do not include trace le rochip Technology Incorporated does not provide any w duct warranties provided by Microchip Technology Incor	comply with EU Directive 200 ve). via internal design controls nemical substance is NOT at date of this document, there gulatory concern for any reg lammability standard for pla lis/plastics/ upped are made from polyviny c. n in this form concerning su ct to the best of its knowledn this form because it has b ted from disclosure as trade ded only as estimates of the evels of dopants, metals, an varranty, express or implied, rporated and its subsidiarie gement, and invoices.	2/95/EC (RoHS Directive), EU Directive 2011/ , supplier declarations, and /or analytical test n intentional ingredient in the semiconductor is no credible reason to believe that the unay gulatory scheme world-wide. stics. You can access the UL iQTM family of o /I chloride (PVC) plastic. "Window envelopes" ubstances restricted by RoHS in Microchip Te ge and belief, as of the date listed in this form een compiled based on the ranges provided in secrets and some information may not have a average weight of these parts and the avera id non-metal materials contained within silicor , with respect to the information provided in the s are contained in Microchip's standard terms Declarations and shall not be liable for any d	data. device and, roidable imp latabases to ¹ used to hole . Microchip ↑ n Material Sa been provide ge weight of n devices (si nis declarations and conditi amages, dire	to the best of urity concentr obtain a test r d the packing corporated's s Technology In fiety Data She ed by subcont anticipated si licon IC) in the con. The exclus ons of sale. The ect or indirect,	Microchip ation of the eport at slip on the emiconductor corporated ets provided by ract gnificant toxic finished parts. ive, limited hese are consequential	Doped GaAs	Gallium arsenide (mg) Total Doped Gold	Chip (Die) 1303-00-0 Total Wire Bond 7440-57-5 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for	% of Total Weight 100 100.00 % of Total Weight 100.00 100.00	0.72

5.500

AICROCHIP Semiconductor Device 1	Гуре: TL 36 (Lead)	VTLA 5x5x0.9mm (7S)		ation Base A oper Alloy (C			•	ogeneous Materials: e.g. pc boards, displays)	JEDEC 97 Product Markin and/or Pkg. Labeling e4
Basic Substance	CAS Number	"Contained In" Sub-Component	% Total Weight	mg/part	ppm	117.71	(mg) Total	Mold Compound	% ot Total Weight	79.8
Silica, vitreous (or fused)	60676-86-0	Mold Compound	67.830	100.049	678.300		Silica, vitreous (or fused)	60676-86-0	85.00	
Epoxy Resin	Trade Secret	Mold Compound	6.943	10.240	69,426		Epoxy Resin	Trade Secret	8.70	
Phenolic Resin	Trade Secret	Mold Compound	4.788	7.062	47,880		Phenolic Resin	Trade Secret	6.00	
Carbon Black	1333-86-4	Mold Compound	0.239	0.353	2,394		Carbon Black	1333-86-4	0.30	
Copper	7440-50-8	Lead Frame	10.217	15.069	102,165			Total		-
Iron	7439-89-6	Lead Frame	0.242	0.356	2,415	15.49	(mg) Total	Lead Frame	% of Total Weight	10.5
Phosphorous	7723-14-0	Lead Frame	0.026	0.039	263		Copper	7440-50-8	97.30	
Zinc (Metal)	7440-44-0	Lead Frame	0.016	0.023	158		Iron	7439-89-6	2.30	
Silver (Ag)	7440-22-4	Die Attach	0.589	0.868	5,888		Phosphorous	7723-14-0	0.25	
Proprietary Resin	Trade Secret	Die Attach	0.139	0.205	1,388		Zinc (Metal)	7440-44-0	0.15	
Proprietary Curing agent & Hardener	Trade Secret	Die Attach	0.023	0.033	225			Total		
Silicon	7440-21-3	Chip (Die)	7.500	11.063	75,000	1.11	(mg) Total	Die Attach	% of Total Weight	0.75
Gold	7440-57-5	Wire Bond	0.200	0.295	2,000		Silver (Ag)		79	
Nickel	7440-02-0	Plating on external leads (pins) / annealed at 150°C for 1 hour	1.125	1.659	11,250		Proprietary Resin	Trade Secret	19	
Palladium	7440-05-03	Plating on external leads (pins) / annealed at 150°C for 1 hour	0.063	0.092	625	Proprietar	y Curing agent & Hardener		3	
Gold	7440-57-5	Plating on external leads (pins) / annealed at 150°C for 1 hour	0.063	0.092	625 1.000.000			Total	100.00	
		TOTALS:	100.000	147.500	1,000,000	11.06	Total (mg)	Chip (Die)	% of Total Weight	7.5
	0.1475	g Total Mass					Doped Silicon	7440-21-3	100	
tive 2002/53/EC (End-of-Life Vehicles (ELV) Directive).		002/95/EC (RoHS Directive), EU Directive 2011/65		ast Directive)	and with EU			Total	100.00	
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). npliance with the above EU Directives has been verified via	a internal design control	s, supplier declarations, and /or analytical test da	ita.			0.30	(mg) Total	Total Wire Bond	100.00 % of Total Weight	0.2
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). apliance with the above EU Directives has been verified via chemical substance is absent from the list above, the cher hnology Incorporated's knowledge and belief as of the dat	a internal design control mical substance is NOT te of this document, ther	s, supplier declarations, and /or analytical test da an intentional ingredient in the semiconductor de re is no credible reason to believe that the unavoi	ita. vice and, to th	e best of Micro	ochip	0.30	(mg) Total			
s semiconductor device and its homogenous materials con cctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). npliance with the above EU Directives has been verified via chemical substance is absent from the list above, the cher hnology Incorporated's knowledge and belief as of the dat mical substance, if any, is not below the threshold of regu ding compounds used by Microchip meet the UL94 V0 flan ://ul.com/global/eng/pages/offerings/industries/chemicals	a internal design control mical substance is NOT te of this document, ther latory concern for any ro nmability standard for pl	s, supplier declarations, and /or analytical test data an intentional ingredient in the semiconductor de re is no credible reason to believe that the unavoi egulatory scheme world-wide.	ta. vice and, to th dable impurity	e best of Micro concentration	ochip of the	0.30		Wire Bond	% of Total Weight	
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). apliance with the above EU Directives has been verified via chemical substance is absent from the list above, the cher hnology Incorporated's knowledge and belief as of the dat mical substance, if any, is not below the threshold of regu ding compounds used by Microchip meet the UL94 V0 flan ://ul.com/global/eng/pages/offerings/industries/chemicals/ protective "tubes" in which the specific product is shippe	a internal design control mical substance is NOT te of this document, ther latory concern for any re mmability standard for pl /plastics/	is, supplier declarations, and /or analytical test da an intentional ingredient in the semiconductor de re is no credible reason to believe that the unavoi egulatory scheme world-wide. astics. You can access the UL iQTM family of dat	nta. vice and, to th dable impurity abases to obta	e best of Micro concentration in a test repor	ochip of the t at	0.30		Wire Bond 7440-57-5	% of Total Weight	
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). npliance with the above EU Directives has been verified via chemical substance is absent from the list above, the cher hnology Incorporated's knowledge and belief as of the dat mical substance, if any, is not below the threshold of regu ding compounds used by Microchip meet the UL94 V0 flan	a internal design control mical substance is NOT te of this document, ther latory concern for any re nmability standard for pl /plastics/ ed are made from polyvir to the best of its knowled his form because it has i from disclosure as trad timates of the average w	is, supplier declarations, and /or analytical test da an intentional ingredient in the semiconductor de re is no credible reason to believe that the unavoi egulatory scheme world-wide. lastics. You can access the UL iQTM family of dat nyl chloride (PVC) plastic. "Window envelopes" u substances restricted by RoHS in Microchip Tech dge and belief, as of the date listed in this form. M been compiled based on the ranges provided in T le secrets and some information may not have be regipt of these parts and the average weight of an	tta. vice and, to th dable impurity abases to obta sed to hold the nology Incorpr licrochip Tech laterial Safety en provided by nticipated signi	e best of Micro concentration in a test repor packing slip o prated's semic nology Incorp Data Sheets y subcontract ficant toxic mi	ochip of the t at on the outer onductor orated rovided by assemblers etals		Doped Gold	Wire Bond 7440-57-5 Total Plating on external leads (pins) / annealed at 150°C	% of Total Weight 100 100.00	0.2
Active 2002/53/EC (End-of-Life Vehicles (ELV) Directive). npliance with the above EU Directives has been verified via chemical substance is absent from the list above, the cher hnology Incorporated's knowledge and belief as of the dat mical substance, if any, is not below the threshold of regu ding compounds used by Microchip meet the UL94 V0 flan ://ul.com/global/eng/pages/offerings/industries/chemicals/ protective "tubes" in which the specific product is shippe and certain "reels" may be made from PVC plastic. rochip Technology Incorporated believes the information i ices in their original packing materials is true and correct in not guarantee the completeness and accuracy of data in tim material suppliers. Supplier information is provided only as es	a internal design control mical substance is NOT te of this document, ther latory concern for any re nmability standard for pl /plastics/ ed are made from polyvir in this form concerning et to the best of its knowle his form because it has i from disclosure as trad timates of the average w opants, metals, and non ranty, express or implie orated and its subsidiari	is, supplier declarations, and /or analytical test da an intentional ingredient in the semiconductor de re is no credible reason to believe that the unavoi egulatory scheme world-wide. lastics. You can access the UL iQTM family of dat nyl chloride (PVC) plastic. "Window envelopes" u substances restricted by RoHS in Microchip Tech dge and belief, as of the date listed in this form. It been compiled based on the ranges provided in le secrets and some information may not have be reight of these parts and the average weight of ar -metal materials contained within silicon devices d, with respect to the information provided in this	tta. vice and, to th dable impurity abases to obta sed to hold the nology Incorpo ficrochip Tech Atterial Safety en provided by ticipated signi (silicon IC) in t declaration. T	e best of Micro concentration in a test repor packing slip o prated's semic nology Incorp Jata Sheets p v subcontract : ficant toxic m he finished pa he exclusive, l	ochip of the t at on the outer onductor orated rovided by assemblers etals rts.		Doped Gold (mg) Total	Wire Bond 7440-57-5 Total Plating on external leads (pins) / annealed at 150°C for 1 hour	% of Total Weight 100 100.00 % of Total Weight	0.2
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). apliance with the above EU Directives has been verified via chemical substance is absent from the list above, the cher hnology Incorporated's knowledge and belief as of the dat mical substance, if any, is not below the threshold of regu ding compounds used by Microchip meet the UL94 V0 flan ://ul.com/global/eng/pages/offerings/industries/chemicals/ protective "tubes" in which the specific product is shippe and certain "reels" may be made from PVC plastic. rochip Technology Incorporated believes the information i ices in their original packing materials is true and correct i not guarantee the completeness and accuracy of data in ti material suppliers. Supplier information is provided only as es sponents. These estimates do not include trace levels of d rochip Technology Incorporated does not provide any war duct warranties provided by Microchip Technology Incorporated rochip Technology Incorporated does not provide any war	a internal design control mical substance is NOT te of this document, ther latory concern for any ro- mmability standard for pl /plastics/ ed are made from polyvir in this form concerning s to the best of its knowle his form because it has I from disclosure as trad timates of the average w opants, metals, and non rranty, express or implie orated and its subsidiari ment, and invoices. anges to Material Conter users' reliance on the in	is, supplier declarations, and /or analytical test da an intentional ingredient in the semiconductor de e is no credible reason to believe that the unavoi egulatory scheme world-wide. astics. You can access the UL iQTM family of dat nyl chloride (PVC) plastic. "Window envelopes" u substances restricted by RoHS in Microchip Tech dge and belief, as of the date listed in this form. In been compiled based on the ranges provided in T le secrets and some information may not have be veight of these parts and the average weight of ar -metal materials contained within silicon devices d, with respect to the information provided in this es are contained in Microchip's standard terms a nt Declarations and shall not be liable for any dan	tta. vice and, to th dable impurity abases to obta sed to hold the nology Incorpr licrochip Tech Aterial Safety en provided by tricipated signi (silicon IC) in t declaration. T nd conditions nages, direct o	e best of Micro concentration in a test repor packing slip o protection of the semic nology Incorp Data Sheets p / subcontract ficant toxic m he finished pa he exclusive, l of sale. These r indirect, con	ochip of the t at on the outer orated rovided by assemblers etals rts. limited are sequential or		(mg) Total	Wire Bond 7440-57-5 Total Plating on external leads (pins) / annealed at 150°C for 1 hour 7440-02-0	% of Total Weight 100 100.00 % of Total Weight 90.00	0.2

) VTI A 5x5x0 9mm (65)		nation Base A pper Alloy (C				nogeneous Materials: e.g. pc boards, displays)	JEDEC 97 Product Markin and/or Pkg. Labeling e4
Basic Substance	CAS Number	"Contained In" Sub-Component	% Total Weight	mg/part	ppm	141.65	(mg) Total	Mold Compound	% ot Total Weight	79.8
Silica, vitreous (or fused)	60676-86-0	Mold Compound	67.830	120.398	678,300		Silica, vitreous (or fused)	60676-86-0	85.00	
Epoxy Resin	Trade Secret	Mold Compound Mold Compound	6.943	12.323	69.426		Epoxy Resin	Trade Secret	8.70	
Phenolic Resin	Trade Secret	Mold Compound	4.788	8.499	47,880		Phenolic Resin	Trade Secret	6.00	
Carbon Black	1333-86-4	Mold Compound	0.239	0.425	2,394		Carbon Black	1333-86-4	0.30	
Copper	7440-50-8	Lead Frame	10.217	18.134	102,165			Total	100.00	4
Iron	7439-89-6	Lead Frame	0.242	0.429	2,415	18.64	(mg) Total	Lead Frame	% of Total Weight	10.5
Phosphorous	7723-14-0	Lead Frame	0.026	0.047	263		Copper	7440-50-8	97.30	
Zinc (Metal)	7440-44-0	Lead Frame	0.016	0.028	158		Iron	7439-89-6	2.30	
Silver (Ag)	7440-22-4	Die Attach	0.589	1.045	5,888		Phosphorous	7723-14-0	0.25	
Proprietary Resin	Trade Secret	Die Attach	0.139	0.246	1,388		Zinc (Metal)	7440-44-0	0.15	
Proprietary Curing agent & Hardener	Trade Secret	Die Attach	0.023	0.040	225			Total	100.00	-
Silicon	7440-21-3	Chip (Die)	7.500	13.313	75,000	1.33	(mg) Total	Die Attach	% of Total Weight	0.75
Gold	7440-57-5	Wire Bond	0.200	0.355	2,000		Silver (Ag)	7440-22-4	79	
Nickel	7440-02-0	Plating on external leads (pins) / annealed at 150°C for 1 hour	1.125	1.997	11,250		Proprietary Resin	Trade Secret	19	
Palladium	7440-05-03	Plating on external leads (pins) / annealed at 150°C for 1 hour	0.063	0.111	625	Proprietar	y Curing agent & Hardener	Trade Secret	3	
Gold	7440-57-5	Plating on external leads (pins) / annealed at 150°C for 1 hour	0.063	0.111	625			Total	100.00	
		TOTALS:	100.000	177.500	1,000,000	13.31	Total (mg)	Chip (Die)	% of Total Weight	7.5
	0 1775	g Total Mass					Doped Silicon	7440-21-3	100	
tive 2002/53/EC (End-of-Life Vehicles (ELV) Directive).	omply with EU Directive 2	002/95/EC (RoHS Directive), EU Directive 2011/6	·	cast Directive)	and with EU	0.36	<u> </u>	Total	100.00	0.2
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). apliance with the above EU Directives has been verified v	omply with EU Directive 2	002/95/EC (RoHS Directive), EU Directive 2011/6	ata.			0.36	(mg) Total			0.2
etive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). pliance with the above EU Directives has been verified v hemical substance is absent from the list above, the che nology incorporated's knowledge and belief as of the data and the substance of the data substance of the data substance is above.	omply with EU Directive 2 ria internal design control emical substance is NOT ate of this document, the	002/95/EC (RoHS Directive), EU Directive 2011/6 Is, supplier declarations, and /or analytical test d an intentional ingredient in the semiconductor d re is no credible reason to believe that the unavo	ata. evice and, to th	ne best of Micr	ochip	0.36	<u> </u>	Total	100.00	0.2
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). apliance with the above EU Directives has been verified v chemical substance is absent from the list above, the che nnology Incorporated's knowledge and belief as of the da mical substance, if any, is not below the threshold of regu- ting compounds used by Microchip meet the UL94 V0 fla	mply with EU Directive 2 ria internal design control emical substance is NOT ate of this document, ther ulatory concern for any ru umability standard for pl	002/95/EC (RoHS Directive), EU Directive 2011/6 Is, supplier declarations, and /or analytical test d an intentional ingredient in the semiconductor d re is no credible reason to believe that the unavo egulatory scheme world-wide.	ata. evice and, to th idable impurity	ne best of Micr	ochip n of the	0.36	(mg) Total	Total Wire Bond	100.00 % of Total Weight 100	0.2
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). apliance with the above EU Directives has been verified v chemical substance is absent from the list above, the che hnology Incorporated's knowledge and belief as of the da mical substance, if any, is not below the threshold of regu- ding compounds used by Microchip meet the UL94 V0 fla ://ul.com/global/eng/pages/offerings/industries/chemicals protective "tubes" in which the specific product is shipp	mply with EU Directive 2 ria internal design control emical substance is NOT ate of this document, the ulatory concern for any r umability standard for pl s/plastics/	002/95/EC (RoHS Directive), EU Directive 2011/6 ls, supplier declarations, and /or analytical test d an intentional ingredient in the semiconductor d re is no credible reason to believe that the unavo egulatory scheme world-wide. lastics. You can access the UL iQTM family of da	ata. evice and, to th idable impurity tabases to obta	ne best of Micr v concentration ain a test repo	ochip n of the rt at	0.36	(mg) Total	Total Wire Bond 7440-57-5	100.00 % of Total Weight 100	0.2
a semiconductor device and its homogenous materials co- ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). Inpliance with the above EU Directives has been verified v chemical substance is absent from the list above, the che hnology Incorporated's knowledge and belief as of the da mical substance, if any, is not below the threshold of regr ding compounds used by Microchip meet the UL94 V0 fla c://ul.com/global/eng/pages/offerings/industries/chemicals protective "tubes" in which the specific product is shipp and certain "reels" may be made from PVC plastic. rochip Technology Incorporated believes the information ices in their original packing materials is true and correct not guarantee the completeness and accuracy of data in material suppliers. Information is often protecter araw material suppliers. Information is provided only as e uponents. These estimates do not include trace levels of o	with EU Directive 2 ria internal design control emical substance is NOT ate of this document, they ulatory concern for any rummability standard for pi s/plastics/ bed are made from polyvin in this form concerning so to the best of its knowle this form because it has def rom disclosure as trace	002/95/EC (RoHS Directive), EU Directive 2011/6 Is, supplier declarations, and /or analytical test d an intentional ingredient in the semiconductor d re is no credible reason to believe that the unavo egulatory scheme world-wide. lastics. You can access the UL iQTM family of da nyl chloride (PVC) plastic. "Window envelopes" u substances restricted by RoHS in Microchip Tecl dge and belief, as of the date listed in this form. I been compiled based on the ranges provided in le secrets and some information may not have bu veight of these parts and the average weight of a	ata. evice and, to th idable impurity tabases to obta used to hold the nnology Incorp Microchip Tech Material Safety ent provided b	ne best of Micr y concentration ain a test repo e packing slip orated's semi- nology Incorp Data Sheets j y subcontract lificant toxic m	ochip n of the rt at on the outer conductor porated provided by assemblers letals		(mg) Total Doped Gold	Total Wire Bond 7440-57-5 Total Plating on external leads (pins)/ annealed at 150°C	100.00 % of Total Weight 100 100.00	
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). apliance with the above EU Directives has been verified v chemical substance is absent from the list above, the che hnology Incorporated's knowledge and belief as of the da mical substance, if any, is not below the threshold of regu- ding compounds used by Microchip meet the UL94 V0 fla ://ul.com/global/eng/pages/offerings/industries/chemicals protective "tubes" in which the specific product is shipp and certain "reels" may be made from PVC plastic. rochip Technology Incorporated believes the information ices in their original packing materials is true and correct not guarantee the completeness and accuracy of data in material suppliers. Information is provided only as e	mply with EU Directive 2 ria internal design control emical substance is NOT ate of this document, the ulatory concern for any r immability standard for pis/ s/plastics/ bed are made from polyvin in this form concerning r to the best of its knowle this form because it has d from disclosure as trac stimates of the average v dopants, metals, and non arranty, express or implie porated and its subsidiari	002/95/EC (RoHS Directive), EU Directive 2011/6 Is, supplier declarations, and /or analytical test d an intentional ingredient in the semiconductor d re is no credible reason to believe that the unavo egulatory scheme world-wide. lastics. You can access the UL iQTM family of da nyl chloride (PVC) plastic. "Window envelopes" u substances restricted by RoHS in Microchip Tecl dge and belief, as of the date listed in this form. I been compiled based on the ranges provided in te secrets and some information may not have bu veight of these parts and the average weight of a i-metal materials contained within silicon devices d, with respect to the information provided in this	ata. evice and, to th idable impurity tabases to obta used to hold the nology Incorp Microchip Tech Material Safety en provided b nticipated sign s (silicon IC) in s declaration. 1	ne best of Micr y concentration ain a test repo e packing slip orated's semi- nology Incorp Data Sheets j y subcontract ificant toxic m the finished p. The exclusive,	ochip n of the rt at on the outer conductor porovided by assemblers letals arts. limited		(mg) Total Doped Gold (mg) Total	Total Wire Bond 7440-57-5 Total Plating on external leads (pins) / annealed at 150°C for 1 hour	100.00 % of Total Weight 100 100.00 % of Total Weight	
etive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). pliance with the above EU Directives has been verified v hemical substance is absent from the list above, the che nology incorporated's knowledge and belief as of the da nical substance, if any, is not below the threshold of regu ing compounds used by Microchip meet the UL94 V0 fla //ul.com/global/eng/pages/offerings/industries/chemicals protective "tubes" in which the specific product is shipp and certain "reels" may be made from PVC plastic. Dochip Technology Incorporated believes the information ces in their original packing materials is true and correct tot guarantee the completeness and accuracy of data in material suppliers. Supplier information is often protecter aw material suppliers. Information is provided only as e ponents. These estimates do not include trace levels of o cochip Technology Incorporated does not provide any wa uct warranties provided by Microchip Technology Incorp	mply with EU Directive 2 ria internal design control emical substance is NOT ate of this document, they ulatory concern for any rumability standard for pl s/plastics/ wed are made from polyvin in this form concerning so t to the best of its knowle this form because it has d from disclosure as trac stimates of the average v dopants, metals, and non arranty, express or implie porated and its subsidiari ement, and invoices. hanges to Material Conten the users' reliance on the	002/95/EC (RoHS Directive), EU Directive 2011/6 Is, supplier declarations, and /or analytical test d an intentional ingredient in the semiconductor d re is no credible reason to believe that the unavo egulatory scheme world-wide. lastics. You can access the UL iQTM family of da nyl chloride (PVC) plastic. "Window envelopes" t substances restricted by RoHS in Microchip Tecl dge and belief, as of the date listed in this form. been compiled based on the ranges provided in le secrets and some information may not have by veight of these parts and the average weight of a i-metal materials contained within silicon devices d, with respect to the information provided in this ies are contained in Microchip's standard terms a nt Declarations and shall not be liable for any dai	ata. evice and, to th idable impurity tabases to obta used to hold the hnology Incorp Microchip Tect Material Safety een provided b inticipated sign s (silicon IC) in s declaration. T and conditions mages, direct c	he best of Micr concentration ain a test repo e packing slip orated's semi- nology Incorr Data Sheets y subcontract ificant toxic m the finished p. The exclusive, of sale. These or indirect, cor	ochip n of the rt at on the outer conductor yorated provided by assemblers ietals arts. limited e are asequential		(mg) Total Doped Gold (mg) Total Nickel	Total Wire Bond 7440-57-5 Total Plating on external leads (pins) / annealed at 150°C for 1 hour 7440-02-0	100.00 % of Total Weight 100 100.00 % of Total Weight 90.00	

CROCHIP Semiconductor Device	Тире: TL 124 (Le	ad) VTLA 9x9x0.9mm (8S)		nation Base A pper Alloy (Cu			•	ogeneous Materials: g. pc boards, displays)		JEDEC 97 Product Marking and/or Pkg. Labeling e4
	.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	"Contained In"	% Total							
Basic Substance	CAS Number	Sub-Component	Weight	mg/part	ppm	141.65	(mg) Total	Mold Compound	% ot Total Weight	79.8
Silica, vitreous (or fused)	60676-86-0	Mold Compound	67.830	120.398	678,300		Silica, vitreous (or fused)	60676-86-0	85.00	
Epoxy Resin	Trade Secret	Mold Compound	6.943	12.323	69,426		Epoxy Resin	Trade Secret	8.70	
Phenolic Resin	Trade Secret	Mold Compound	4.788	8.499	47,880		Phenolic Resin	Trade Secret	6.00	
Carbon Black	1333-86-4	Mold Compound	0.239	0.425	2,394		Carbon Black	1333-86-4	0.30	
Copper	7440-50-8	Lead Frame	10.217	18.134	102,165			Total	100.00	2
Iron	7439-89-6	Lead Frame	0.242	0.429	2,415	18.64	(mg) Total	Lead Frame	% of Total Weight	10.5
Phosphorous	7723-14-0	Lead Frame	0.026	0.047	263		Copper	7440-50-8	97.30	
Zinc (Metal)	7440-44-0	Lead Frame	0.016	0.028	158		Iron	7439-89-6	2.30	
Silver (Ag)	7440-22-4	Die Attach	0.589	1.045	5,888		Phosphorous	7723-14-0	0.25	
Proprietary Resin	Trade Secret	Die Attach	0.139	0.246	1,388		Zinc (Metal)	7440-44-0	0.15	
Proprietary Curing agent & Hardener	Trade Secret	Die Attach	0.023	0.040	225			Total	100.00	1
Silicon	7440-21-3	Chip (Die)	7.500	13.313	75,000	1.33	(mg) Total	Die Attach	% of Total Weight	0.75
Gold	7440-21-5	Wire Bond	0.200	0.355	2.000	1.55	Silver (Ag)	7440-22-4	79	0.75
Nickel	7440-02-0	Plating on external leads (pins) / annealed at 150°C for 1 hour	1.125	1.997	11.250		Proprietary Resin	Trade Secret	19	
Palladium	7440-02-0	Plating on external leads (pins) / annealed at 150°C for 1 hour Plating on external leads (pins) / annealed at 150°C for 1 hour	0.063	0.111	625	.	ry Curing agent & Hardener	Trade Secret	19	
Gold	7440-05-03		0.063	0.111	625	Proprieta	ry Curing agent & Hardener	Tade Secret	3 100.00	l
Gulu	7440-57-5	Plating on external leads (pins) / annealed at 150°C for 1 hour	100.000	177.500	1.000.000		-			
		TOTALS:	100.000	177.500	1,000,000	13.31	Total (mg)	Chip (Die)	% of Total Weight	7.5
	0.1775	g Total Mass					Doped Silicon	7440-21-3	100	
	Shipiy with EO Directive.	2002/95/EC (RoHS Directive), EU Directive 2011/65/E	U (RoHS Recas	st Directive) an	d with EU			Total	100.00	9
ve 2002/53/EC (End-of-Life Vehicles (ELV) Directive). iance with the above EU Directives has been verified v				st Directive) an	d with EU	0.36	(mg) Total	Total Wire Bond	100.00 % of Total Weight	0.2
ve 2002/53/EC (End-of-Life Vehicles (ELV) Directive). iance with the above EU Directives has been verified v emical substance is absent from the list above, the che ology Incorporated's knowledge and belief as of the da	ia internal design contro emical substance is NOT ite of this document, the	Is, supplier declarations, and /or analytical test data an intentional ingredient in the semiconductor devi re is no credible reason to believe that the unavoida	ce and, to the b	best of Microck	nip	0.36	(mg) Total Doped Gold		% of Total Weight	
ve 2002/53/EC (End-of-Life Vehicles (ELV) Directive).	ia internal design contro emical substance is NOT te of this document, the ulatory concern for any r mmability standard for p	Is, supplier declarations, and /or analytical test data an intentional ingredient in the semiconductor devi re is no credible reason to believe that the unavoida egulatory scheme world-wide.	ce and, to the b ble impurity co	best of Microch	nip i the	0.36		Wire Bond	% of Total Weight	
ve 2002/53/EC (End-of-Life Vehicles (ELV) Directive). liance with the above EU Directives has been verified v emical substance is absent from the list above, the che ology incorporated's knowledge and belief as of the da cal substance, if any, is not below the threshold of regu ing compounds used by Microchip meet the UL94 V0 fla	ia internal design contro emical substance is NOT te of this document, the ulatory concern for any r immability standard for p s/plastics/	Is, supplier declarations, and /or analytical test data an intentional ingredient in the semiconductor devi re is no credible reason to believe that the unavoida egulatory scheme world-wide. lastics. You can access the UL iQTM family of data	ce and, to the b ble impurity co pases to obtain	best of Microch oncentration of a test report a	nip i the at	0.36		Wire Bond 7440-57-5	% of Total Weight	
ve 2002/53/EC (End-of-Life Vehicles (ELV) Directive). iance with the above EU Directives has been verified v emical substance is absent from the list above, the che ology Incorporated's knowledge and belief as of the da cal substance, if any, is not below the threshold of regu- ng compounds used by Microchip meet the UL94 V0 fla al.com/global/eng/pages/offerings/industries/chemicals otective "tubes" in which the specific product is shipp	ia internal design contro emical substance is NOT te of this document, the ulatory concern for any i immability standard for p s/plastics/ ed are made from polyvi in this form concerning to the best of its knowle n because it has been co om disclosure as trade s ates of the average weig	Is, supplier declarations, and /or analytical test data an intentional ingredient in the semiconductor devi re is no credible reason to believe that the unavoida egulatory scheme world-wide. Nastics. You can access the UL iQTM family of datal nyl chloride (PVC) plastic. "Window envelopes" use substances restricted by RoHS in Microchip Techno dge and belief, as of the date listed in this form. Mic mpiled based on the ranges provided in Material Sa ecrets and some information may not have been pro th of these parts and the average weight of anticipa	ce and, to the b ble impurity cc pases to obtain as to hold the p rochip Techno fety Data Shee wided by subc ted significant	best of Microcl oncentration of a test report a backing slip on ated's semicor ology Incorpora its provided by ontract assem	hip the it the outer iductor ted cannot raw blers and		Doped Gold	Wire Bond 7440-57-5 Total Plating on external leads (pins) / annealed at 150°C	% of Total Weight 100 100.00	
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$ \frac{1}{10000} 1$	Semiconductor Device Type:	B1KE 48	TFBGA 8x10x1.2mm (9T)		nination Base Copper Alloy (Package Homog 8.1 Electronics (e.g.	eneous Materials: . pc boards, displays	;)	JEDEC 97 Product Markin and/or Pkg. Labeling e1
AlsSD 20/CL Other Park Med Concount 32/81 68/81 Result	Basic Substance	CAS Number			mg/part	nnm	71.63	(mg) Total	Mold Compound	% ot Total Weight	50.3
$ \frac{1}{120} COV RESULTS UNEL OUT OF SUPPORT To a Serier 1/10 Company $			•	-				FUSED SILICA	60676-86-0	77 50	
Construction Construction<						000,010					
CH CHORSELINGED INSIGNCE DULATE POWY FERMINATE RESIDENT Med Corporad 4.935 6.646 4.908 ChORSELINGED INSIGNCE DULATE POWY FERMINATE RESIDENT Med Corporad 1.238 1.500	EPOXY RESINS, CURED	Trade Secret	Mold Compound	4.905	6.984	49,048			Trade Secret	9.75	
$ \frac{CA850R}{C} R_{10}CX = \frac{15358-1}{1256} - \frac{1000}{1256} - $	3H CROSS-LINKED HIGH MOLECULAR EPOXY / EPOXY PHENOL RESIN	Trade Secret	Mold Compound	4.905	6.984	49,048		HIGH MOLECULAR EPOXY / EPOXY	Trade Secret	9.75	
$ \frac{1}{124} 1$	CRYSTALLINE SILICA	14808-60-7	Mold Compound	1.258	1.791	12,580			14808-60-7	2.50	
$ \frac{1}{12} 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0$								CARBON BLACK			
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Lable Frame1/14 <td>Nickel</td> <td>7440-02-0</td> <td>Lead Frame</td> <td>0.875</td> <td>1.246</td> <td>8,748</td> <td></td> <td>(chloromethyl)oxirane polymer</td> <td>9003-36-5</td> <td>21.40</td> <td></td>	Nickel	7440-02-0	Lead Frame	0.875	1.246	8,748		(chloromethyl)oxirane polymer	9003-36-5	21.40	
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$\frac{1}{122} \frac{1}{123} \frac{1}$	IVIISC.	system	Lead Frame	0.330	0.479	3,305		Araldite GY 250	20008-38-6	∠.00	
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$\frac{1}{2} Siver 1 + 442 \cdot 24 = 10 + AltCh = 0.352 = 0.168 + AltCh = 0.352 = 0.168 + Test = 0.352 = 0.364 = 1.360 + 1.3$	Gold	7440-57-5	Lead Frame	0.022	0.032	224		initio0.	system	1.50	
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Out 242 g Total Mass Out 244 g Total								resin (Compound of			
0.1424 g Total Mass Doped Silcon 7440-21-3 100 s semiconductor device and its homogenous materials compty with EU Directive 2002/35/EC (End-5 Liv Obicetive). Total 100.00 npliance with the above EU Directives. Total 100.00 122 (mg) Total Wire Bond % of Total Weight 0.8 honology incorporated's knowledge and belies as of the date of this document, there is no credible reason to believe that the unavoidable impurity concentration of the mical substance. 1.22 (mg) Total Wire Bond % of Total Weight 0.8 ////////////////////////////////////	Copper	7440-50-8									
is semiconductor device and its homogenous materials comply with EU Directive 2002/95/EC (RoHS Directive), EU Directive 2011/95/EU (RoHS Recast Directive) and with EU Citive 2002/95/EC (RoHS Directive), EU Directive 2011/95/EU (RoHS Recast Directive) and with EU Citive 2002/95/EC (RoHS Directive), EU Directive 2011/95/EU (RoHS Recast Directive) and with EU Citive 2002/95/EC (RoHS Directive), EU Directive 2011/95/EU (RoHS Recast Directive) and with EU Citive 2002/95/EC (RoHS Directive). Total 2002/95/EC (RoHS Directive), EU Directive 3 has enclosed of the date of this document, there is no credible reason to believe that the unavoidable impurity concentration of the list above, the chemical substance is NOT an intentional ingredient in the semiconductor device and, to the best of Microchip moley moley duratory scheme world wide. Total 200,000 (T440-57-5 100,00) (T440-57-5 100				S: 100.000	142.400	1,000,000	10.89			% of Total Weight	7.65
the above EU Directives has been verified via internal design controls, supplier declarations, and /or analytical test data. the above EU Directives has been verified via internal design controls, supplier declarations, and /or analytical test data. the mical substance is absent from the list above, the chemical substance is NOT an intentional ingredient in the semiconductor device and, to the best of Microchip mical substance, if any, is not below the threshold of regulatory concern for any regulatory scheme world-wide. iffing compounde used by Microchip meet the ULA VI finamalibility standard for plastics. You can access the UL iQTM family of databases to obtain a test report at iffur.com/global/eng/pages/offerings/industries/chemicals/plastics/ protective "tubes" in which the specific product is shipped are made from polyvinyl choride (PVC) plastic. "Window envelopes" used to hold the packing slip on the outer iffur.com/global/eng/pages/offerings/industries/chemicals/plastics/ protective "tubes" in which the specific product is shipped are made from polyvinyl choride (PVC) plastic. "Window envelopes" used to hold the packing slip on the outer and certain "reels" in which the specific product is shipped are made from polyvinyl choride (PVC) plastic. "Window envelopes" used to hold the packing slip on the outer and certain "reels" in which the specific product is shipped are made from polyvinyl choride (PVC) plastic. "Window envelopes" used to hold the packing slip on the outer and certain "reels" in which the specific product is shipped are made from polyvinyl choride (PVC) plastic. "Window envelopes" used to hold the packing slip on the outer and certain "reels" in which the specific product is shipped are made from polyvinyl choride (PVC) plastic. "Window envelopes" used to hold the packing slip on the outer and certain "reels". The form PVC plastic. The formation is the proceed on the starge provided by real productions, sales or device to the best of its knowledge and belief, as of the date		0.1424	g Total Mass					Doped Silicon	7440-21-3	100	
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nnology incorporated's knowledge and belief as of the date of this document, there is no credible reason to believe that the unavoidable impurity concentration of the mical substance, if any, is not below the threshold of regulatory concern for any regulatory scheme world-wide. ding compounds used by Microchip meet the UL34 V0 fimmability standard for plastics. You can access the UL iQTM family of databases to obtain a test report at <i>://ul.com/global/eng/pages/offerings/industries/chemicals/plastics/</i> protective "tubes" in which the specific product is shipped are made from polyvinyl chloride (PVC) plastic. "Window envelopes" used to hold the packing slip on the outer and certain "reels" may be made from PVC plastic. cochip Technology Incorporated believes the information in this form concerning substances restricted by RoHS in Microchip Technology Incorporated cannot rate the completeness and accuracy of data in this form because it has been compiled based on the ranges provided of by subcortrat assemblers and material suppliers. Supplier information is provided only as estimates of the average weight of these parts and the average weight of anticipated significant toxic metals ponents. These estimates do not include trace levels of dopants, metals, and non-metal materials contained within silicon devices (silicon IC) in the finished parts. cochip Technology Incorporated does not provide dony as estimates of the average weight of these parts and the average weight of anticipated significant toxic metals ponents. These estimates do not include trace levels of dopants, metals, and non-metal materials contained in Microchip's standard terms and conditions of sale. These are provided incochip's quotations, sales order acknowledgement, and invoices. Solver Technology lucorporated does not provide and his subsidiaries are contained in Microchip's standard terms and conditions of sale. These are provided incochip's quotations, sales order acknowledgement, and invoices. Solver takes aresult of the users' reliance on	pliance with the above EU Directives has been verified via interr	al design control	s, supplier declarations, and /or analytical test da	ita.			1.22	(mg) Total	Wire Bond	% of Total Weight	0.86
ting compounds used by Microchip meet the UL94 V0 flammability standard for plastics. You can access the UL iQTM family of databases to obtain a test report at ://ul.com/global/eng/pages/offerings/industries/chemicals/plastics/ protective "tubes" in which the specific product is shipped are made from polyvinyl chloride (PVC) plastic. "Window envelopes" used to hold the packing slip on the outer and certain "reels" may be made from PVC plastic. "cochip Technology Incorporated believes the information in this form concerning substances restricted by RoHS in Microchip Technology Incorporated cannot rante the completeness and accuracy of data in this form because it has been compiled based on the ranges provided by mave rail suppliers. Supplier information is provided only use seitmates of the average weight of these parts and the average weight of these parts and the average weight of these parts and the average weight of exerces (silicon IC) in the finished parts. Tochip Technology Incorporated does not provide any warranty, express or implied, with respect to the information provided in Microchip's standard terms and conditions of sale. These are provided incrochip's quotations, sales order acknowledgement, and invoices. Tochip Technology Incorporated does not provide any warranty, express or implied, with respect to the information in Material Content Declarations and shall not be liable for any damages, direct or indirect, consequential or provise, suffered by users or tupdates or changes to Material Content Declarations (MCD) or independent third party test reports S) or of this Certificate of Compliance for semiconductor products.	hnology Incorporated's knowledge and belief as of the date of thi	s document, ther	e is no credible reason to believe that the unavoid					Doped Gold	7440-57-5	100.00	
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and certain "reels" may be made from PVC plastic. 25.73 (mg) Total leads (pins) % of Total Weight 18.1 rochip Technology Incorporated believes the information in this form concerning substances restricted by RoHS in Microchip Technology Incorporated cannot rantee the completeness and accuracy of data in this form because it has been complied based on the ranges provided in Material Safety Data Sheets provided by raw real suppliers. Supplier information is often protected from disclosure as trade secrets and some information may not have been provided by yaubcontract assemblers and material suppliers. Information is provided only as estimates of the average weight of these parts and the average weight of anticipated significant toxic metals sponents. These estimates do not include trace levels of dopants, metals, and non-metal materials contained within silicon devices (silicon IC) in the finished parts. rochip Technology Incorporated does not provide any warranty, express or implied, with respect to the information provided in Microchip's standard terms and conditions of sale. These are provided licrochip's quotations, sales order acknowledgement, and invoices. Torochip disclaims any duty to notify users of updates or changes to Material Content Declarations and shall not be liable for any damages, direct or indirect, consequential or prives, suffreed by users of ubdates or changes to Material Content Declarations (MCD) or independent third party test reports S) or of this Certificate of Compliance for semiconductor products. Note the compliance for semiconductor prod			astics. You can access the UL iQTM family of dat	abases to obta	ain a test repo	rt at			Total	100.00	
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duct warranties provided by Microchip Technology Incorporated and its subsidiaries are contained in Microchip's standard terms and conditions of sale. These are provided Silver 7440-22-4 4.00 Incrochip's quotations, sales order acknowledgement, and invoices. rothip is claims any duty to notify users of updates or changes to Material Content Declarations and shall not be liable for any damages, direct or indirect, consequential or revise, suffreed by users or third parties as a result of the user's reliance on the information in Material Content Declarations (MCD) or independent third party test reports Copper 7440-50-8 0.50		est of its knowled se it has been cor osure as trade se	Ige and belief, as of the date listed in this form. N mpiled based on the ranges provided in Material crets and some information may not have been p t of these parts and the average weight of anticip	licrochip Tech Safety Data Sh provided by su pated significa	nology Incorp eets provided bcontract asse nt toxic metals	orated cannot by raw emblers and s		Tin	7440-31-5	95.50	
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	erial suppliers. Supplier information is often protected from discl material suppliers. Information is provided only as estimates of t aponents. These estimates do not include trace levels of dopants, rochip Technology Incorporated does not provide any warranty, duct warranties provided by Microchip Technology Incorporated	metals, and non- express or implied and its subsidiari	I, with respect to the information provided in this	declaration. T				Silver	7440-22-4	4.00	
Total 100.00	rial suppliers. Supplier information is often protected from discl material suppliers. Information is provided only as estimates of t ponents. These estimates do not include trace levels of dopants, ochip Technology Incorporated does not provide any warranty, e uct warranties provided by Microchip Technology Incorporated icrochip's quotations, sales order acknowledgement, and invoice ochip disclaims any duty to notify users of updates or changes t rwise, suffered by users or third parties as a result of the users'	metals, and non- express or implied and its subsidiari es. o Material Conter reliance on the in	I, with respect to the information provided in this as are contained in Microchip's standard terms a t Declarations and shall not be liable for any dan	s declaration. T nd conditions nages, direct o	of sale. These r indirect, con	are provided sequential or					

pliance with the above EU Directives has been verified via internal design controls, supplier declarations, and <i>lor</i> analytical test data. hemical substance is absent from the list above, the chemical substance is NOT an intentional ingredient in the semiconductor device and, to the best of Microchip Technology porated's knowledge and belief as of the date of this document, there is no credible reason to believe that the unavoidable impurity concentration of the chemical substance, if is not below the threshold of regulatory concern for any regulatory scheme world-wide. Ing compounds used by Microchip meet the UL94 V0 flammability standard for plastics. You can access the UL iQTM family of databases to obtain a test report at //ul.com/global/eng/pages/offerings/industries/chemicals/plastics/ protective "tubes" in which the specific product is shipped are made from polyvinyl choride (PVC) plastic. "Window envelopes" used to hold the packing slip on the outer box and in "reels" may be made from PVC plastic. bechip Technology Incorporated believes the information in this form concerning substances restricted by ROHS in Microchip Technology Incorporated's semiconductor devices in original packing materials is true and correct to the best of its knowledge and belief, as of the date listed in this form. Microchip Technology Incorporated cannot guarantee the leteness and accuracy of data in this form because it has been compiled based on the ranges provided by Microchira tassemblers and raw material suppliers. Information is ded only as estimates of the average weight of anticipated significant toxic metals components. These estimates do not include trace levels pants, metals, and non-metal materials contained within silicon devices (silicon IC) in the finished parts. bechip Technology Incorporated does not provide and its subsidiaries are controided by Microchip's standard terms and conditions of sale. These are provided in Microchip's Silver 7440-22-4 3.00					ination Base opper Alloy (geneous Materials: g. pc boards, display	rs)	JEDEC 97 Product Markin and/or Pkg. Labeling
Bais Subscience Col Weight Bits Pain	Semiconductor Device T	ype: 129 TFBGA 7x7x	1.0 (GW)								e1
Sites, circuits (n. head) distribution Half Site Half Site Half Site Half Site Base, control is a control is control is a control is control	Basic Substance	CAS Number			mg/part	ppm	51.44	(mg) Total	Mold Compound	% ot Total Weight	46.34
$ \frac{ }{ $	Silica, vitreous (or fused)	60676-86-0	Mold Compound	41.567	46.139	415,670	1	Silica, vitreous (or fused)	60676-86-0	89.70	
$ \frac{1}{10000000000000000000000000000000000$											
$ \frac{Cogen}{Cosen} = 740.954 used Finish and Park Park Park Park Park Park Park Park$											
$ \frac{1}{12} $								Carbon Black			
Pitred, brandarby, chancelly represent Stock Lask Frame 7.58 7.78 78.238 Course Stock 7.49 78.238 Nick 7446-00 Lask Frame 1.51 6.50 7.400 </td <td></td>											
Bind, demonstry registed 7614 06-0 Least Frame 9280 3289 792.00 Gene tem 6000000000000000000000000000000000000							40.74				36.7
Nicket 7440/020 Lead Finne 1431 1.689 14.313 Pract Linealizes intermedimentation 20.301 7.14 Magnetium slotes 14007/946 Lead Finne 0.74 0.345 7.340 0.345 0.345 7.340 0.345 0.346 0.376 0.345 7.340 0.345							-				
Bartin 1272-92-1 Load Frame 0.716 1016 9.176 Magdies OF 350 2008-38.4 Lead Frame 0.734 0.815 7.346 0.2 HeBrowshy mound 2008-38.4 Lead Frame 0.734 0.815 7.346 0.2 HeBrowshy mound 2405-77.4 Lead Frame 0.734 0.815 7.346 0.2 MeBrowshy mound 2405-77.4 Lead Frame 0.018 0.204 1.555 0.610 7440.07.5 Lead Frame 0.027 0.011 2.000 0.611 724.9.7 Lead Frame 0.027 0.011 2.000 0.611 7440.07.5 Lead Frame 0.027 0.027 2.000 0.611 7440.07.5 Lead Frame 0.027 0.027 2.000	Silica, chemically prepared	7631-86-9	Lead Frame	2.936	3.259	29,360	_	Glass fibers	65997-17-3	21.40	
$ \frac{1}{2} Margan states}{1274-0.7} \\ \frac{1}{2} Margan states}{1407:65 \\ 12 Margan state$	Nickel	7440-02-0	Lead Frame	1.431	1.589	14,313	Phenol formaldeb	vde (chloromethyl)ovirane polymer	9003-36-5	21.40	
$ \frac{Magnesian licities 1600^{\circ} 96.5 }{0.4016 (57.96.5 } \frac{Laad Frame}{1.602 Frame} 0.734 0.815 7.340 }{0.4016 (57.940 } 0.415 7.340 } \frac{Nadata (57.940 }{0.4016 (57.940 } \frac{Nadata (57.940 }{0.4016 } \frac{Nadata (57.940 }{0.400 } Nadata (5$	Barite	7727-43-7	Lead Frame	0.918	1 018	9 175	r nenoi, tormaiden				
Anable Of 200 Base Lead Frame 0.734 0.815 7,340 Data Data <thdata< th=""> <thdata<< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></thdata<<></thdata<>											
$\frac{1}{10000} \frac{1}{10000} \frac{1}$											
$\frac{1}{10000} \frac{1}{10000} \frac{1}$							1				
Gold 7440-57-5 Lead Fame 0.037 0.041 387 Silicu, vitrous (fr ytack) 6007-66-0 Die Altach 0.208 0.311 2260 0.311 2260 0.311 2260 0.311 2260 0.311 2260 0.311 2260 0.311 2260 0.311 2260 0.311 2260 0.311 2260 0.311 2260 0.301 0.307 0.301 0.307 0.301 0.307 0.301 0.307 0.301 0.307 0.301 0.307 0.301 0.307 0.301 0.307 0.301 0.307 0.301 0.307 0.301 0.307 0.301 0.307 0.301 0.307 0.301 0.307 0.301 0.307 0.301 0.307 0.301 0.		system	Lead Frame	0.551	0.611	5,505		Araldite GY 250	25068-38-6	2.00	
Siles, vrises for luted) 00070-056-01 Die Attach 0.200 0.311 2.800 Blowy/Actylic Trade Seerer Die Attach 0.070 0.700 <t< td=""><td>Aluminium-hydroxide-oxide</td><td>24623-77-6</td><td>Lead Frame</td><td>0.184</td><td>0.204</td><td>1,835</td><td>(2-Me</td><td>thoxymethylethoxy)propanol</td><td>34590-94-8</td><td>0.80</td><td></td></t<>	Aluminium-hydroxide-oxide	24623-77-6	Lead Frame	0.184	0.204	1,835	(2-Me	thoxymethylethoxy)propanol	34590-94-8	0.80	
EpopyNarplic Trade Servet Die Attach 0.070 0.078 700 Color Color 7440-57-5 0.10 Silton 7440-50-8 Wire Bord 0.3840 3.847 3.84000 3.847 3.84000 3.847 3.84000 3.847 3.84000 3.847 3.84000 3.847 3.84000 3.847 3.840000 <td< td=""><td></td><td>7440-57-5</td><td>Lead Frame</td><td></td><td></td><td></td><td></td><td>Misc.</td><td>system</td><td></td><td></td></td<>		7440-57-5	Lead Frame					Misc.	system		
Silicon 7440-21-3 Chip (De) 3.400 3.874 34.00 Compered Total 100.00 Palladum 7440-05-8 Wire Bond 0.026 0.029 259 Silka, transco (or fueld) 00070-68-0 0.000 10.000		60676-86-0	Die Attach	0.280	0.311	2,800		Aluminium-hydroxide-oxide			
Copper 7440-50-8 Wire Bond 0.934 1.037 0.9.341 0.93 (tright tright tris tright tris tright tright tris tright tright tright t	Epoxy/Acrylic	Trade Secret	Die Attach	0.070	0.078	700		Gold	7440-57-5	0.10	
Plandum7440.55.3Wire Bord0.0260.0260.29289Tin7440.25.4Plating on external leads (prins)117.3410.000Total0.001 </td <td>Silicon</td> <td>7440-21-3</td> <td>Chip (Die)</td> <td>3.490</td> <td>3.874</td> <td>34,900</td> <td></td> <td></td> <td>Total</td> <td></td> <td></td>	Silicon	7440-21-3	Chip (Die)	3.490	3.874	34,900			Total		
Tin 7440-31-5 Plaing on external leads (pins) 11.734 13.235 117.344 10.205 117.344 10.205 10.734 10.205 10.744 10.205 10.744 10.205 10.744 10.205 10.744 10.205 10.744 10.205 10.744 10.205 10.744 10.205 10.744 10.205 10.744 10.205 10.2	Copper	7440-50-8	Wire Bond	0.934	1.037	9,341	0.39	(mg) Total	Die Attach	% of Total Weight	0.35
Silver 7440224 Plating on external leads (pins) 0.385 0.405 3.464 Copper 74402508 Plating on external leads (pins) 0.081 0.67 608 3.37 (mg) Total Total 100.00 semiconductor device and its homogenous materials comply with EU Directive 2002/85/EC (RoHS Directive), EU Directive 2011/65/EU (RoHS Recast Directive) and with EU 1.07 (mg) Total Wire Bond % of Total Weight 0.36 priced Semiconductor device and its homogenous materials comply with EU Directive 2002/85/EC (RoHS Directive), EU Directive 2011/65/EU (RoHS Recast Directive) and with EU 1.07 (mg) Total Wire Bond % of Total Weight 0.36 priced Schoold and Schoold an	Palladium	7440-05-3	Wire Bond	0.026	0.029	259		Silica, vitreous (or fused)	60676-86-0	80.00	
Copper 7440-50.8 Planing on external leads (pins) 0.061 0.067 608 3.87 (mg) Total Chip (Die) %. 47 total Weight 3.49 0.111 g Total Mass TotALs: 100.000 11.000 1.000,000 10.00,000 10.00,000 10.00,000 7440.21.3 100.00 10.00 10.00,000	Tin	7440-31-5	Plating on external leads (pins)	11.734	13.025	117,344		Epoxy/Acrylic	Trade Secret		
Output TOTALS: 100.000 111.000 100.000 Total Total 100.000 semiconductor device and its homogenous materials comply with EU Directive 2002/95/EC (RoHS Directive), EU Directive 2011/65/EU (RoHS Recast Directive) and with EU 1.07 (mg) Total Wire Bond %, of Total Weight 0.36 pilner with the above EU Directives has been verified via internal design controls, supplier declarations, and <i>lor</i> analytical test data. 1.07 (mg) Total Wire Bond %, of Total Weight 0.36 pinner with the above EU Directives has been verified via internal design controls, supplier declarations, and <i>lor</i> analytical test data. 1.07 (mg) Total Wire Bond %, of Total Weight 0.36 pinner with the above EU Directive is as the date of this document, there is no credible reason to believe that the unavoidable impurity concentration of the chemical substance, if 1.07 (mg) Total Vire0-5:3 2.70 vire0.org/pages/offerings/industrise/chemical/splastics/ Vire0 an access the UL iQTM family of databases to obtain a test report at 1.05 (mg) Total Palacium 7440-05-3 2.70 vire0.org/pages/offerings/industrise/chemical/splastics/ Vire0.org/pages/offerings/industrise/chemical/splastics/ Vire0.org/pages/offerings/industrise/chemical/splastics/ 0.000<	Silver	7440-22-4	Plating on external leads (pins)	0.365	0.405	3,648			Total	100.00	
Outling Total <	Copper	7440-50-8	Plating on external leads (pins)	0.061	0.067	608	3.87	(mg) Total	Chip (Die)	% of Total Weight	3.49
semiconductor device and its homogenous materials comply with EU Directive 2020/SPGC (RoHS Directive), EU Directive 2011/65/EU (RoHS Recast Directive) and with EU tive 2020/SPGC (End-of-Life Vahicies (EL) Directive), plance with the above EU Directives has been verified via internal design controls, supplier declarations, and /or analytical test data. hermical substance is absent from the list above, the chemical substance is NOT an intentional ingredient in the semiconductor device and, to the best of Microchip Technology porated S knowledge and belief as of the date of this document, there is no credible reason to believe that the unavoidable impurity concentration of the chemical substance, if is no below the threshold of regulatory concern for any regulatory scheme world-wide. Total Table 2000 Paladum 7440-05-3 2.70 Paladum 7440-05-3 2.70 Total 100.00 Total 100.00 13.50 (mg) Total 100.00 13.50			TOT	LS: 100.000	111.000	1,000,000		Doped Silicon	7440-21-3	100	
semiconductor device and its homogenous materials comply with EU Directive 2002/95/EC (RoHS Directive), EU Directive 2011/65/EU (RoHS Recast Directive) and with EU tive 2002/53/EC (End-of-Life Vehicles (ELV) Directive), Indiance with the above EU Directives has been verified via internal design controls, supplier declarations, and /or analytical test data. hemical substance is absent from the list above, the chemical substance is NOT an intentional ingredient in the semiconductor device and, to the best of Microchip Technology portated S nowledge and belief as of the date of this document, there is no credible reason to believe that the unavoidable impurity concentration of the chemical substance, if is no televing the theshold of regulatory concern from ray regulatory scheme world-wide. In or other world the specific product is shipped are made from polyvinyl chloride (PVC) plastic. "Window envelopes" used to hold the packing slip on the outer box and in "reets" may be made from PVC plastic. (mg) Total (mg		0.111 a Ta	otal Mass						Total	100.00	
hemical substance is absent from the list above, the chemical substance is NOT an intertional ingredient in the semiconductor device and, to the best of Microchip Technology porated's knowledge and belief as of the date of this document, there is no credible reason to believe that the unavoidable impurity concentration of the chemical substance, if is no telow the threshold of regulatory concern for any regulatory concern for any regulatory concern for any regulatory scheme world-wide. Ing compounds used by Microchip meet the UL94 V0 flammability standard for plastics. You can access the UL iQTM family of databases to obtain a test report at Viu.com/global/eng/pages/offerings/industries/chemicals/plastics/ protective "tubes" in which the specific product is shipped are made from polyvinyl chloride (PVC) plastic. "Window envelopes" used to hold the packing slip on the outer box and in "reles" may be made from PVC plastic. chip Technology Incorporated believes the information in this form concerning substances restricted by ROHS in Microchip Technology Incorporated cannot guarantee the leades glines) in which the specific product is shipped are nonelled believes and some information any not have been growided in Miscrochip Technology Incorporated cannot guarantee the leades glines of the severage weight of anticipated significant toxic metals Scorpolated by awarential suppliers. Information is ordiginal packing materials is true and correct to the best of its knowledge and belief, as of the date listificant toxic metals accomponents. These estimates of nearing suppliers, Information is pants, metals, and non-metal materials contained within silicon devices (silicon IC) in the finished parts. chip Technology Incorporated does not provide and its subsidiaries are contained in Microchip's standar terms and conditions of sale. These are provided in Microchip's tions, sails of ref acknowledgement, and invorces.	semiconductor device and its homogenous materials com ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive).	ply with EU Directive 2002/95/	EC (RoHS Directive), EU Directive 2011/65/EU (
porated 's knowledge and belief as of the date of this document, there is no credible reason to believe that the unavoidable impurity concentration of the chemical substance, if is not below the threshold of regulatory concern for any regulatory scheme world-wide. Ing compounds used by Microchip meet the UL94 V0 flammability standard for plastics. You can access the UL iQTM family of databases to obtain a test report at 'uncom/global/eng/pages/offerings/industries/chemicals/plastics.' Total Vilues''' in which the specific product is shipped are made from polyvinyl chloride (PVC) plastic. ''Window envelopes'' used to hold the packing slip on the outer box and in ''reels'' may be made from PVC plastic. ''Window envelopes'' used to hold the packing slip on the outer box and in ''reels'' rue and correct to the best of its knowledge and belief, as of the date listed in this form. Microchip Technology Incorporated semiconductor devices in registrate accuracy of data in this form external sompliers. Suppliers in the average weight of these parts and the average weight of anticipated significant toxic metals contained within silicon devices (silicon IC) in the finished parts. Suchip Technology Incorporated does not provide any warranty, express or implied, with respect to the information provided in Microchip's standard terms and conditions of sale. These are provided in Microchip's and contained within silicon devices (silicon IC) in the finished parts. Suchip Technology Incorporated does not provide any warranty, express or implied, with respect to the information provided in this declaration. The exclusive, limited product in Microchip's standard terms and conditions of sale. These are provided in Microchip's (SOS) or 'Copper' 7440-50-8 0.50 (Copper' 7440-50-8 0.50)	winner with the shows EU Directives has been verified via	internal decire controls, sum		RoHS Recast Dire	ective) and wit	h EU	1.07	,			0.96
Will com/global/eng/pages/offerings/industries/chemicals/plastics/ Image: comparison of the second of the seco	pliance with the above EU Directives has been verified via	internal design controls, supp		RoHS Recast Dire	ective) and wit	h EU	1.07	,			0.96
13.50 (mg) Total 13.50 (mg) Total 12.16 13.50 (mg) Total 18.50 (mg) Total 18.50 12.16	· hemical substance is absent from the list above, the chem 'porated's knowledge and belief as of the date of this docu	ical substance is NOT an inter ment, there is no credible reas	blier declarations, and /or analytical test data.	and, to the best o	f Microchip To	echnology	1.07	Copper	7440-50-8	97.30	0.96
original packing materials is true and correct to the best of its knowledge and belief, as of the date listed in this form. Microchip Technology Incorporated cannot guarantee the pleteness and accuracy of data in this form because it has been compiled based on the ranges provided by tata Sheets provided by raw material suppliers. Supplier form disclosure as trade secrets and some information may not have been provided by subcontract assemblers and raw material suppliers. Information is deen protected from disclosure as trade secrets and the average weight of anticipated significant toxic metals components. These estimates do not include trace levels pants, metals, and non-metal materials contained within silicon devices (silicon IC) in the finished parts. Tin 7440-31-5 96.50 bochip Technology Incorporated does not provide any warranty, express or implied, with respect to the information provided in this declaration. The exclusive, limited product antions, sales order acknowledgement, and invoices. Silver 7440-31-5 96.50 weise, suffered by users or third parties as a result of the users' reliance on the information in Material Content Declarations (MCD) or independent third party test reports (SGS) or is compliance for semiconductor products. Silver 7440-31-5 96.50 coppler 7440-32-4 3.00 3.00 wise, suffered by users or third parties as a result of the users' reliance on the information in Material Content Declarations (MCD) or independent third party test reports (SGS) or is complex or third parties as a result of the user's reliance on the information in Material Content Declarations (MCD) or independent third party test reports (SGS) or Copper	chemical substance is absent from the list above, the chem rporated's knowledge and belief as of the date of this docu is not below the threshold of regulatory concern for any re ding compounds used by Microchip meet the UL94 V0 flam	ical substance is NOT an inter ment, there is no credible rear gulatory scheme world-wide. mability standard for plastics.	olier declarations, and /or analytical test data. ntional ingredient in the semiconductor device son to believe that the unavoidable impurity co	and, to the best o ncentration of the	f Microchip Te chemical sul	echnology	1.07	Copper	7440-50-8 7440-05-3	97.30	0.96
anties provided by Microchip Technology Incorporated and its subsidiaries are contained in Microchip's standard terms and conditions of sale. These are provided in Microchip's Silver 7440-22-4 3.00 attions, sales order acknowledgement, and invoices. Society of updates or changes to Material Content Declarations and shall not be liable for any damages, direct or indirect, consequential or wise, suffreed by users or third parties as a result of the users' reliance on the information in Material Content Declarations (MCD) or independent third party test reports (SGS) or is Copper 7440-50-8 0.50	hemical substance is absent from the list above, the chem iporated's knowledge and belief as of the date of this docu is not below the threshold of regulatory concern for any re ling compounds used by Microchip meet the UL94 V0 flam //ul.com/global/eng/pages/offerings/industries/chemicals/p protective "tubes" in which the specific product is shipped	ical substance is NOT an inter ment, there is no credible rear gulatory scheme world-wide. mability standard for plastics. lastics/	olier declarations, and /or analytical test data. Intional ingredient in the semiconductor device son to believe that the unavoidable impurity co You can access the UL iQTM family of databas	and, to the best o ncentration of the es to obtain a tes	f Microchip To chemical sul t report at	echnology ostance, if		Copper Palladium	7440-50-8 7440-05-3 Total Plating on external	97.30 2.70 100.00	
wise, suffered by users or third parties as a result of the users' reliance on the information in Material Content Declarations (MCD) or independent third party test reports (SGS) or s Certificate of Compliance for semiconductor products.	chemical substance is absent from the list above, the chemi rporated's knowledge and belief as of the date of this docu is not below the threshold of regulatory concern for any re ding compounds used by Microchip meet the UL94 V0 flami ://ul.com/global/eng/pages/offerings/industries/chemicals/p protective "tubes" in which the specific product is shipped ain "reels" may be made from PVC plastic. cochip Technology Incorporated believes the information in r original packing materials is true and correct to the best of pleteness and accuracy of data in this form because it has rmation is often protected from disclosure as trade secrets rided only as estimates of the average weight of these parts	teal substance is NOT an inter ment, there is no credible rear gulatory scheme world-wide. mability standard for plastics. lastics/ are made from polyvinyl chlo this form concerning substar f its knowledge and belief, as been compiled based on the r and some information may no and the average weight of ar	blier declarations, and /or analytical test data. ntional ingredient in the semiconductor device son to believe that the unavoidable impurity co You can access the UL iQTM family of database oride (PVC) plastic. "Window envelopes" used nces restricted by RoHS in Microchip Technolo of the date listed in this form. Microchip Technolo of the date listed in this form. Microchip Technolo to tave been provided by subcontract assemblic ticipated significant toxic metals components.	and, to the best o ncentration of the es to obtain a tes o hold the packin gy Incorporated's ology Incorporate provided by raw i ers and raw mate	f Microchip To chemical sub t report at g slip on the o semiconduct d cannot gua material suppliers.	echnology ostance, if outer box and or devices in rantee the iers. Supplier Information is	13.50	Copper Palladium (mg) Total	7440-50-8 7440-05-3 Total Plating on external leads (pins)	97.30 2.70 100.00 % of Total Weight	
	hemical substance is absent from the list above, the chem prorated's knowledge and belief as of the date of this docu is not below the threshold of regulatory concern for any re ling compounds used by Microchip meet the UL94 V0 flam //ul.com/global/eng/pages/offerings/industries/chemicals/p protective "tubes" in which the specific product is shipped in "reels" may be made from PVC plastic. Ochip Technology Incorporated believes the information in original packing materials is true and correct to the best o pleteness and accuracy of data in this form because it has mation is often protected from disclosure as trade secret spants, metals, and non-metal materials contained within s occhip Technology Incorporated does not provide any warra	teal substance is NOT an inter ment, there is no credible rear gulatory scheme world-wide. mability standard for plastics. lastics/ are made from polyvinyl chlo this form concerning substar f its knowledge and belief, as been compiled based on the r and some information may no and the average weight of ar ilicon devices (silicon IC) in th anty, express or implied, with	blier declarations, and /or analytical test data. Intional ingredient in the semiconductor device son to believe that the unavoidable impurity co You can access the UL iQTM family of database oride (PVC) plastic. "Window envelopes" used inces restricted by RoHS in Microchip Technolo of the date listed in this form. Microchip Technolo thave been provided by subcontract assemble ticipated significant toxic metals components. the finished parts.	and, to the best o ncentration of the es to obtain a tes o hold the packin gy Incorporated's ology Incorporate provided by raw i ers and raw mate These estimates aration. The excli	f Microchip Tr chemical sul t report at g slip on the o semiconduct d cannot gua naterial suppliers. do not includo usive, limited	echnology ostance, if outer box and or devices in rantee the iers. Supplier Information is e trace levels product	13.50	Copper Palladium (mg) Total Tin	7440-50-8 7440-05-3 Total Plating on external leads (pins) 7440-31-5	97.30 2.70 100.00 % of Total Weight 96.50	
	hemical substance is absent from the list above, the chem porated's knowledge and belief as of the date of this docu is not below the threshold of regulatory concern for any re ing compounds used by Microchip meet the UL94 V0 flamm //ul.com/global/eng/pages/offerings/industries/chemicals/p protective "tubes" in which the specific product is shipped in "reels" may be made from PVC plastic. bechip Technology Incorporated believes the information in original packing materials is true and correct to the best o leteness and accuracy of data in this form because it has mation is often protected from disclosure as trade secrets pants, metals, and non-metal materials contained within s bechip Technology Incorporated does not provide any warre nuties provided by Microchip Technology Incorporated and ations, sales order acknowledgement, and invoices. bechip disclaims any duty to notify users of updates or char wise, suffered by users or third parties as a result of the u	ical substance is NOT an inter ment, there is no credible rear gulatory scheme world-wide. mability standard for plastics. lastics/ are made from polyvinyl chic this form concerning substar f its knowledge and belief, as been compiled based on the r and some information may no and the average weight of ar ilicon devices (silicon IC) in th anty, express or implied, with d its subsidiaries are containe nges to Material Content Deck	blier declarations, and /or analytical test data. Intional ingredient in the semiconductor device son to believe that the unavoidable impurity co You can access the UL iQTM family of databas or (PVC) plastic. "Window envelopes" used the ces restricted by RoHS in Microchip Technolo of the date listed in this form. Microchip Technolo of the date listed in this form. Microchip Technolo of the date listed in this form. Microchip Technolo of the date listed in Material Safety Data Sheets thave been provided by subcontract assemblic ticipated significant toxic metals components. In finished parts. respect to the information provided in this dec d in Microchip's standard terms and condition arations and shall not be liable for any damage	and, to the best o ncentration of the es to obtain a tes o hold the packin gy Incorporated's ology Incorporate provided by raw of provided by raw of res and raw mate These estimates aration. The exclu- of sale. These ar s, direct or indirect	f Microchip Te chemical sub t report at g slip on the of semiconduct d cannot gua material suppliers. do not includo usive, limited e provided in t, consequen	echnology ostance, if outer box and or devices in rantee the iers. Supplier Information is e trace levels product Microchip's tial or	13.50	Copper Palladium (mg) Total Tin Silver	7440-50-8 7440-05-3 Total Plating on external leads (pins) 7440-31-5 7440-22-4	97.30 2.70 100.00 % of Total Weight 96.50 3.00	

APK

Міскоснір		_		ination Base opper Alloy (•	geneous Materials: g. pc boards, display	s)	JEDEC 97 Product Marking and/or Pkg. Labeling
Semiconductor Device Type:	MME 34 WFBG									e1
Basic Substance	CAS Number	"Contained In" Sub-Component	% Total Weight	mg/part	ppm	14.80	(mg) Total	Mold Compound	% ot Total Weight	39.89
FUSED SILICA	60676-86-0	Mold Compound	35.901	13.319	359,010		FUSED SILICA	60676-86-0	90.00	1
EPOXY RESINS, CURED	Trade Secret	Mold Compound	1.935	0.718	19,347		EPOXY RESINS, CURED	Trade Secret	4.85	
GH CROSS-LINKED HIGH MOLECULAR EPOXY / EPOXY PHENOL RESIN	Trade Secret	Mold Compound	1.935	0.718	19,347		HIGH CROSS-LINKED HIGH MOLECULAR EPOXY / EPOXY PHENOL RESIN	Trade Secret	4.85	
CARBON BLACK	1333-86-4	Mold Compound	0.120	0.044	1,197		CARBON BLACK	1333-86-4	0.30	
Copper	7440-50-8	Lead Frame	10.935	4.057	109,351			Total	100.00	
Glass fibers	65997-17-3	Lead Frame	6.518	2.418	65,184	11.30	(mg) Total	Lead Frame	% of Total Weight	30.46
Phenol, formaldehyde, (chloromethyl)oxirane polymer	9003-36-5	Lead Frame	6.518	2.418	65,184		Copper	7440-50-8	35.90	
Silica, chemically prepared	7631-86-9	Lead Frame	2.437	0.904	24,368		Glass fibers	65997-17-3	21.40	
Nickel	7440-02-0	Lead Frame	1.188	0.441	11,879		Phenol, formaldehyde, (chloromethyl)oxirane polymer	9003-36-5	21.40	
Barite	7727-43-7	Lead Frame	0.762	0.283	7,615		Silica, chemically prepared	7631-86-9	8.00	
Magnesium silicate	14807-96-6	Lead Frame	0.609	0.226	6,092		Nickel	7440-02-0	3.90	
Araldite GY 250	25068-38-6	Lead Frame	0.609	0.226	6,092		Barite	7727-43-7	2.50	
(2-Methoxymethylethoxy)propanol	34590-94-8	Lead Frame	0.244	0.090	2,437		Magnesium silicate	14807-96-6	2.00	
Misc.	system	Lead Frame	0.457	0.170	4,569		Araldite GY 250	25068-38-6	2.00	
Aluminium-hydroxide-oxide	24623-77-6	Lead Frame	0.152	0.057	1,523	(2-Me	thoxymethylethoxy)propanol	34590-94-8	0.80	
Gold FUSED SILICA	7440-57-5	Lead Frame	0.030	0.011	305		Misc.	system	1.50	
Basic Duromer:Phenolic resin (Compound of polymeric network)	60676-86-0 26834-02-6	Die Attach Die Attach	9.576 2.394	3.553 0.888	95,760 23,940		Aluminium-hydroxide-oxide Gold	24623-77-6 7440-57-5	0.50	
Silicon	7440-21-3	Chip (Die)	3.790	1.406	37,900		Gold	7440-57-5 Total		1
Doped Gold	7440-57-5	Wire Bond	0.950	0.352	9,500	4.44	(mg) Total	Die Attach	% of Total Weight	
0.00	0	Wire Bond	0.000	0.000	0	4.44	FUSED SILICA	60676-86-0	80.00	11.07
Tin	7440-31-5	Plating on external leads (pins)	12.358	4,585	123.577	Ba	asic Duromer:Phenolic resin	26834-02-6	20.00	
Silver	7440-22-4	Plating on external leads (pins)	0.518	0.192	5,176		· <u>·····</u>	Total	100.00	
Copper	7440-50-8	Plating on external leads (pins)	0.065	0.024	647	1.41	(mg) Total	Chip (Die)	% of Total Weight	3.79
		TOTAL	S: 100.000	37.100	1,000,000		Doped Silicon	7440-21-3	100	
	0.0371 g T							Total	100.00	
is semiconductor device and its homogenous materials comply wit rective 2002/53/EC (End-of-Life Vehicles (ELV) Directive).	h EU Directive 2002/95	EC (RoHS Directive), EU Directive 2011/65/EU (Ro	HS Recast Dire	ective) and wit	h EU	0.35	(mg) Total	Wire Bond	% of Total Weight	0.95
ompliance with the above EU Directives has been verified via interna	al design controls, sup	blier declarations, and /or analytical test data.					Doped Gold	7440-57-5	100.00	
a chemical substance is absent from the list above, the chemical su corporated's knowledge and belief as of the date of this document, y, is not below the threshold of regulatory concern for any regulato	there is no credible rea						<u>II</u>	Total	100.00	
olding compounds used by Microchip meet the UL94 V0 flammabilit tp://ul.com/global/eng/pages/offerings/industries/chemicals/plastics	y standard for plastics	You can access the UL iQTM family of databases	to obtain a tes	t report at		4.80	(mg) Total	Plating on external leads (pins)	% of Total Weight	12.94
e protective "tubes" in which the specific product is shipped are m rtain "reels" may be made from PVC plastic.	ade from polyvinyl chl	oride (PVC) plastic. "Window envelopes" used to I	old the packin	g slip on the c	outer box and		Tin	7440-31-5	95.50	
crochip Technology Incorporated believes the information in this fo eir original packing materials is true and correct to the best of its kn mpleteness and accuracy of data in this form because it has been c ormation is often protected from disclosure as trade secrets and sc	owledge and belief, as compiled based on the ome information may n	of the date listed in this form. Microchip Technold anges provided in Material Safety Data Sheets pro ot have been provided by subcontract assemblers	gy Incorporate ovided by raw i and raw mate	ed cannot guar material suppli rial suppliers.	rantee the iers. Supplier Information is		Silver	7440-22-4	4.00	
ovided only as estimates of the average weight of these parts and the dopants, metals, and non-metal materials contained within silicon of the dopants.	devices (silicon IC) in t	ne finished parts.								
ovided only as estimates of the average weight of these parts and the	xpress or implied, with	respect to the information provided in this declar					Copper	7440-50-8	0.50	

	MADE 48 M/F	204		nination Base copper Alloy (geneous Materials: J. pc boards, displays	5)	JEDEC 97 Product Markin and/or Pkg. Labeling e1
Semiconductor Device Typ	DE: MAQE 48 WF								-	ei
Basic Substance	CAS Number	"Contained In" Sub-Component	% Total Weight	mg/part	ppm	14.50	(mg) Total	Mold Compound	% ot Total Weight	50.51
EUSED SILICA	60676-86-0	Mold Compound	39.144	11.234	391.437		FUSED SILICA	60676-86-0	77.50	1
EPOXY RESINS, CURED	Trade Secret	Mold Compound	4.925	1.414	49,252		EPOXY RESINS, CURED	Trade Secret	9.75	
HIGH MOLECULAR EPOXY / EPOXY PHENOL RESIN	Trade Secret	Mold Compound	4.925	1.414	49,252	ECULAR EPOXY	/ EPOXY PHENOL RESIN	Trade Secret	9.75	
CRYSTALLINE SILICA	14808-60-7	Mold Compound	1.263	0.363	12,633		CRYSTALLINE SILICA	14808-60-7	2.50	
CARBON BLACK	1333-86-4	Mold Compound	0.253	0.072	2,526 86,160	_	CARBON BLACK	1333-86-4	0.50	l
Copper Glass fibers	7440-50-8 65997-17-3	Lead Frame Lead Frame	8.616 5.136	2.473	51,360	6.89	(mg) Total	Total Lead Frame	100.00 % of Total Weight	
Phenol, formaldehyde, (chloromethyl)oxirane polymer	9003-36-5	Lead Frame	5.136	1.474	51,360	0.09	(ing) Total Copper	7440-50-8	35.90	24
Silica, chemically prepared	7631-86-9	Lead Frame	1.920	0.551	19,200	-	Glass fibers	65997-17-3	21.40	
Nickel	7440-02-0	Lead Frame	0.936	0.269	9,360	, formaldehyde, (ch	nloromethyl)oxirane polymer	9003-36-5	21.40	
Barite	7727-43-7	Lead Frame	0.600	0.172	6,000		Silica, chemically prepared	7631-86-9	8.00	
Magnesium silicate	14807-96-6	Lead Frame	0.480	0.138	4,800		Nickel	7440-02-0	3.90	
Araldite GY 250	25068-38-6	Lead Frame	0.480	0.138	4,800		Barite	7727-43-7	2.50	
(2-Methoxymethylethoxy)propanol	34590-94-8	Lead Frame	0.192	0.055	1,920	_	Magnesium silicate	14807-96-6	2.00	
Misc. Aluminium-hydroxide-oxide	system 24623-77-6	Lead Frame Lead Frame	0.360	0.103	3,600 1,200	(0.14-	Araldite GY 250 thoxymethylethoxy)propanol	25068-38-6 34590-94-8	2.00	
Gold	7440-57-5	Lead Frame	0.120	0.034	240	(2-ivie)	Misc.	34590-94-8 system	1.50	
Solid Epoxy Resin	Trade Secret	Die Attach	0.024	0.007	195		Aluminium-hydroxide-oxide	24623-77-6	0.50	
Phenol Resin	Trade Secret	Die Attach	0.020	0.006	195		Gold		0.10	
Fused Silica	60676-86-0	Die Attach	0.052	0.015	520		.	Total	100.00	u
Liquid epoxy resin	Trade Secret	Die Attach	0.020	0.006	195	0.04	(mg) Total	Die Attach	% of Total Weight	0.13
Synthetic Rubber	Trade Secret	Die Attach	0.020	0.006	195		Solid Epoxy Resin	Trade Secret	15.00	
Silicon	7440-21-3	Chip (Die)	5.980	1.716	59,800		Phenol Resin	Trade Secret	15.00	
Doped Gold	7440-57-5	Wire Bond	1.870	0.537	18,700		Fused Silica	60676-86-0	40.00	
Tin	7440-31-5	Plating on external leads (pins)	16.722	4.799	167,221	_	Liquid epoxy resin	Trade Secret	15.00	
Silver Copper	7440-22-4 7440-50-8	Plating on external leads (pins) Plating on external leads (pins)	0.700	0.201	7,004		Synthetic Rubber	Trade Secret	15	
Cohhei	7440-30-8									
			0.088	0.025	876	1 72	(mg) Total	Total		
	0.0287 g T	otal Mass	S: 100.000	28.700	1,000,000	1.72	(mg) Total Doped Silicon	Total Chip (Die) 7440-21-3	100.00 % of Total Weight 100	5.98
semiconductor device and its homogenous materials comply ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). pliance with the above EU Directives has been verified via int	y with EU Directive 2002/95	TOTA otal Mass /EC (RoHS Directive), EU Directive 2011/65/EU (F	S: 100.000	28.700	1,000,000	0.54		Chip (Die)	% of Total Weight	5.98
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive).	y with EU Directive 2002/9 ternal design controls, sup al substance is NOT an intr ent, there is no credible rea	TOTA otal Mass //EC (RoHS Directive), EU Directive 2011/65/EU (R plier declarations, and /or analytical test data. entional ingredient in the semiconductor device a son to believe that the unavoidable impurity cor	S: 100.000 oHS Recast Dire	28.700 ective) and wit	1,000,000 h EU echnology		Doped Silicon (mg) Total	Chip (Die) 7440-21-3 Wire Bond	% of Total Weight 100 % of Total Weight 100.00	5.98 1.87
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). pliance with the above EU Directives has been verified via int hemical substance is absent from the list above, the chemica rporated's knowledge and belief as of the date of this docume	y with EU Directive 2002/9 ternal design controls, sup al substance is NOT an inte ant, there is no credible re- llatory scheme world-wide ability standard for plastics	TOTA otal Mass /EC (RoHS Directive), EU Directive 2011/65/EU (F plier declarations, and /or analytical test data. entional ingredient in the semiconductor device a uson to believe that the unavoidable impurity cor	S: 100.000 oHS Recast Dire nd, to the best o centration of the	28.700 ective) and wit of Microchip Te e chemical sub	1,000,000 h EU echnology		Doped Silicon (mg) Total	Chip (Die) 7440-21-3 Wire Bond 7440-57-5	% of Total Weight 100 % of Total Weight 100.00	5.98
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). pliance with the above EU Directives has been verified via int hemical substance is absent from the list above, the chemica rporated's knowledge and belief as of the date of this docume is not below the threshold of regulatory concern for any regu- ling compounds used by Microchip meet the UL94 V0 flamma	with EU Directive 2002/9 ternal design controls, sup al substance is NOT an intu- ent, there is no credible rea- latory scheme world-wide ubility standard for plastics stics/	TOTA otal Mass //EC (RoHS Directive), EU Directive 2011/65/EU (F plier declarations, and /or analytical test data. entional ingredient in the semiconductor device a sison to believe that the unavoidable impurity cor . You can access the UL iQTM family of database	S: 100.000 oHS Recast Dirr nd, to the best of centration of the s to obtain a tes	28.700 active) and wit of Microchip Te a chemical sub	h EU h EU echnology ostance, if	0.54	Doped Silicon (mg) Total Doped Gold	Chip (Die) 7440-21-3 Wire Bond 7440-57-5 Total Plating on external	% of Total Weight 100 % of Total Weight 100.00 100.00	5.98
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). pliance with the above EU Directives has been verified via int shemical substance is absent from the list above, the chemica rporated's knowledge and belief as of the date of this docume is not below the threshold of regulatory concern for any regu- ling compounds used by Microchip meet the UL94 V0 flamma //ul.com/global/eng/pages/offerings/industries/chemicals/plas protective "tubes" in which the specific product is shipped ar	with EU Directive 2002/94 ternal design controls, sup al substance is NOT an inte ant, there is no credible re- ilatory scheme world-wide ability standard for plastics stics/ re made from polyvinyl chi is form concerning substa s knowledge and belief, ar en compiled based on the id some information may in dthe average weight of a	TOTA otal Mass //EC (RoHS Directive), EU Directive 2011/65/EU (F plier declarations, and /or analytical test data. entional ingredient in the semiconductor device a uson to believe that the unavoidable impurity cor You can access the UL iQTM family of database oride (PVC) plastic. "Window envelopes" used to unces restricted by RoHS in Microchip Technolog s of the date listed in this form. Microchip Technolog s of the date listed in this form. Microchip Technolog to thave been provided by subcontract assemble nicipated significant toxic metals components.	S: 100.000 oHS Recast Dirr nd, to the best o centration of the s to obtain a tes hold the packir y Incorporated's logy Incorporate rovided by raw	28.700 ective) and wit of Microchip Te e chemical sub at report at ag slip on the of semiconduct ed cannot gua material suppliers.	1,000,000 h EU echnology ostance, if outer box and or devices in rantee the iers. Supplier Information is	0.54	Doped Silicon (mg) Total Doped Gold (mg) Total	Chip (Die) 7440-21-3 Wire Bond 7440-57-5 Total Plating on external leads (pins)	% of Total Weight 100 % of Total Weight 100.00 100.00 % of Total Weight	5.98
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). pliance with the above EU Directives has been verified via int themical substance is absent from the list above, the chemical rporated's knowledge and belief as of the date of this docume is not below the threshold of regulatory concern for any regu- ling compounds used by Microchip meet the UL94 V0 flamma //ul.com/global/eng/pages/offerings/industries/chemicals/plas protective "tubes" in which the specific product is shipped ar in "reels" may be made from PVC plastic. ochip Technology Incorporated believes the information in the original packing materials is true and correct to the best of it pleteness and accuracy of data in this form because it has be mation is often protected from disclosure as trade secrets an died only as estimates of the average weight of these parts al	y with EU Directive 2002/9 ternal design controls, sup al substance is NOT an inte ant, there is no credible re- ilatory scheme world-wide ability standard for plastics stics/ re made from polyvinyl chi is form concerning substa s knowledge and belief, at en compiled based on the id some information may in dt he average weight of a con devices (silicon IC) in to ty, express or implied, with	TOTA otal Mass V/EC (RoHS Directive), EU Directive 2011/65/EU (F plier declarations, and /or analytical test data. entional ingredient in the semiconductor device a uson to believe that the unavoidable impurity cor . You can access the UL iQTM family of database oride (PVC) plastic. "Window envelopes" used to the total base provided in this form. Microchip Technolog to fue date listed in this form. Microchip Technolog to thave been provided by subcontract assemble nticipated significant toxic metals components. he finished parts.	S: 100.000 oHS Recast Dire oHS Recast Dire oH, to the best of centration of the s to obtain a test hold the packir y Incorporated's logy Incorporated's logy Incorporated's s and raw mate hese estimates ration. The excl	28.700 ective) and wit of Microchip Te e chemical sub it report at is semiconduct ed cannot gua material suppli rial suppliers. do not include usive, limited	1,000,000 h EU echnology ostance, if outer box and or devices in rantee the iers. Supplier Information is e trace levels product	0.54	Doped Silicon (mg) Total Doped Gold (mg) Total Tin	Chip (Die) 7440-21-3 Wire Bond 7440-57-5 Total Plating on external leads (pins) 7440-31-5	% of Total Weight 100 % of Total Weight 100.00 % of Total Weight 95.50	5.98

	Гуре: 25 VFBGA 3x3x0.8r	nm (FE)		ination Base opper Alloy (geneous Materials: I. pc boards, display	s)	JEDEC 97 Product Markin and/or Pkg. Labeling e1
		"Contained In"	% I otal			7.50	(m, m) T = 4 = 1	Mold Compound	% ot Total Weight	40.075
Basic Substance	CAS Number	Sub-Component	Weight	mg/part	ppm	7.50	(mg) Total	•	·	46.875
fused silica	60676-86-0	Mold Compound	35.442	5.671	354,422		fused silica	60676-86-0	75.61	
solid epoxy resin	25068-38-6	Mold Compound	5.030	0.805	50,297		solid epoxy resin	25068-38-6	10.73	
phenol resin Cristalline Silica	108-95-2 112945-52-5	Mold Compound Mold Compound	5.030	0.805	50,297 11,438		phenol resin Cristalline Silica	108-95-2 112945-52-5	10.73	
carbon black	1333-86-4	Mold Compound	0.230	0.037	2.297		carbon black	1333-86-4	0.49	
Copper	7440-50-8	Lead Frame	10.321	1.651	103,213		Garborr black	Tota		
Glass fibers	65997-17-3	Lead Frame	6.153	0.984	61,525	4.60	(mg) Total	Lead Frame	% of Total Weight	28.75
Phenol polymer	9003-36-5	Lead Frame	6.153	0.984	61,525			7440 50 0	05.00	
Silica, chemically prepared	7631-86-9	Lead Frame	2.300	0.368	23,000		Copper Glass fibers	7440-50-8 65997-17-3	35.90 21.40	
Nickel	7440-02-0	Lead Frame	1.121	0.308	11,213		Phenol polymer	9003-36-5	21.40	
Barite	7727-43-7	Lead Frame	0.719	0.179	7,188		Silica, chemically prepared	7631-86-9	21.40	
Magnesium silicate	14807-96-6	Lead Frame	0.575	0.092	5,750		Nickel	7440-02-0	3.90	
Araldite GY 250	25068-38-6	Lead Frame	0.575	0.092	5,750		Barite	7727-43-7	2.50	
(2-Methoxymethylethoxy)propanol	34590-94-8	Lead Frame	0.230	0.037	2,300		Magnesium silicate	14807-96-6	2.00	
Misc.	system	Lead Frame	0.431	0.069	4,313		Araldite GY 250	25068-38-6	2.00	
Aluminium-hydroxide-oxide	24623-77-6	Lead Frame	0.144	0.023	1,438	(2-Me	thoxymethylethoxy)propanol	34590-94-8	0.80	
Gold	7440-57-5	Lead Frame	0.029	0.005	288		Misc.	system	1.50	
Silver (Ag)	7440-22-4	Die Attach	0.905	0.145	9,050		Aluminium-hydroxide-oxide	24623-77-6	0.50	
Diester Resin	Trade Secret	Die Attach	0.226	0.036	2,263		Gold	7440-57-5	0.10	
Acrlate Resin	Trade Secret	Die Attach	0.085	0.014	849			Tota	100.00	
Polymeric Resin	Trade Secret	Die Attach	0.034	0.005	339	0.20	(mg) Total	Die Attach	% of Total Weight	1.25
Silicon	7440-21-3	Chip (Die)	5.000	0.800	50,000		Silver (Ag)	7440-22-4	72.40	
Doped Gold	7440-57-5	Wire Bond	0.625	0.100	6,250		Diester Resin	Trade Secret	18.10	
Tin	7440-31-5	SAC 305 Solder ball	16.888	2.702	168,875		Acrlate Resin	Trade Secret	6.79	
Silver	7440-22-4	SAC 305 Solder ball	0.525	0.084	5,250		Polymeric Resin	Trade Secret	2.71	
Copper	7440-50-8	SAC 305 Solder ball	0.088	0.014	875			Tota		
									T	
		то	ALS: 100.000	16.000	1,000,000	0.80	(mg) Total	Chip (Die)	% of Total Weight	5
	0.0160 g Tota	al Mass	100.000		1,000,000	0.80	(mg) Total Doped Silicon	7440-21-3	% of Total Weight	5
semiconductor device and its homogenous materials com ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive).	5	al Mass	100.000		1,000,000	0.80	,	,	% of Total Weight	5
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive).	nply with EU Directive 2002/95/EC	al Mass ; (RoHS Directive), EU Directive 2011/65/EL	100.000		1,000,000	0.80	,	7440-21-3	% of Total Weight	5 0.625
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). pliance with the above EU Directives has been verified via hemical substance is absent from the list above, the chem rporated's knowledge and belief as of the date of this docu is not below the threshold of regulatory concern for any re	nply with EU Directive 2002/95/EC internal design controls, supplie nical substance is NOT an intenti ument, there is no credible reaso agulatory scheme world-wide.	al Mass C (RoHS Directive), EU Directive 2011/65/EL er declarations, and /or analytical test data. onal ingredient in the semiconductor devic n to believe that the unavoidable impurity o	(RoHS Recast Dire e and, to the best o oncentration of the	ctive) and wit f Microchip Te chemical sub	1,000,000 h EU echnology		Doped Silicon	7440-21-3 Tota Wire Bond 7440-57-5	% of Total Weight 100 1 4 0 7 0 1 0 1 0 1	-
tive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). pliance with the above EU Directives has been verified via hemical substance is absent from the list above, the chem porated's knowledge and belief as of the date of this docu is not below the threshold of regulatory concern for any re ling compounds used by Microchip meet the UL94 V0 flam	nply with EU Directive 2002/95/EC internal design controls, supplie nical substance is NOT an intenti ument, there is no credible reaso egulatory scheme world-wide. imability standard for plastics. Yi	al Mass C (RoHS Directive), EU Directive 2011/65/EL er declarations, and /or analytical test data. onal ingredient in the semiconductor devic n to believe that the unavoidable impurity o	(RoHS Recast Dire e and, to the best o oncentration of the	ctive) and wit f Microchip Te chemical sub	1,000,000 h EU echnology		Doped Silicon (mg) Total	7440-21-3 Tota Wire Bond	% of Total Weight 100 1 4 0 7 0 1 100.00 100.00	-
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). apliance with the above EU Directives has been verified via chemical substance is absent from the list above, the chem rporated's knowledge and belief as of the date of this docu is not below the threshold of regulatory concern for any re ding compounds used by Microchip meet the UL94 V0 flam //ul.com/global/eng/pages/offerings/industries/chemicals/p protective "tubes" in which the specific product is shipped	nply with EU Directive 2002/95/EC internal design controls, supplie nical substance is NOT an intenti ument, there is no credible reaso egulatory scheme world-wide. umability standard for plastics. Yo plastics/	al Mass (RoHS Directive), EU Directive 2011/65/EU er declarations, and /or analytical test data. onal ingredient in the semiconductor devic n to believe that the unavoidable impurity of ou can access the UL iQTM family of datab	(RoHS Recast Dire e and, to the best o oncentration of the	ctive) and wit f Microchip Te chemical sub t report at	1,000,000 h EU schnology sstance, if		Doped Silicon (mg) Total	7440-21-3 Tota Wire Bond 7440-57-5	% of Total Weight 100 1 4 0 7 0 1 0 1 0 1	
	nply with EU Directive 2002/95/EC internal design controls, supplied incal substance is NOT an intenti iment, there is no credible reaso egulatory scheme world-wide. Imability standard for plastics. Ye lastics/ d are made from polyvinyl chlorid in this form concerning substance of its knowledge and belief, as of been compiled based on the rar is and some information may not s and the average weight of antit	al Mass C (RoHS Directive), EU Directive 2011/65/EU er declarations, and /or analytical test data. onal ingredient in the semiconductor device n to believe that the unavoidable impurity of ou can access the UL iQTM family of datab de (PVC) plastic. "Window envelopes" used es restricted by RoHS in Microchip Techno the date listed in this form. Microchip Tech iges provided in Material Safety Data Sheet have been provided by subcontract assem ipated significant toxic metals component	(RoHS Recast Dire a and, to the best o oncentration of the uses to obtain a tes to hold the packin cogy Incorporated's nology Incorporated's provided by raw n lers and raw mate	ctive) and wit f Microchip Te chemical sub t report at g slip on the c semiconduct d cannot guan naterial suppliers.	1,000,000 h EU schnology stance, if outer box and or devices in rantee the iers. Supplier Information is	0.10	(mg) Total	7440-21-3 Tota Wire Bond 7440-57-5 Tota	% of Total Weight 100 1 00.00 % of Total Weight 100.00 1 100.00 1 100.00	0.625
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). upliance with the above EU Directives has been verified via themical substance is absent from the list above, the chem rporated's knowledge and belief as of the date of this docu- is not below the threshold of regulatory concern for any re ding compounds used by Microchip meet the UL94 V0 flam <i>(U.I.com/global/eng/pages/offerings/industries/chemicals/p</i> protective "tubes" in which the specific product is shipped ain "reels" may be made from PVC plastic. ochip Technology Incorporated believes the information in original packing materials is true and correct to the best o pleteness and accuracy of data in this form because it has mation is often protected from disclosure as trade secrets ided only as estimates of the average weight of these parts	ply with EU Directive 2002/95/EC internal design controls, supplied incal substance is NOT an intenti iment, there is no credible reaso egulatory scheme world-wide. Imability standard for plastics. Yo lastics/ d are made from polyvinyl chloried this form concerning substance of its knowledge and belief, as of been compiled based on the rar and some information may not s and the average weight of antii sillicon devices (sillicon IC) in the anty, express or implied, with re	al Mass C (RoHS Directive), EU Directive 2011/65/EU ar declarations, and /or analytical test data. conal ingredient in the semiconductor device in to believe that the unavoidable impurity of ou can access the UL iQTM family of datab de (PVC) plastic. "Window envelopes" used as restricted by RoHS in Microchip Techno the date listed in this form. Microchip Techno the date listed in the date listed listed in the date listed in the date	(RoHS Recast Dire e and, to the best o oncentration of the uses to obtain a tes to hold the packin ogg Incorporated's nology Incorporated's nology Incorporated's . These estimates claration. The excli	ctive) and wit f Microchip Te c chemical sub t report at g slip on the c semiconduct d cannot guan naterial suppi fal suppilers. do not include usive, limited	1,000,000 h EU echnology stance, if outer box and or devices in rantee the iers. Supplier Information is t trace levels product	0.10	(mg) Total (mg) Total (mg) Total	7440-21-3 Tota Wire Bond 7440-57-5 Tota SAC 305 Solder ball	% of Total Weight 100 100.00 % of Total Weight 100.00 100.00 100.00 100.00 % of Total Weight	0.625
tive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). pliance with the above EU Directives has been verified via hemical substance is absent from the list above, the chem porated's knowledge and belief as of the date of this docu is not below the threshold of regulatory concern for any re ing compounds used by Microchip meet the UL94 V0 flam //ul.com/global/eng/pages/offerings/industries/chemicals/p protective "tubes" in which the specific product is shipped in "reels" may be made from PVC plastic.	ply with EU Directive 2002/95/EC internal design controls, suppli- nical substance is NOT an intenti ament, there is no credible reaso gulatory scheme world-wide. Imability standard for plastics. Ye plastics/ d are made from polyvinyl chlorio in this form concerning substance of its knowledge and belief, as of been compiled based on the rar and some information may not s and the average weight of anti- silicon devices (silicon IC) in the "anty, express or implied, with re d its subsidiaries are contained i nges to Material Content Declara	al Mass C (RoHS Directive), EU Directive 2011/65/EU ar declarations, and /or analytical test data. conal ingredient in the semiconductor device in to believe that the unavoidable impurity of ou can access the UL iQTM family of datab de (PVC) plastic. "Window envelopes" used as restricted by RoHS in Microchip Techno the date listed in this form. Microchip Techno the tave been provided by subcontract assem cipated significant toxic metals component finished parts. spect to the information provided in this de n Microchip's standard terms and conditio tions and shall not be liable for any damage	(RoHS Recast Dire e and, to the best o oncentration of the uses to obtain a tes to hold the packin ology Incorporated's nology Incorporated s provided by raw i Jers and raw mate s. These estimates claration. The exclu- ts of sale. These ar	ctive) and wit f Microchip Te c chemical sub t report at g slip on the c semiconduct d cannot guan naterial suppliers. do not include usive, limited e provided in t, consequent	1,000,000 h EU echnology stance, if outer box and or devices in rantee the iers. Supplier Information is e trace levels product Microchip's tial or	0.10	(mg) Total (mg) Total (mg) Total Tin	7440-21-3 Tota Wire Bond 7440-57-5 Tota SAC 305 Solder ball 7440-31-5	% of Total Weight 100 100.00 % of Total Weight 100.00 % of Total Weight 96.50	0.625

MICROCHIP Semiconductor Device Type:	BG 121 // a			ation Base J oper Alloy (0	-		Package Homogeneou: 8.1 Electronics (e.g. pc bo			JEDEC 97 Product Marking and/or Pkg. Labeling e1
Semiconductor Device Type.	DG 121 (Le	Contained In	% Total		1			Mold Compound /	% ot Total	•.
Basic Substance	CAS Number	Sub-Component	Weight	mg/part	ppm	107.44	(mg) Total	Halogen-Free	Weight	
fused silica	60676-86-0	Mold Compound / Halogen-Free	47.464	91.321	474,640		fused silica	60676-86-0	85.00	1
solid epoxy resin	25068-38-6	Mold Compound / Halogen-Free	3.909	7.521	39,088		solid epoxy resin	25068-38-6	7.00	
phenol resin	108-95-2	Mold Compound / Halogen-Free	3.630	6.983	36,296		phenol resin	108-95-2	6.50	
Metal Hudroxide	14808-60-7	Mold Compound / Halogen-Free	0.558	1.074	5,584		Metal Hudroxide	14808-60-7	1.00	
Carbon black	1333-86-4	Mold Compound / Halogen-Free	0.279	0.537	2,792		Carbon black	1333-86-4	0.50	
Copper	7440-50-8	Substrate + Solder Mask (AUS308)Halogen-Free	7.762	14.933	77,616			Total	100.00	
Glass fibers	65997-17-3	Substrate + Solder Mask (AUS308)Halogen-Free	4.627	8.902	46,267	41.60	(mg) Total	Substrate + Solder Mask (AUS308) Halogen-Free	% of Total Weight	
Phenol, formaldehyde, (chloromethyl)oxirane polymer	9003-36-5	Substrate + Solder Mask (AUS308)Halogen-Free	4.627	8.902	46,267		Copper	7440-50-8	35.90	
Silica, chemically prepared	7631-86-9	Substrate + Solder Mask (AUS308)Halogen-Free	1.730	3.328	17,296		Glass fibers	65997-17-3	21.40	
							Phenol, formaldehyde,			
Nickel	7440-02-0	Substrate + Solder Mask (AUS308)Halogen-Free	0.843	1.622	8,432		(chloromethyl)oxirane polymer	9003-36-5	21.40	
Barite Magnesium silicate	7727-43-7 14807-96-6	Substrate + Solder Mask (AUS308)Halogen-Free Substrate + Solder Mask (AUS308)Halogen-Free	0.541 0.432	1.040 0.832	5,405 4,324		Silica, chemically prepared Nickel	7631-86-9 7440-02-0	8.00 3.90	
Araldite GY 250	25068-38-6	Substrate + Solder Mask (AUS308)Halogen-Free Substrate + Solder Mask (AUS308)Halogen-Free	0.432	0.832	4,324		Barite	7440-02-0 7727-43-7	2.50	
(2-Methoxymethylethoxy)propanol	34590-94-8	Substrate + Solder Mask (AUS308)Halogen-Free Substrate + Solder Mask (AUS308)Halogen-Free	0.432	0.832	4,324		Barite Magnesium silicate	14807-96-6	2.50	
Misc.	system	Substrate + Solder Mask (AUS308)Halogen-Free	0.324	0.624	3,243		Araldite GY 250	25068-38-6	2.00	
Aluminium-hydroxide-oxide	24623-77-6	Substrate + Solder Mask (AUS308)Halogen-Free	0.108	0.208	1.081		(2-Methoxymethylethoxy)propanol	34590-94-8	0.80	
Gold	7440-57-5	Substrate + Solder Mask (AUS308)Halogen-Free	0.022	0.042	216		Misc.	system	1.50	
Silver (Ag)	7440-22-4	Die Attach	0.550	1.059	5,502		Aluminium-hydroxide-oxide	24623-77-6	0.50	
Diester Resin	Trade Secret	Die Attach	0.138	0.265	1,376		Gold	7440-57-5	0.10	
Acrlate Resin	Trade Secret	Die Attach	0.052	0.099	516			Total	100.00	•
Polymeric Resin	Trade Secret	Die Attach	0.021	0.040	206	1.46	(mg) Total	Die Attach	% of Total Weight	0.76
For reporting purposes, silicon integrated circuit presumed to be all silicon	7440-21-3	Chip (Die)	7.940	15.277	79,400		Silver (Ag)	7440-22-4	72	
Tin (Sn) Silver (Ag)	7440-31-5 7440-22-4	Solder Ball (SAC405) Solder Ball (SAC405)	12.224 0.512	23.519 0.985	122,240 5.120		Diester Resin Acrlate Resin	Trade Secret Trade Secret	18 7	
Copper (Cu)	7440-22-4 7440-50-8	Solder Ball (SAC405) Solder Ball (SAC405)	0.512	0.985	5,120 640		Polymeric Resin	Trade Secret	3	
Gold (Au)	7440-50-8	Bond Wire	1.030	1.981	10.296.00		Polymeric Resin	Trade Secret	3 100.00	l
Palladium (Pd)	7440-05-3	Bond Wire	0.010	0.020	104.00	15.28	Total (mg)	Chip (Die)	% of Total Weight	
		TOTALS:			1,000,000		For reporting purposes, silicon integrated circuit presumed to be all silicon	7440-21-3	100	
	0.1924	g Total Mass						Total	100.00	
This semiconductor device and its homogenous materials comply wi EU Directive 2002/53/EC (End-of-Life Vehicles (ELV) Directive).	th EU Directive 20	002/95/EC (RoHS Directive), EU Directive 2011/65/E	EU (RoHS Rec	ast Directive) and with	24.63	(mg) Total	Solder Ball (SAC405)	% of Total Weight	12.80
Compliance with the above EU Directives has been verified via intern	al design controls	s, supplier declarations, and /or analytical test data	a.				Tin (Sn)	7440-31-5	95.50	
If a chemical substance is absent from the list above, the chemical su Technology Incorporated's knowledge and belief as of the date of this chemical substance, if any, is not below the threshold of regulatory c	s document, there	e is no credible reason to believe that the unavoid					Silver (Ag)			
Molding compounds used by Microchip meet the UL94 V0 flammabilit	y standard for pla		bases to obta	in a test repo	ort at		Copper (Cu)	7440-22-4 7440-50-8	4.00	
The protective "tubes" in which the specific product is shipped are m outer box and certain "reels" may be made from PVC plastic.		yl chloride (PVC) plastic. "Window envelopes" us	ed to hold the	packing slip	on the			Total	100.00	l
Microchip Technology Incorporated believes the information in this for devices in their original packing materials is true and correct to the b cannot guarantee the completeness and accuracy of data in this form by raw material suppliers. Supplier information is often protected fro assemblers and raw material suppliers. Information is provided only metals components. These estimates do not include trace levels of d parts.	est of its knowled because it has b n disclosure as tr as estimates of th opants, metals, a	Ige and belief, as of the date listed in this form. Mi been compiled based on the ranges provided in Ma rade secrets and some information may not have I e average weight of these parts and the average v nd non-metal materials contained within silicon de	crochip Tech aterial Safety I been provided weight of antio evices (silicon	hology Incor Data Sheets I by subcontr ipated signif IC) in the fin	porated provided ract ficant toxic ished	2.00	(mg) Total	Bond Wire	% of Total Weight	1.04
Microchip Technology Incorporated does not provide any warranty, e product warranties provided by Microchip Technology Incorporated a provided in Microchip's quotations, sales order acknowledgement, ar	ind its subsidiarie						Gold (Au)	7440-57-5	99.0000	
Microchip disclaims any duty to notify users of updates or changes to or otherwise, suffered by users or third parties as a result of the user reports (SGS) or of this Certificate of Compliance for semiconductor	s' reliance on the						Palladium (Pd)	7440-05-3	1.0000	
								Total	100.00	u

	Turner MC and UA	0.//.co.d) MSOD		nation Base A opper Alloy (C				geneous Materials: J. pc boards, displays	5)	JEDEC 97 Product Markin and/or Pkg. Labeling e3
Semiconductor Device	Type: MS and UA	8 (Lead) MSOP 3x3mm (A3)		1				1		
Basic Substance	CAS Number	"Contained In" Sub-Component	% Total Weight	mg/part	ppm	20.43	(mg) Total	Mold Compound	% ot Total Weight	79.8
Silica, vitreous	60676-86-0	Mold Compound	69.354	17.755	693,542		Silica, vitreous	60676-86-0	86.91	
Epoxy Resin	Trade Secret	Mold Compound	6.121	1.567	61,207		Epoxy Resin	Trade Secret	7.67	
Phenolic Resin	Trade Secret	Mold Compound	4.078	1.044	40,778		Phenolic Resin	Trade Secret	5.11	
Carbon Black	1333-86-4	Mold Compound	0.247	0.063	2,474		Carbon Black	1333-86-4	0.31	
Copper	7440-50-8	Lead Frame	10.031	2.568	100,314			Total		
Iron	7439-89-6	Lead Frame	0.247	0.063	2,468	2.69	(mg) Total	Lead Frame	% of Total Weight	10.5
Silver	7440-22-4	Lead Frame	0.200	0.051	2,000		Copper	7440-50-8	95.54	
Zinc	7440-66-6	Lead Frame	0.013	0.003	131		Iron	7439-89-6	2.35	
Phosphorous	7723-14-0	Lead Frame	0.009	0.002	87		Silver	7440-22-4	1.91	
Silver (Ag)	7440-22-4	Die Attach	0.563	0.144	5,625		Zinc	7440-66-6	0.13	
Modified Epoxy Resin	13561-08-5	Die Attach	0.105	0.027	1,050		Phosphorous	7723-14-0	0.08	
Diglycidylether of bisphenol-F	54208-63-8	Die Attach	0.056	0.014	563			Total		
Modified Amine	827-43-0	Die Attach	0.026	0.007	263	0.19	(mg) Total	Die Attach	% of Total Weight	0.75
Silicon	7440-21-3	Chip (Die)	7.500	1.920	75,000		Silver (Ag)		75	
Copper	7440-50-8	Wire Bond palladium coated copper (CuPd)	0.197	0.050	1,965		Modified Epoxy Resin		14	
Palladium	7440-05-3	Wire Bond palladium coated copper (CuPd)	0.004	0.001	35	Di	glycidylether of bisphenol-F		8	
Tin	7440-31-5	Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	1.250	0.320	12,500		Modified Amine		4	
		TOTALS:	100.000	25.600	1,000,000			Total		
	0.0256	g Total Mass				1.92	Total (mg)	Chip (Die)	% of Total Weight	7.5
tive 2002/53/EC (End-of-Life Vehicles (ELV) Directive).		2002/95/EC (RoHS Directive), EU Directive 2011/65/EU (Roh	IS Recast Dire	ective) and with	h EU		Doped Silicon	7440-21-3 Total	100	
tive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). pliance with the above EU Directives has been verified hemical substance is absent from the list above, the cl porated's knowledge and belief as of the date of this d	via internal design contro hemical substance is NOT locument, there is no crec	ols, supplier declarations, and /or analytical test data. an intentional ingredient in the semiconductor device and lible reason to believe that the unavoidable impurity conce	l, to the best c	of Microchip T	echnology	0.05		7440-21-3 Total Wire Bond - Copper, palladium	100	
tive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). pliance with the above EU Directives has been verified hemical substance is absent from the list above, the cl porated's knowledge and belief as of the date of this d is not below the threshold of regulatory concern for ar ing compounds used by Microchip meet the UL94 V0 f	via internal design contro hemical substance is NOT locument, there is no crec ny regulatory scheme wor 'lammability standard for J	ols, supplier declarations, and /or analytical test data. an intentional ingredient in the semiconductor device and lible reason to believe that the unavoidable impurity conce	d, to the best o entration of the	of Microchip T e chemical sub	echnology	0.05	Doped Silicon	7440-21-3 Total Wire Bond -	100	
tive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). pliance with the above EU Directives has been verified hemical substance is absent from the list above, the cl porated's knowledge and belief as of the date of this d is not below the threshold of regulatory concern for ar ing compounds used by Microchip meet the UL94 V0 f //ul.com/global/eng/pages/offerings/industries/chemica protective "tubes" in which the specific product is ship	via internal design contro hemical substance is NOT locument, there is no crec y regulatory scheme wor lammability standard for als/plastics/	ols, supplier declarations, and /or analytical test data. an intentional ingredient in the semiconductor device and lible reason to believe that the unavoidable impurity conce d-wide.	d, to the best c entration of the to obtain a tes	of Microchip To e chemical sub st report at	echnology ostance, if	0.05	(mg) Total	7440-21-3 Total Wire Bond - Copper, palladium coated (CuPd)	100 100.00 % of Total Weight	
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//ul.com/global/eng/pages/offerings/industries/chemicals/plastics/	orporated's knowledge and belief as of the date of this	document, there is no credi	ble reason to believe that the unavoidable impurity conce				0.97	(mg) Total	Copper, palladium	% of Total Weight	0.2
Certain "reels" may be made from PVC plastic. Palladum 7440-05-3 2 Deckip Technology Incorporated believes the information in this form concerning substances restricted by RoHS in Microchip Technology Incorporated's semiconductor devices semiconductor provided by and non-center devices (dilicon IC) in the finished parts. Total 100.00			lastics. You can access the UL iQTM family of databases	to obtain a tes	t report at			Copper	7440-50-8	98	
bochip Technology Incorporated believes the information in this form concerning substances restricted by RoHS in Microchip Technology Incorporated's semiconductor devices eir original packing materials is true and correct to the best of its knowledge and belief, as of the date listed in this form. Microchip Technology Incorporated cannot guarantee the bolier information is often protected from disclosure as trade secrets and some information may not have been provided by subcontract assemblers and raw material suppliers. blier information is provided only as estimates of the average weight of these parts and the average weight of anticipated significant toxic metals components. These estimates do not de trace levels of dopants, metals, and non-metal materials contained within silicon devices (silicon IC) in the finished parts. bochip Technology Incorporated does not provide any warranty, express or implied, with respect to the information provided in Microchip's standard terms and conditions of sale. These are provided in Microchip's ations, sales order acknowledgement, and invoices. bochip disclaims any duty to notify users of updates or changes to Material Content Declarations and shall not be liable for any damages, direct or indirect, consequential or mvise, suffered by users or third parties as a result of the users' reliance on the information in Material Content Declarations (MCD) or independent third party test reports (SGS) or is Certificate of Compliance for semiconductor products. Total 100.00	protective "tubes" in which the specific product is sh certain "reels" may be made from PVC plastic.	ipped are made from polyvir	yl chloride (PVC) plastic. "Window envelopes" used to h	old the packin	g slip on the o	outer box		Palladium	7440-05-3	2	
bochip Technology Incorporated believes the information in this form concerning substances restricted by RoHS in Microchip Technology Incorporated's semiconductor devices eir original packing materials is true and correct to the best of its knowledge and belief, as of the date listed in this form. Microchip Technology Incorporated cannot guarantee the bolier information is often protected from disclosure as trade secrets and some information may not have been provided by subcontract assemblers and raw material suppliers. blier information is provided only as estimates of the average weight of these parts and the average weight of anticipated significant toxic metals components. These estimates do not de trace levels of dopants, metals, and non-metal materials contained within silicon devices (silicon IC) in the finished parts. bochip Technology Incorporated does not provide any warranty, express or implied, with respect to the information provided in Microchip's standard terms and conditions of sale. These are provided in Microchip's ations, sales order acknowledgement, and invoices. bochip disclaims any duty to notify users of updates or changes to Material Content Declarations and shall not be liable for any damages, direct or indirect, consequential or mvise, suffered by users or third parties as a result of the users' reliance on the information in Material Content Declarations (MCD) or independent third party test reports (SGS) or is Certificate of Compliance for semiconductor products. Total 100.00								L	Total	100.00	1
Definition for the interpretation does not provide any warranty, express on implicit, while spectra on the information provided in Microchip's standard terms and conditions of sale. These are provided in Microchip's 6.08 (mg) Total leads (pins) - Matte Tin / Annealed at 150°C for / I hour % of Total Weight 1.25 anties provided by Microchip Technology Incorporated and its subsidiaries are contained in Microchip's standard terms and conditions of sale. These are provided in Microchip's 6.08 (mg) Total leads (pins) - Matte Tin / Annealed at 150°C for / I hour % of Total Weight 1.25 achies provided by Microchip technology incorporated and its subsidiaries are contained in Microchip's standard terms and conditions of sale. These are provided in Microchip's 6.08 (mg) Total leads (pins) - Matte Tin / Annealed at 150°C for / I hour % of Total Weight 1.25 schip disclaims any duty to notify users of updates or changes to Material Content Declarations and shall not be liable for any damages, direct or indirect, consequential or rwise, suffered by users or third parties as a result of the users' reliance on the information in Material Content Declarations (MCD) or independent third party test reports (SGS) or is certificate of Compliance for semiconductor products. Tin 7440-31-5 100.00 Total	heir original packing materials is true and correct to the npleteness and accuracy of data in this form because i oplier information is often protected from disclosure as ormation is provided only as estimates of the average w	e best of its knowledge and t has been compiled based o trade secrets and some info reight of these parts and the	belief, as of the date listed in this form. Microchip Technon on the ranges provided in Material Safety Data Sheets pro ormation may not have been provided by subcontract ass average weight of anticipated significant toxic metals co	blogy Incorpor vided by raw r emblers and r	ated cannot g naterial suppl aw material su	uarantee the iers. uppliers.					
rwise, suffered by users or third parties as a result of the users' reliance on the information in Material Content Declarations (MCD) or independent third party test reports (SGS) or is Certificate of Compliance for semiconductor products.							6.08	(mg) Total	leads (pins) - Matte Tin / annealed at 150°C for	% of Total Weight	1.25
	erwise, suffered by users or third parties as a result of	the users' reliance on the in						Tin		100.00	
								u	Total	100.00	100.0

CROCHIP Semiconductor Devic	e Type: SP 28 (Lead)	SPDIP .300* (M3 / MD)		nation Base A opper Alloy (C			Package Homo	geneous Materials		JEDEC 97 Product Markin and/or Pkg. Labeling e3
Basic Substance	CAS Number	"Contained In" Sub-Component	% Total Weight	mg/part	ppm	1656.43	(mg) Total	Mold Compound	% ot Total Weight	79.35
Fused Silica	60676-86-0	Mold Compound	57,132	1192.631	571,320	EME-GE800	Fused Silica	60676-86-0	72.00	
Metal Hydro Oxide	Trade Secret	Mold Compound Mold Compound	8.729	182.207	87,285	EMIE-GE000	Metal Hydro Oxide	Trade Secret	11.00	
Epoxy Resin	Trade Secret	Mold Compound	5.555	115.950	55,545		Epoxy Resin	Trade Secret	7.00	
Phenol Resin	Trade Secret	Mold Compound	5.555	115.950	55,545		Phenol Resin	Trade Secret	7.00	
SiO2	14808-60-7	Mold Compound	1.984	41.411	19,838		SiO2	14808-60-7	2.50	
Carbon Black	1333-86-4	Mold Compound	0.397	8.282	3,968		Carbon Black	1333-86-4	0.50	
Copper	7440-50-8	Lead Frame Tape	9.984	208.409	99,837			Total	100.00	
Iron	7439-89-6	Lead Frame Tape	0.246	5.126	2,456	218.14	(mg) Total	Lead Frame	% of Total Weight	10.45
Silver	7440-22-4	Lead Frame Tape	0.199	4.156	1,991	194+AG	Copper	7440-50-8	95.54	
Zinc	7440-66-6	Lead Frame Tape	0.013	0.273	131		Iron	7439-89-6	2.35	
Phosphorous	7723-14-0	Lead Frame Tape	0.009	0.180	86		Silver	7440-22-4	1.91	
Polyimide	25038-81-7	Lead Frame Tape	0.215	4.488	2,150		Zinc	7440-66-6	0.13	
Poly - ethylene – terephthalate	25038-59-9	Lead Frame Tape	0.190	3.966	1,900		Phosphorous	7723-14-0	0.08	
NBR	9003-18-3	Lead Frame Tape	0.035	0.731	350	1	· · · · · · · · · · · · · · · · · · ·	Total	100.00	•
Bismaleimide	79922-55-7	Lead Frame Tape	0.030	0.626	300	10.44	(mg) Total	Lead Frame Tape	% of Total Weight	0.5
Phenol resin	153-20-5 / 9016-8	Lead Frame Tape	0.030	0.626	300	Таре	Polyimide	25038-81-7	43.00	
Silver	7440-22-4	Die Attach	0.550	11.485	5,502		Poly - ethylene - terephthala		38.00	
Epoxy Resin	9003-36-5	Die Attach	0.110	2.297	1,100		NBR	9003-18-3	7.00	
Diluent	3101-60-8	Die Attach	0.055	1,148	550		Bismaleimide	79922-55-7	6.00	
Phenolic hardener	Trade secret	Die Attach	0.022	0.459	220		Phenol resin	28453-20-5 / 9016-83-5	6.00	
Amine type hardener	827-43-0	Die Attach	0.011	0.230	110			Total		1
Dicyandiamide	461-58-5	Die Attach	0.002	0.038	18	15.66	(mg) Total	Die Attach	% of Total Weight	0.75
Silicon	7440-21-3	Chip (Die)	7.500	156.563	75,000	CRM-1064L	Silver	7440-22-4	73.36	0.10
Copper	7440-21-5	Wire Bond palladium coated copper (CuPd)	0.197	4.102	1,965	OKIN-1004E	Epoxy Resin	9003-36-5	14.67	
Palladium	7440-05-3	Wire Bond palladium coated copper (CuPd)	0.004	0.073	35		Diluent	3101-60-8	7.33	
Tin		Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour				-	Dirdon	5101-00-0		
				26.004	12 500		Phenolic hardener	Trado coorot	2.02	
100			1.250	26.094	12,500	_	Phenolic hardener	Trade secret 827-43-0	2.93	
	2.0875 g	TOTALS:	100.000	2,087.500	1,000,000	-	Phenolic hardener Amine type hardener Dicyandiamide	827-43-0 461-58-5	1.47 0.24	
emiconductor device and its homogenous materials	2.0875 c s comply with EU Directive 20	TOTALS:	100.000	2,087.500	1,000,000	-	Amine type hardener	827-43-0	1.47 0.24	
miconductor device and its homogenous materials ve 2002/53/EC (End-of-Life Vehicles (ELV) Directive)	2.0875 g s comply with EU Directive 20	TOTALS: <u>1 Total Mass</u> 102/95/EC (RoHS Directive), EU Directive 2011/65/EU (Ro	100.000	2,087.500	1,000,000	156.56	Amine type hardener	827-43-0 461-58-5	1.47 0.24	7.5
emiconductor device and its homogenous materials ve 2002/53/EC (End-of-Life Vehicles (ELV) Directive) iance with the above EU Directives has been verified emical substance is absent from the list above, the orated's knowledge and belief as of the date of this not below the threshold of regulatory concern for a	2.0875 <u>c</u> s comply with EU Directive 2(). d via internal design control: chemical substance is NOT a document, there is no credit any regulatory scheme world	TOTALS: J Total Mass 102/95/EC (RoHS Directive), EU Directive 2011/65/EU (Ro s, supplier declarations, and /or analytical test data. In intentional ingredient in the semiconductor device and le reason to believe that the unavoidable impurity conc wide.	100.000 HS Recast Dire	2,087.500 ective) and with of Microchip Te e chemical sub	1,000,000 n EU echnology	156.56	Amine type hardener Dicyandiamide	827-43-0 461-58-5 Total Chip (Die) 7440-21-3	1.47 0.24 100.00 % of Total Weight 100	7.5
miconductor device and its homogenous materials re 2002/53/EC (End-of-Life Vehicles (ELV) Directive) ance with the above EU Directives has been verifier mical substance is absent from the list above, the o varted's knowledge and belief as of the date of this not below the threshold of regulatory concern for a g compounds used by Microchip meet the UL94 V0	2.0875 g comply with EU Directive 20 d via internal design controls chemical substance is NOT a document, there is no credit any regulatory scheme world flammability standard for pl	TOTALS: 1 Total Mass 102/95/EC (RoHS Directive), EU Directive 2011/65/EU (Ro s, supplier declarations, and /or analytical test data. In intentional ingredient in the semiconductor device an le reason to believe that the unavoidable impurity conc	100.000 HS Recast Dire	2,087.500 ective) and with of Microchip Te e chemical sub	1,000,000 n EU echnology	156.56	Amine type hardener Dicyandiamide Total (mg)	827-43-0 461-58-5 Total Chip (Die) 7440-21-3 Total	1.47 0.24 100.00 % of Total Weight 100	7.5
miconductor device and its homogenous materials re 2002/53/EC (End-of-Life Vehicles (ELV) Directive) ance with the above EU Directives has been verifier mical substance is absent from the list above, the orated's knowledge and belief as of the date of this not below the threshold of regulatory concern for a g compounds used by Microchip meet the UL94 V0 Loom/global/eng/pages/offerings/Industries/chemic toetive "tubes" in which the specific product is shi	2.0875 g comply with EU Directive 20 d via internal design controls chemical substance is NOT at document, there is no credit any regulatory scheme world flammability standard for pl cals/plastics/	TOTALS: J Total Mass 102/95/EC (RoHS Directive), EU Directive 2011/65/EU (Ro s, supplier declarations, and /or analytical test data. In intentional ingredient in the semiconductor device and le reason to believe that the unavoidable impurity conc wide.	100.000 HS Recast Dire	2,087.500 ective) and with of Microchip Te e chemical sub st report at	1,000,000 n EU echnology ostance, if	4.18	Amine type hardener Dicyandiamide Total (mg)	827-43-0 461-58-5 Total Chip (Die) 7440-21-3	1.47 0.24 100.00 % of Total Weight 100	0.2
miconductor device and its homogenous materials re 2002/53/EC (End-of-Life Vehicles (ELV) Directive) ance with the above EU Directives has been verifier mical substance is absent from the list above, the or vated's knowledge and belief as of the date of this not below the threshold of regulatory concern for a g compounds used by Microchip meet the UL94 VO Lcom/global/eng/pages/offerings/industries/chemic obtective "tubes" in which the specific product is shi tain "reels" may be made from PVC plastic. hip Technology Incorporated believes the informati original packing materials is true and correct to the teness and accuracy of data in this form because it er information is often protected from disclosure as ation is provided only as estimates of the average w	2.0875 c comply with EU Directive 2(). d via internal design controls chemical substance is NOT a document, there is no credit any regulatory scheme world iflammability standard for pl cals/plastics/ ipped are made from polyvin ion in this form concerning s e best of its knowledge and l t has been compiled based o strade secrets and some info	TOTALS: J Total Mass 102/95/EC (RoHS Directive), EU Directive 2011/65/EU (Ro is, supplier declarations, and /or analytical test data. In intentional ingredient in the semiconductor device an le reason to believe that the unavoidable impurity conc- wide. astics. You can access the UL iQTM family of databases yl chloride (PVC) plastic. "Window envelopes" used to l ubstances restricted by RoHS in Microchip Technology belief, as of the date listed in this form. Microchip Technology belief, as of the date listed in this form. Microchip Technology rmation may not have been provided by subcontract as average weight of anticipated significant toxic metals c	100.000 HS Recast Dire d, to the best d entration of th to obtain a te: hold the packin loogy Incorpo ovided by raw semblers and	2,087.500 ective) and with of Microchip Te e chemical sub st report at ng slip on the o s semiconduct rated cannot g material suppi	1,000,000 a EU echnology sstance, if puter box or devices uarantee the iers.	4.18	Amine type hardener Dicyandiamide Total (mg) Doped Silicon	827-43-0 461-58-5 Total Chip (Die) 7440-21-3 Total Wire Bond palladium coated	1.47 0.24 100.00 % of Total Weight 100 100.00	
miconductor device and its homogenous materials e 2002/53/EC (End-of-Life Vehicles (ELV) Directive) ance with the above EU Directives has been verifier mical substance is absent from the list above, the or rated's knowledge and belief as of the date of this not below the threshold of regulatory concern for a g compounds used by Microchip meet the UL94 V0 .com/global/eng/pages/offerings/industries/chemic tective "tubes" in which the specific product is shi tain "reels" may be made from PVC plastic. hip Technology Incorporated believes the informati original packing materials is true and correct to the teness and accuracy of data in this form because it ir information is often protected from disclosure as tion is provided only as estimates of the average w trace levels of dopants, metals, and non-metal mat hip Technology Incorporated does not provide any les provided by Microchip Technology Incorporated	2.0875 c comply with EU Directive 20 d via internal design controls chemical substance is NOT a document, there is no credit any regulatory scheme world flammability standard for pl cals/plastics/ ipped are made from polyvin ion in this form concerning s e best of its knowledge and 1 thas been compiled based o s trade secrets and some info veight of these parts and the terials contained within silic: warranty, express or implied	TOTALS: J Total Mass 102/95/EC (RoHS Directive), EU Directive 2011/65/EU (Ro is, supplier declarations, and /or analytical test data. In intentional ingredient in the semiconductor device an le reason to believe that the unavoidable impurity conc- wide. astics. You can access the UL iQTM family of databases yl chloride (PVC) plastic. "Window envelopes" used to l ubstances restricted by RoHS in Microchip Technology belief, as of the date listed in this form. Microchip Technology belief, as of the date listed in this form. Microchip Technology rmation may not have been provided by subcontract as average weight of anticipated significant toxic metals c	100.000 HS Recast Dire entration of th to obtain a ter hold the packin lincorporated ology Incorpo ovided by raw semblers and omponents. Th ation. The exc	2,087.500 ective) and with of Microchip Tr e chemical sub st report at ng slip on the c s semiconduct rated cannot g material suppli raw material suppli raw material suppli raw settimates lusive, limited	1,000,000 a EU achnology ustance, if puter box or devices uarantee the iers. do not product	4.18	Amine type hardener Dicyandiamide Total (mg) Doped Silicon (mg) Total	827-43-0 461-58-5 Total Chip (Die) 7440-21-3 Total Wire Bond palladium coated copper (CuPd)	1.47 0.24 100.00 % of Total Weight 100 100.00 % of Total Weight	
emiconductor device and its homogenous materials ve 2002/53/EC (End-of-Life Vehicles (ELV) Directive) iance with the above EU Directives has been verified emical substance is absent from the list above, the or orated's knowledge and belief as of the date of this not below the threshold of regulatory concern for a g compounds used by Microchip meet the UL94 V0 il.com/global/eng/pages/offerings/industries/chemic otective "tubes" in which the specific product is shi rtain "reels" may be made from PVC plastic. hip Technology Incorporated believes the informati e information is often protected from disclosure as ation is provided only as estimates of the average w terace levels of dopants, metals, and non-metal mat hip Technology Incorporated does not provide any ties provided by Microchip Technology Incorporate ions, sales order acknowledgement, and invoices. hip disclaims any duty to notify users of updates on	2.0875 c comply with EU Directive 20). d via internal design control: chemical substance is NOT a document, there is no credit any regulatory scheme world flammability standard for pl cals/plastics/ ipped are made from polyvin ion in this form concerning s e best of its knowledge and 1 thas been compiled based o strade secrets and some info weight of these parts and the terials contained within silic warranty, express or implied ad and its subsidiaries are co r changes to Material Conten the users' reliance on the int	TOTALS: Total Mass 102/95/EC (RoHS Directive), EU Directive 2011/65/EU (Ro s, supplier declarations, and /or analytical test data. In intentional ingredient in the semiconductor device an le reason to believe that the unavoidable impurity conc wide. astics. You can access the UL iQTM family of databases yl chloride (PVC) plastic. "Window envelopes" used to l ubstances restricted by RoHS in Microchip Technology belief, as of the date listed in this form. Microchip Technology belief, as of the date listed in this form. Microchip Technology rmation may not have been provided by subcontract as average weight of anticipated significant toxic metals c on devices (silicon IC) in the finished parts.	100.000 HS Recast Dire entration of th to obtain a te: hold the packii lncorporated' ology Incorpo ovided by raw semblers and omporents. TI ation. The exc f sale. These a direct or indire	2,087.500 ective) and with of Microchip Te e chemical sub st report at ng slip on the c s semiconduct rated cannot g material suppir raw material sup nese estimates lusive, limited are provided in act, consequent	a EU echnology stance, if puter box or devices uarantee the iers. uppliers. do not product Microchip's tial or	4.18	Amine type hardener Dicyandiamide Total (mg) Doped Silicon (mg) Total Copper	827-43-0 461-58-5 Total Chip (Die) 7440-21-3 Total Wire Bond palladium coated copper (CuPd) 7440-50-8 7440-05-3 Total	1.47 0.24 100.00 % of Total Weight 100 100.00 % of Total Weight 98	
miconductor device and its homogenous materials re 2002/53/EC (End-of-Life Vehicles (ELV) Directive) ance with the above EU Directives has been verifier mical substance is absent from the list above, the c rated's knowledge and belief as of the date of this not below the threshold of regulatory concern for a g compounds used by Microchip meet the UL94 V0 Loom/global/eng/pages/offerings/industries/chemic otective "tubes" in which the specific product is shi tain "reels" may be made from PVC plastic. hip Technology Incorporated believes the informati original packing materials is true and correct to the teness and accuracy of data in this form because is er information is often protected from disclosure as titon is provided only as estimates of the average w trace levels of dopants, metals, and non-metal mal hip Technology Incorporated does not provide any lies provided by Microchip Technology Incorporate ons, sales order acknowledgement, and invoices. hip disclaims any duty to notify parties as a result of se, suffered by users or third parties as a result of	2.0875 c comply with EU Directive 20). d via internal design control: chemical substance is NOT a document, there is no credit any regulatory scheme world flammability standard for pl cals/plastics/ ipped are made from polyvin ion in this form concerning s e best of its knowledge and 1 thas been compiled based o strade secrets and some info weight of these parts and the terials contained within silic warranty, express or implied ad and its subsidiaries are co r changes to Material Conten the users' reliance on the int	TOTALS: Total Mass 1002/95/EC (RoHS Directive), EU Directive 2011/65/EU (Ro s, supplier declarations, and /or analytical test data. In intentional ingredient in the semiconductor device an le reason to believe that the unavoidable impurity conc wide. astics. You can access the UL iQTM family of databases yl chloride (PVC) plastic. "Window envelopes" used to l ubstances restricted by RoHS in Microchip Technology belief, as of the date listed in this form. Microchip Technology average weight of anticipated significant toxic metals c on devices (silicon IC) in the finished parts. I, with respect to the information provided in this declar ntained in Microchip's standard terms and conditions of t Declarations and shall not be liable for any damages, i	100.000 HS Recast Dire entration of th to obtain a te: hold the packii lncorporated' ology Incorpo ovided by raw semblers and omporents. TI ation. The exc f sale. These a direct or indire	2,087.500 ective) and with of Microchip Te e chemical sub st report at ng slip on the c s semiconduct rated cannot g material suppir raw material sup nese estimates lusive, limited are provided in act, consequent	a EU echnology stance, if puter box or devices uarantee the iers. uppliers. do not product Microchip's tial or	4.18	Amine type hardener Dicyandiamide Total (mg) Doped Silicon (mg) Total Copper	827-43-0 461-58-5 Total Chip (Die) 7440-21-3 Total Wire Bond palladium coated copper (CuPd) 7440-50-8 7440-05-3	1.47 0.24 100.00 % of Total Weight 100 100.00 % of Total Weight 98	
miconductor device and its homogenous materials e 2002/53/EC (End-of-Life Vehicles (ELV) Directive) ance with the above EU Directives has been verifier mical substance is absent from the list above, the c rated's knowledge and belief as of the date of this not below the threshold of regulatory concern for a g compounds used by Microchip meet the UL94 V0 .com/global/eng/pages/offerings/industries/chemic tective "tubes" in which the specific product is shi tain "reels" may be made from PVC plastic. hip Technology Incorporated believes the informati original packing materials is true and correct to the teness and accuracy of data in this form because is r information is often protected from disclosure as tion is provided only as estimates of the average w trace levels of dopants, metals, and non-metal mal hip Technology Incorporated does not provide any les provided by Microchip Technology Incorporates nos, sales order acknowledgement, and invoices. hip disclaims any duty to notify users of updates or se, suffered by users or third parties as a result of	2.0875 c comply with EU Directive 20). d via internal design control: chemical substance is NOT a document, there is no credit any regulatory scheme world flammability standard for pl cals/plastics/ ipped are made from polyvin ion in this form concerning s e best of its knowledge and 1 thas been compiled based o strade secrets and some info weight of these parts and the terials contained within silic warranty, express or implied ad and its subsidiaries are co r changes to Material Conten the users' reliance on the int	TOTALS: Total Mass 1002/95/EC (RoHS Directive), EU Directive 2011/65/EU (Ro s, supplier declarations, and /or analytical test data. In intentional ingredient in the semiconductor device an le reason to believe that the unavoidable impurity conc wide. astics. You can access the UL iQTM family of databases yl chloride (PVC) plastic. "Window envelopes" used to l ubstances restricted by RoHS in Microchip Technology belief, as of the date listed in this form. Microchip Technology average weight of anticipated significant toxic metals c on devices (silicon IC) in the finished parts. I, with respect to the information provided in this declar ntained in Microchip's standard terms and conditions of t Declarations and shall not be liable for any damages, i	100.000 HS Recast Dire entration of th to obtain a te: hold the packii lncorporated' ology Incorpo ovided by raw semblers and omporents. TI ation. The exc f sale. These a direct or indire	2,087.500 ective) and with of Microchip Te e chemical sub st report at ng slip on the c s semiconduct rated cannot g material suppir raw material sup nese estimates lusive, limited are provided in act, consequent	a EU echnology stance, if puter box or devices uarantee the iers. uppliers. do not product Microchip's tial or	4.18	Amine type hardener Dicyandiamide Total (mg) Doped Silicon (mg) Total Copper Palladium	827-43-0 461-58-5 Total Chip (Die) 7440-21-3 Total Wire Bond palladium coated copper (CuPd) 7440-50-8 7440-05-3 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for	1.47 0.24 100.00 % of Total Weight 100 % of Total Weight 98 2 2 100.00 % of Total Weight 100.00	0.2

Desire CASE Number Constructed in the first origination of the second	CROCHIP Semiconductor Device	• Type: OA and SN	08 (Lead) (SOIC) (Small Outline -159mil) (C2)		nation Base / pper Alloy (C				geneous Materials: J. pc boards, displays	s)	JEDEC 97 Product Markin and/or Pkg. Labeling e3
Sector 0007/840 Model Componed 60.24 65.06 0007.840 <			"Contained In"				62.24	(mg) Total	Mold Compound	% ot Total Weight	79.8
Enory Rem Tade Sect Mod Compand 6.12 7.47.4 6.1207 Provide Rem Tade Sect Mod Compand 6.02 7.47.4 6.1207 Concept Sta Tade Sect 7.40			-	•				Ciliae vitreeve	60676.96.0	96.01	
Binotic Biain Total Sortel Model Compound 0.278 3.181 4.0778 Carbon Black 1333.864 Model Compound 0.287 3.181 4.0778 Carbon Black 1333.864 Model Compound 0.297 10.314 2.078 10.314 0.31 0.310											
$ \frac{Carbon Black}{C} 1333 64 \\ Carbon Black}{C}$											
$ \frac{1}{100} + \frac{1}{7460.96} = \frac{1}{100} + \frac{1}{7460.96} + \frac{1}{100} + \frac{1}{10$											
Inc. 7436-96-9 Lead Frame 0.247 0.156 2.06 8.19 (m) Total Lead Frame 10.2 2000 74462-24 Lead Frame 0.233 0.014 0.033 0.014 0.033 0.014 0.033 0.014 0.026										100.00	
Silver 7440224 Lead Fame 0.200 0.556 2.000 0.556 2.000 1556 2.000 1556 2.000 1556 2.000 1556 2.000 1556 2.000 1556 2.000 1556 2.000 1556 2.000 1556 2.000 1556 2.000 1556 2.000 1556 2.000 1556 2.000 1556 1550 1560 1550 1560 1560 1560 1560 1560 1560 1560 1560 1560 1560 1560 1560 1560							8.19	(mg) Total	Lead Frame	% of Total Weight	10.5
Data Type Lade Finne 0.013 0.010 131 Byorkhows T/2514-0 Lead Finne 0.020 67 Share (Ag) T/2514-0 Lead Finne 0.053 0.439 6.055 Share (Ag) T/2614-0 Lead Finne 0.053 0.439 6.055 Digrady-their at lightman F 5202-653 Digrady-their at lightman F 520-653 Total Digrady-their at lightman F 520-653 Total 520-653 Total Digrady-their at lightman F 520-655 Total Total Digrady-their at lightman F 520-55 Total Total Total Total Total	Silver	7440-22-4	Lead Frame	0.200		2.000					
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Diglycic/ellever of bispherol-F 6520 Die Attach 0.066 0.044 653 Unter the test of	Silver (Ag)	7440-22-4	Die Attach	0.563	0.439	5,625		Zinc	7440-66-6	0.13	
Modified Ammine 827-63-0 Die Attach % of Total Weight 0.75 Silicon 7440-21-3 Chip (Die) 7,500 5.68 75,000 Silicon 760 6.29 (mg) Total Die Attach % of Total Weight 0.75 Copper 7440-50-8 Wire Bond palladium coated coper (G/R4) 0.004 0.038 36 1.966 Palladium 7440-50-8 Wire Bond palladium coated coper (G/R4) 0.004 0.038 36 1.966 Tri 7440-50-8 Wire Bond palladium coated coper (G/R4) 0.004 0.038 36 1.0000 76.00 1.0000	Modified Epoxy Resin	13561-08-5	Die Attach	0.105	0.082	1,050		Phosphorous	7723-14-0	0.08	
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Copper 7440-50-81 Wire Boord palladium coaled copper (CuPd) 0.197 0.183 1.065 Tin 7440-51-5 Wire Boord palladium coaled copper (CuPd) 0.004 3.00 </td <td>Modified Amine</td> <td>827-43-0</td> <td>Die Attach</td> <td>0.026</td> <td>0.020</td> <td>263</td> <td>0.59</td> <td>(mg) Total</td> <td>Die Attach</td> <td>% of Total Weight</td> <td>0.75</td>	Modified Amine	827-43-0	Die Attach	0.026	0.020	263	0.59	(mg) Total	Die Attach	% of Total Weight	0.75
Pailadum 7440-05-3 Wire Bond pailadum coated copper (C)/Pi) 0.004 0.033 35 Tin 7440-31-5 Purgo on extemal loads (pm)- Matte TV (annexed at 190° C INIT 12.501 TorALS: 100.000 78.000 1,000,000 5.55 Total (P) 100.000 O.0780 g Total Mass Total Mass Total Mass 5.55 Total (P) Chip(P) 4.670-21-3 100.000 Tance with the above EU Directives has been verified via internal design controls, supplier declarations, and <i>Ior</i> analytical test data. Total 100.000 7440-21-3 100.000 Total Sign on the shore EU Directives has been verified via internal design controls, supplier declarations, and <i>Ior</i> analytical test data. Total Total 0.6 0.16 (mg) Total Copper, 20140000 0.2 User Sign on the shore EU Directives has been verified via internal design controls, supplier declarations, and <i>Ior</i> analytical test data. Total 100.00 0.16 (mg) Total Copper, 20140000 0.2 0.2 0.16 (mg) Total Copper, 20140000 0.2 0.2 0.16 (mg) Total Copper 7440-05-3 2 2 2 100.00 0.2 0.16 Copper 7440-05-3 2	Silicon	7440-21-3	Chip (Die)	7.500	5.850	75,000		Silver (Ag)	7440-22-4	75	
Tin Teles Description 1.250 0.975 12.500 Normality Modified Ammine 827-43-0 4 0.0750 0.0750 0.0750 10.0000 760 - 0.0750 78.000 1.000.000 5.85 Total (00.00) 760 - 0.0750 7.5 micloaluctor devices and 1ts honogenous materials comply with EU Directive 2002/5SEC (RoH-5Life Volicles (ELV) Directive). EU Directive 2011/6SEU (RoHS Recast Directive, without excemption 5.85 Total (00.00) 7.4021:3 100.00 status the above EU Directive shab been verified via internal design controls, supplier declarations, and /or analytical test data. Total 100.00 7.4021:3 100.0 100.00 status the above EU Directive South the tabove fits document, there is no credible reason to believe that the unavoidable impurity concentration of the chemical substance, if or any regulatory concern for any regulatory scheme world-wide. 0.16 (mg) Total Copper, 2440-06 88 0.2 ge compound sub ed by Microchip meet the ULA VO for galaxies on believes the unavoidable impurity concentration of the chemical substance is scheme world-wide. With above EU Directive advector is scheme world-wide. 0.16 (mg) Total Copper, 2440-06 88 98 98 98 98 98 </td <td></td>											
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i. com/global/eng/pages/offerings/industries/chemicals/plastics/ Copper 7440-50-8 98 potective "tubes" in which the specific product is shipped are made from polyvinyl chloride (PVC) plastic. "Window envelopes" used to hold the packing slip on the outer box Palladium 7440-05-3 2 hip Technology Incorporated believes the information in this form concerning substances restricted by ROHS in Microchip Technology Incorporated cannot guarantee the teness and accuracy of data in this form because it has been compiled based on the ranges provided in Material Safety Data Sheets provided by y accurater as an accuracy of data in this form because it has been compiled based on the ranges provided in Material Safety Data Sheets provided by use sorticet from disclosure as trade secrets and some information may not have been provided by subcontract assemblers. These estimates do not a trade secret and some information nevices (silicon IC) in the finished parts. 0.98 (mg) Total Plating on external leads (pins) - Matte Tin / Annealed at 150°C for 1 hour hip Technology Incorporated does not provide and tis subsidiaries are contained in Microchip's standard terms and conditions of sale. These are provided in Microchip's to mages, direct or indirect, consequential or 1 hour 0.98 (mg) Total Plating on external (mas) - Matte Tin / Annealed at 150°C for 1 hour 1.25 nip disclaims any duty to notify users of updates or changes to Material Content Declarations and shall not be liable for any damages, direct or indirect, consequential or 1 hour 0.98 Tin Tato-31-5 100.00 certificate of Compli	th EU Directive 2002/53/EC (End-of-Life Vehicles (EL iance with the above EU Directives has been verified	comply with EU Directive V) Directive). via internal design contro	g Total Mass 2002/95/EC (RoHS Directive), EU Directive 2011/65/EU (RoH DIs, supplier declarations, and /or analytical test data.	IS Recast Dire	ective, without	excemption)	5.85		Chip (Die) 7440-21-3 Total	% of Total Weight	7.5
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mation is provided only as estimates of the average weight of these parts and the average weight of anticipated significant toxic metals components. These estimates do not de trace levels of dopants, metals, and non-metal materials contained within silicon devices (silicon IC) in the finished parts.	
rochip Technology Incorporated does not provide any warranty, express or implied, with respect to the information provided in this declaration. The exclusive, limited product ranties provided by Microchip Technology Incorporated and its subsidiaries are contained in Microchip's standard terms and conditions of sale. These are provided in Microchip's 9.63 (mg) Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour % of Total Weight tations, sales order acknowledgement, and invoices.	
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Total

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CROCHIP	a Type: SM 08 //	SOIJ (Small Outline-208 mil) (C3)		nation Base A pper Alloy (C				geneous Materials: g. pc boards, displays)	JEDEC 97 Product Markin and/or Pkg. Labeling e3
Semiconductor Device	e Type. Sivi 00 (Lead	"Contained In"	% Total	1						
Basic Substance	CAS Number	Sub-Component	Weight	mg/part	ppm	99.27	(mg) Total	Mold Compound	% ot Total Weight	79.8
Silica, vitreous	60676-86-0	Mold Compound	69.354	86.277	693,542		Silica, vitreous	60676-86-0	86.91	
Epoxy Resin	Trade Secret	Mold Compound	6.121	7.614	61,207		Epoxy Resin	Trade Secret	7.67	
Phenolic Resin	Trade Secret	Mold Compound	4.078	5.073	40,778		Phenolic Resin	Trade Secret	5.11	
Carbon Black	1333-86-4	Mold Compound	0.247	0.308	2,474		Carbon Black	1333-86-4	0.31	
Copper	7440-50-8	Lead Frame	10.031	12.479	100,314			Total	100.00	
Iron	7439-89-6	Lead Frame	0.247	0.307	2,468	13.06	(mg) Total	Lead Frame	% of Total Weight	10.5
Silver	7440-22-4	Lead Frame	0.200	0.249	2,000		Copper	7440-50-8	95.54	
Zinc	7440-66-6	Lead Frame	0.013	0.016	131		Iron	7439-89-6	2.35	
Phosphorous	7723-14-0	Lead Frame	0.009	0.011	87		Silver	7440-22-4	1.91	
Silver (Ag)	7440-22-4	Die Attach	0.563	0.700	5,625		Zinc	7440-66-6	0.13	
Modified Epoxy Resin	13561-08-5	Die Attach	0.105	0.131	1,050		Phosphorous	7723-14-0	0.08	
Diglycidylether of bisphenol-F	54208-63-8	Die Attach	0.056	0.070	563			Total	100.00	
Modified Amine	827-43-0	Die Attach	0.026	0.033	263	0.93	(mg) Total	Die Attach	% of Total Weight	0.75
Silicon	7440-21-3	Chip (Die)	7.500	9.330	75.000		Silver (Ag)	7440-22-4	75	
Copper	7440-50-8	Wire Bond palladium coated copper (CuPd)	0.197	0.244	1,965		Modified Epoxy Resin	13561-08-5	14	
Palladium	7440-05-3	Wire Bond palladium coated copper (CuPd)	0.004	0.004	35	Di	glycidylether of bisphenol-F	54208-63-8	8	
Tin	7440-31-5	Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	1.250	1.555	12,500		Modified Amine	827-43-0	4	
		TOTALS:	100.000	124.400	1,000,000		<u>u</u>	Total	100.00	
	comply with EU Directive 2	g Total Mass 002/95/EC (RoHS Directive), EU Directive 2011/65/EU (RoH				9.33	Total (mg) Doped Silicon	Chip (Die) 7440-21-3	% of Total Weight	7.5
ve 2002/53/EC (End-of-Life Vehicles (ELV) Directive). liance with the above EU Directives has been verified emical substance is absent from the list above, the c orated's knowledge and belief as of the date of this (comply with EU Directive 2 d via internal design contro chemical substance is NOT document, there is no cred	g Total Mass 002/95/EC (RoHS Directive), EU Directive 2011/65/EU (RoH Is, supplier declarations, and /or analytical test data. an intentional ingredient in the semiconductor device and ble reason to believe that the unavoidable impurity conce	IS Recast Dire	ctive) and with	n EU echnology	9.33		Chip (Die)		0.2
ve 2002/53/EC (End-of-Life Vehicles (ELV) Directive). liance with the above EU Directives has been verified emical substance is absent from the list above, the orated's knowledge and belief as of the date of this is not below the threshold of regulatory concern for a ng compounds used by Microchip meet the UL94 V0	comply with EU Directive 2 d via internal design contro :hemical substance is NOT document, there is no cred ny regulatory scheme work flammability standard for p	g Total Mass 002/95/EC (RoHS Directive), EU Directive 2011/65/EU (RoH Is, supplier declarations, and /or analytical test data. an intentional ingredient in the semiconductor device and ble reason to believe that the unavoidable impurity conce	IS Recast Dire d, to the best c entration of the	ctive) and with of Microchip To e chemical sub	n EU echnology		Doped Silicon	Chip (Die) 7440-21-3 Total Wire Bond - Copper, palladium	100 100.00	
ve 2002/53/EC (End-of-Life Vehicles (ELV) Directive). liance with the above EU Directives has been verified emical substance is absent from the list above, the c orated's knowledge and belief as of the date of this is in ot below the threshold of regulatory concern for a g compounds used by Microchip meet the UL94 VO ul.com/global/eng/pages/offerings/industries/chemic otective "tubes" in which the specific product is shi	comply with EU Directive 2 d via internal design contro shemical substance is NOT document, there is no cred ny regulatory scheme work flammability standard for p rals/plastics/	g Total Mass 002/95/EC (RoHS Directive), EU Directive 2011/65/EU (RoH Is, supplier declarations, and /or analytical test data. an intentional ingredient in the semiconductor device and ble reason to believe that the unavoidable impurity conce struide.	IS Recast Dire d, to the best c entration of the to obtain a tes	ctive) and with of Microchip Tr e chemical sub at report at	n EU echnology ostance, if		(mg) Total	Chip (Die) 7440-21-3 Total Wire Bond - Copper, palladium coated (CuPd)	100 100.00 % of Total Weight	
ve 2002/53/EC (End-of-Life Vehicles (ELV) Directive). liance with the above EU Directives has been verified emical substance is absent from the list above, the c orated's knowledge and belief as of the date of this not below the threshold of regulatory concern for a to compounds used by Microchip meet the UL94 V0 ul.com/global/eng/pages/offerings/industries/chemic otective "tubes" in which the specific product is shi ertain "reels" may be made from PVC plastic.	comply with EU Directive 2 d via internal design contro chemical substance is NOT document, there is no cred ny regulatory scheme work flammability standard for p rals/plastics/ pped are made from polyvi	g Total Mass 002/95/EC (RoHS Directive), EU Directive 2011/65/EU (RoH Is, supplier declarations, and /or analytical test data. an intentional ingredient in the semiconductor device and ble reason to believe that the unavoidable impurity conce d-wide. lastics. You can access the UL iQTM family of databases nyl chloride (PVC) plastic. "Window envelopes" used to h	IS Recast Dire d, to the best c entration of the to obtain a tes iold the packin	ctive) and with of Microchip To e chemical sub at report at ng slip on the o	n EU echnology ostance, if puter box		Copper	Chip (Die) 7440-21-3 Total Wire Bond - Copper, palladium coated (CuPd) 7440-50-8	100 100.00 % of Total Weight 98	
ve 2002/53/EC (End-of-Life Vehicles (ELV) Directive). liance with the above EU Directives has been verified emical substance is absent from the list above, the c orated's knowledge and belief as of the date of this s is not below the threshold of regulatory concern for a g compounds used by Microchip meet the UL94 VO ul.com/global/eng/pages/offerings/industries/chemic rotective "tubes" in which the specific product is shi rtain "reels" may be made from PVC plastic. The Technology Incorporated believes the informatii r original packing materials is true and correct to the eteness and accuracy of data in this form because it er information is often protected from disclosure as	comply with EU Directive 2 d via internal design contro shemical substance is NOT document, there is no cred ny regulatory scheme work flammability standard for p als/plastics/ pped are made from polyvi on in this form concerning b best of its knowledge and has been compiled based trade secrets and some inf	g Total Mass 002/95/EC (RoHS Directive), EU Directive 2011/65/EU (RoH Is, supplier declarations, and /or analytical test data. an intentional ingredient in the semiconductor device and ble reason to believe that the unavoidable impurity conce 4-wide. lastics. You can access the UL iQTM family of databases nyl chloride (PVC) plastic. "Window envelopes" used to h substances restricted by RoHS in Microchip Technology belief, as of the date listed in this form. Microchip Technology ormation may not have been provided by subcontract ass a verage weight of anticipated significant toxic metals co	IS Recast Dire d, to the best o entration of the to obtain a tes old the packin Incorporated's ology Incorpor wided by raw i semblers and r	ctive) and with of Microchip Tr e chemical sut at report at ng slip on the o s semiconduct rated cannot g material suppl aw material suppl	n EU echnology sstance, if outer box or devices juarantee the iers. appliers.		Copper	Chip (Die) 7440-21-3 Total Wire Bond - Copper, palladium coated (CuPd) 7440-50-8 7440-05-3	100 100.00 % of Total Weight 98 2	
ive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). liance with the above EU Directives has been verified emical substance is absent from the list above, the c orated's knowledge and belief as of the date of this of not below the threshold of regulatory concern for a ng compounds used by Microchip meet the UL94 VO ul.com/global/eng/pages/offerings/industries/chemic otective "tubes" in which the specific product is shi rtain "reels" may be made from PVC plastic. chip Technology Incorporated believes the informatic re original packing materials is true and correct to the teeness and accuracy of data in this form because it ier information is often protected from disclosure as ation is provided only as estimates of the average w e trace levels of dopants, metals, and non-metal mat chip Technology Incorporated does not provide any	comply with EU Directive 2 d via internal design contro shemical substance is NOT document, there is no cred ny regulatory scheme work flammability standard for p ials/plastics/ pped are made from polyvi on in this form concerning b best of its knowledge and has been compiled based trade secrets and some int eight of these parts and the rials contained within silit warranty, express or implie	g Total Mass 002/95/EC (RoHS Directive), EU Directive 2011/65/EU (RoH Is, supplier declarations, and /or analytical test data. an intentional ingredient in the semiconductor device and ble reason to believe that the unavoidable impurity conce 4-wide. lastics. You can access the UL iQTM family of databases nyl chloride (PVC) plastic. "Window envelopes" used to h substances restricted by RoHS in Microchip Technology belief, as of the date listed in this form. Microchip Technology ormation may not have been provided by subcontract ass a verage weight of anticipated significant toxic metals co	IS Recast Dire d, to the best of entration of the to obtain a tes iold the packin Incorporated's ology Incorpor ivided by raw i semblers and r mponents. Th	ctive) and with of Microchip To e chemical sub at report at ag slip on the o s semiconduct rated cannot g material sup aw material su ese estimates usive, limited	n EU echnology sstance, if outer box or devices juarantee the iers. ado not ppliers. do not		Copper	Chip (Die) 7440-21-3 Total Wire Bond - Copper, palladium coated (CuPd) 7440-50-8 7440-05-3	100 100.00 % of Total Weight 98 2	
ve 2002/53/EC (End-of-Life Vehicles (ELV) Directive). liance with the above EU Directives has been verified emical substance is absent from the list above, the c orated's knowledge and belief as of the date of this is not below the threshold of regulatory concern for a ang compounds used by Microchip meet the UL94 V0 ul.com/global/eng/pages/offerings/industries/chemic otective "tubes" in which the specific product is shi ertain "reels" may be made from PVC plastic. The prochology Incorporated believes the information r original packing materials is true and correct to the teeness and accuracy of data in this form because it ter information is often protected from disclosure as atation is provided only as estimates of the average we trace levels of dopants, metals, and non-metal mat thip Technology Incorporated does not provide any tites provided by Microchip Technology Incorporates ions, sales order acknowledgement, and invoices. thip disclaims any duty to notify users of updates or	comply with EU Directive 2 d via internal design contro chemical substance is NOT document, there is no cred ny regulatory scheme work flammability standard for p als/plastics/ pped are made from polyvi on in this form concerning best of its knowledge and has been compiled based trade secrets and some inf eight of these parts and the erials contained within silie warranty, express or implied d and its subsidiaries are c changes to Material Conte the users' reliance on the in	g Total Mass 0002/95/EC (RoHS Directive), EU Directive 2011/65/EU (RoH Is, supplier declarations, and /or analytical test data. an intentional ingredient in the semiconductor device and ble reason to believe that the unavoidable impurity conce 4-wide. lastics. You can access the UL iQTM family of databases nyl chloride (PVC) plastic. "Window envelopes" used to h substances restricted by RoHS in Microchip Technology belief, as of the date listed in this form. Microchip Technology belief, as of the date listed in Material Safety Data Sheets pro ormation may not have been provided by subcontract ass e average weight of anticipated significant toxic metals co con devices (silicon IC) in the finished parts. d, with respect to the information provided in this declaration.	IS Recast Dire d, to the best of entration of the to obtain a tes old the packin incorporated's ology Incorpor incorporated's ology Incorpor semblers and r semblers and r mponents. Th ation. The excl i sale. These at	ctive) and with of Microchip Tr a chemical sub it report at ing slip on the of a semiconduct rated cannot g material suppl aw material sup	n EU echnology ostance, if outer box or devices juprantee the iers. uppliers. do not product Microchip's tial or	0.25	Copper Palladium	Chip (Die) 7440-21-3 Total Wire Bond - Copper, palladium coated (CuPd) 7440-50-8 7440-05-3 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for	100 100.00 % of Total Weight 98 2 100.00	0.2
ve 2002/53/EC (End-of-Life Vehicles (ELV) Directive). iance with the above EU Directives has been verified amical substance is absent from the list above, the c orated's knowledge and belief as of the date of this or not below the threshold of regulatory concern for a g compounds used by Microchip meet the UL94 V0 II.com/global/eng/pages/offerings/Industries/chemic otective "tubes" in which the specific product is shi rtain "reels" may be made from PVC plastic. hip Technology Incorporated believes the informatio original packing materials is true and correct to the steness and accuracy of data in this form because it e information is often protected from disclosure as ation is provided only as estimates of the average w trace levels of dopants, metals, and non-metal mat hip Technology Incorporated does not provide any ties provided by Microchip Technology Incorporate ions, sales order acknowledgement, and invoices. hip disclaims any duty to notify users of updates or fise, suffered by users or third parties as a result of 1	comply with EU Directive 2 d via internal design contro chemical substance is NOT document, there is no cred ny regulatory scheme work flammability standard for p als/plastics/ pped are made from polyvi on in this form concerning best of its knowledge and has been compiled based trade secrets and some inf eight of these parts and the erials contained within silie warranty, express or implied d and its subsidiaries are c changes to Material Conte the users' reliance on the in	g Total Mass 0002/95/EC (RoHS Directive), EU Directive 2011/65/EU (RoH Is, supplier declarations, and /or analytical test data. an intentional ingredient in the semiconductor device and ble reason to believe that the unavoidable impurity conce I-wide. Iastics. You can access the UL iQTM family of databases nyl chloride (PVC) plastic. "Window envelopes" used to h substances restricted by RoHS in Microchip Technology belief, as of the date listed in this form. Microchip Technology belief, as of the date listed in this form. Microchip Technology ormation may not have been provided by subcontract ass average weight of anticipated significant toxic metals co con devices (silicon IC) in the finished parts. d, with respect to the information provided in this declara ontained in Microchip's standard terms and conditions of the Declarations and shall not be liable for any damages, d	IS Recast Dire d, to the best of entration of the to obtain a tes old the packin incorporated's ology Incorpor incorporated's ology Incorpor semblers and r semblers and r mponents. Th ation. The excl i sale. These at	ctive) and with of Microchip Tr a chemical sub it report at ing slip on the of a semiconduct rated cannot g material suppl aw material sup	n EU echnology ostance, if outer box or devices juprantee the iers. uppliers. do not product Microchip's tial or	0.25	(mg) Total Copper Palladium (mg) Total	Chip (Die) 7440-21-3 Total Wire Bond - Copper, palladium coated (CuPd) 7440-50-8 7440-50-8 7440-05-3 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	100 100.00 % of Total Weight 98 2 100.00 % of Total Weight	0.2

MICROCHIP Semiconductor Device	Type: CT and OT (95 (Lead) SOT-23 (C7)		nation Base A pper Alloy (C	-			eneous Materials: . pc boards, displays)	JEDEC 97 Product Marking and/or Pkg. Labeling e3
		"Contained In"	% Total			12.77	(mg) Total	Mold Compound	% ot Total Weight	79.8
Basic Substance	CAS Number	Sub-Component	Weight	mg/part	ppm		(5/ 5			1010
Silica, vitreous	60676-86-0	Mold Compound	69.354	11.097	693,542		Silica, vitreous	60676-86-0	86.91	
Epoxy Resin	Trade Secret	Mold Compound	6.121	0.979	61,207		Epoxy Resin	Trade Secret	7.67	
Phenolic Resin	Trade Secret	Mold Compound	4.078	0.652	40,778		Phenolic Resin	Trade Secret	5.11	
Carbon Black	1333-86-4	Mold Compound	0.247	0.040	2,474		Carbon Black	1333-86-4	0.31	
Copper	7440-50-8	Lead Frame	10.031	1.605	100,314			Total	100.00	
Iron	7439-89-6	Lead Frame	0.247	0.039	2,468	1.68	(mg) Total	Lead Frame	% of Total Weight	10.5
Silver	7440-22-4	Lead Frame	0.200	0.032	2,000		Copper	7440-50-8	95.54	
Zinc	7440-66-6	Lead Frame	0.013	0.002	131		Iron	7439-89-6	2.35	
Phosphorous	7723-14-0	Lead Frame	0.009	0.001	87		Silver	7440-22-4	1.91	
Silver (Ag)	7440-22-4	Die Attach	0.563	0.090	5,625		Zinc	7440-66-6	0.13	
Modified Epoxy Resin	13561-08-5	Die Attach	0.105	0.017	1,050		Phosphorous	7723-14-0	0.08	
Diglycidylether of bisphenol-F	54208-63-8	Die Attach	0.056	0.009	563			Total	100.00	
Modified Amine	827-43-0	Die Attach	0.026	0.004	263	0.12	(mg) Total	Die Attach	% of Total Weight	0.75
Silicon	7440-21-3	Chip (Die)	7.500	1.200	75,000		Silver (Ag)	7440-22-4	75	
Copper	7440-50-8	Wire Bond palladium coated copper (CuPd)	0.197	0.031	1,965		Modified Epoxy Resin	13561-08-5	14	
Palladium	7440-05-3	Wire Bond palladium coated copper (CuPd)	0.004	0.001	35	Di	glycidylether of bisphenol-F	54208-63-8	8	
Tin	7440-31-5	Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	1.250	0.200	12,500		Modified Amine	827-43-0	4	
		TOTALS:	100.000	16.000	1,000,000			Total	100.00	
	0.0160	g Total Mass				1.20	Total (mg)	Chip (Die)	% of Total Weight	7.5
his semiconductor device and its homogenous materials or rective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). Compliance with the above EU Directives has been verified		2002/95/EC (RoHS Directive), EU Directive 2011/65/EU (RoH Is, supplier declarations, and /or analytical test data.	IS Recast Dire	ctive) and with	h EU		Doped Silicon	7440-21-3 Total	100 100.00	
a chemical substance is absent from the list above, the ch corporated's knowledge and belief as of the date of this d	locument, there is no cred	ible reason to believe that the unavoidable impurity conce				0.03	(mg) Total	Wire Bond - Copper, palladium coated (CuPd)	% of Total Weight	0.2
y, is not below the threshold of regulatory concern for an					-					
vy, is not below the threshold of regulatory concern for an olding compounds used by Microchip meet the UL94 V0 fl tp://ul.com/global/eng/pages/offerings/industries/chemica		lastics. You can access the UL iQTM family of databases	to obtain a tes	t report at			Copper	7440-50-8	98	
olding compounds used by Microchip meet the UL94 V0 fl	als/plastics/				outer box		Copper Palladium	7440-50-8 7440-05-3 Total	98 2 100.00	

Tin

16.000

7440-31-5

Total

100.00

100.00

AICROCHIP Semiconductor Device Typ	De: CH and OT	D6 (Lead) SOT-23 (C8)	-	nation Base A pper Alloy (C				geneous Materials: g. pc boards, displays	3)	JEDEC 97 Product Markin and/or Pkg. Labeling e3
Basic Substance	CAS Number	"Contained In" Sub-Component	% Total Weight	mg/part	ppm	13.57	(mg) Total	Mold Compound	% ot Total Weight	79.8
Silica, vitreous	60676-86-0	Mold Compound	69.354	11.790	693,542		Silica, vitreous	60676-86-0	86.91	1
Epoxy Resin (No bromine, No diantimony trioxide)	Trade Secret	Mold Compound	6.121	1.041	61,207		Epoxy Resin	Trade Secret	7.67	
Phenolic Resin (No Br / CL SbO3, No diantimony trioxide)	Trade Secret	Mold Compound	4.078	0.693	40,778		Phenolic Resin	Trade Secret	5.11	
Carbon Black	1333-86-4	Mold Compound	0.247	0.042	2,474		Carbon Black	1333-86-4	0.31	
Copper	7440-50-8	Lead Frame	10.031	1.705	100,314			Total	100.00	9
Iron	7439-89-6	Lead Frame	0.247	0.042	2,468	1.79	(mg) Total	Lead Frame	% of Total Weight	10.5
Silver	7440-22-4	Lead Frame	0.200	0.034	2,000		Copper	7440-50-8	95.54	
Zinc	7440-66-6	Lead Frame	0.013	0.002	131		Iron	7439-89-6	2.35	
Phosphorous	7723-14-0	Lead Frame	0.009	0.001	87		Silver	7440-22-4	1.91	
Epoxy resin	Trade Secret	Die Attach	0.563	0.096	5,625		Zinc	7440-66-6	0.13	
Silicon dioxide	Trade Secret	Die Attach	0.169	0.029	1,688		Phosphorous	7723-14-0	0.08	
Curing / Hardener	Polymeric Retanning Agent	Die Attach	0.019	0.003	188			Total	100.00	-
Silicon			7,500	1.275						
	7440-21-3	Chip (Die)			75,000	0.13	(mg) Total	Die Attach	% of Total Weight	0.75
Copper Palladium	7440-50-8 7440-05-3	Wire Bond palladium coated copper (CuPd)	0.197	0.033	1,965 35		Epoxy resin Silicon dioxide	Trade Secret	75 23	
Tin	7440-05-3	Wire Bond palladium coated copper (CuPd) Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	1.250	0.001	12,500		Curing / Hardener	7631-86-9 Trade Secret	23	
IIn	7440-31-5	Plating on external leads (pins) - Matte I in / annealed at 150°C for 1 hour TOTALS:	1.250				Curing / Hardener	Trade Secret	÷	
			100.000	17.000	1,000,000					
	0.0170	g Total Mass				1.28				
	ly with EU Directive 2	2002/95/EC (RoHS Directive), EU Directive 2011/65/EU (Rol	HS Recast Dire	ctive) and with	n EU		Total (mg) Doped Silicon	Chip (Die) 7440-21-3	% of Total Weight	7.5
semiconductor device and its homogenous materials comp ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). Ipliance with the above EU Directives has been verified via in		2002/95/EC (RoHS Directive), EU Directive 2011/65/EU (Rol	HS Recast Dire	ctive) and with	ι EU			,	100	
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). pliance with the above EU Directives has been verified via in chemical substance is absent from the list above, the chemic rporated's knowledge and belief as of the date of this docun	nternal design contro cal substance is NOT nent, there is no cred	0002/95/EC (RoHS Directive), EU Directive 2011/65/EU (Ro ls, supplier declarations, and /or analytical test data. an intentional ingredient in the semiconductor device an ible reason to believe that the unavoidable impurity conc	d, to the best c	f Microchip To	echnology	0.03		7440-21-3	100	
tive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). pliance with the above EU Directives has been verified via in themical substance is absent from the list above, the chemic prorated's knowledge and belief as of the date of this docun is not below the threshold of regulatory concern for any reg ling compounds used by Microchip meet the UL94 V0 flamm	nternal design contro cal substance is NOT nent, there is no cred gulatory scheme worl nability standard for p	0002/95/EC (RoHS Directive), EU Directive 2011/65/EU (Ro Is, supplier declarations, and /or analytical test data. an intentional ingredient in the semiconductor device an ible reason to believe that the unavoidable impurity conc d-wide.	d, to the best o entration of the	f Microchip To chemical sub	echnology		Doped Silicon	7440-21-3 Total Wire Bond - Copper, palladium	100	
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive).	nternal design contro cal substance is NOT nent, there is no cred gulatory scheme worl nability standard for p astics/	2002/95/EC (RoHS Directive), EU Directive 2011/65/EU (Ro Is, supplier declarations, and /or analytical test data. an intentional ingredient in the semiconductor device an ible reason to believe that the unavoidable impurity conc d-wide. lastics. You can access the UL iQTM family of databases	d, to the best o entration of the to obtain a tes	f Microchip To chemical sub t report at	echnology ostance, if		Doped Silicon (mg) Total	7440-21-3 Total Wire Bond - Copper, palladium coated (CuPd)	100 100.00 % of Total Weight	
tive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). bliance with the above EU Directives has been verified via in memical substance is absent from the list above, the chemic porated's knowledge and belief as of the date of this docum s not below the threshold of regulatory concern for any reg ng compounds used by Microchip meet the UL94 V0 flamm 'ul.com/global/eng/pages/offerings/industries/chemicals/pl rotective "tubes" in which the specific product is shipped ertain "reels" may be made from PVC plastic. chip Technology Incorporated believes the information in 1 ir original packing materials is true and correct to the best leteness and accuracy of data in this form because it has b lier information is often protected from disclosure as trade nation is provided only as estimates of the average weight	nternal design contro cal substance is NOT nent, there is no cred ulatory scheme worl ability standard for p astics/ are made from polyvi this form concerning of its knowledge and secrets and some ind of these parts and th	202/95/EC (RoHS Directive), EU Directive 2011/65/EU (Ro Is, supplier declarations, and /or analytical test data. an intentional ingredient in the semiconductor device an ible reason to believe that the unavoidable impurity conc d-wide. lastics. You can access the UL iQTM family of databases nyl chloride (PVC) plastic. "Window envelopes" used to I substances restricted by RoHS in Microchip Technology belief, as of the date listed in this form. Microchip Techn on the ranges provided in Material Safety Data Sheets pr ormation may not have been provided by subcontract as a verenge weight of anticipated significant toxic metals c	d, to the best of entration of the to obtain a tes nold the packin locorporated's lology Incorpor vided by raw i	f Microchip To chemical sub t report at g slip on the o semiconduct ated cannot g naterial suppl aw material sup	echnology ostance, if outer box or devices uarantee the iers. uppliers.		(mg) Total	7440-21-3 Total Wire Bond - Copper, palladium coated (CuPd) 7440-50-8	100 100.00 % of Total Weight 98 2	0.2
tive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). pliance with the above EU Directives has been verified via in hemical substance is absent from the list above, the chemic porated's knowledge and belief as of the date of this docum is not below the threshold of regulatory concern for any reg ling compounds used by Microchip meet the UL94 V0 flamm //ul.com/global/eng/pages/offerings/industries/chemicals/pl protective "tubes" in which the specific product is shipped	nternal design contro cal substance is NOT nent, there is no cred ulatory scheme worl ability standard for p astics/ are made from polyvi this form concerning of its knowledge and secrets and some int of these parts and th contained within sili nty, express or implie	202/95/EC (RoHS Directive), EU Directive 2011/65/EU (Ro Is, supplier declarations, and /or analytical test data. an intentional ingredient in the semiconductor device an ible reason to believe that the unavoidable impurity conc d-wide. lastics. You can access the UL iQTM family of databases nyl chloride (PVC) plastic. "Window envelopes" used to I substances restricted by RoHS in Microchip Technology belief, as of the date listed in this form. Microchip Technology belief, as of the date listed in this form. Microchip Technology romation may not have been provided by subcontract as a verage weight of anticipated significant toxic metals c con devices (silicon IC) in the finished parts. d, with respect to the information provided in this declar	d, to the best of entration of the to obtain a tes nold the packin lncorporated's lology Incorpor ovided by raw i semblers and r omponents. Th ation. The excl	f Microchip To chemical sub t report at g slip on the o semiconduct ated cannot g naterial suppl aw material su ese estimates usive, limited	echnology sstance, if outer box or devices uarantee the iers. uppliers. do not product		(mg) Total	7440-21-3 Total Wire Bond - Copper, palladium coated (CuPd) 7440-50-8 7440-05-3 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for	100 100.00 % of Total Weight 98 2	0.2
tive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). bliance with the above EU Directives has been verified via in nemical substance is absent from the list above, the chemic porated's knowledge and belief as of the date of this docum s not below the threshold of regulatory concern for any reg ing compounds used by Microchip meet the UL94 V0 flamm ful.com/global/eng/pages/offerings/industries/chemicals/pl protective "tubes" in which the specific product is shipped ertain "reels" may be made from PVC plastic. chip Technology Incorporated believes the information in 1 is original packing materials is true and correct to the best leteness and accuracy of data in this form because it has b lier information is often protected from disclosure as trade de trace levels of dopants, metals, and non-metal materials chip Technology Incorporated does not provide any warran inties provided by Microchip Technology Incorporated and	nternal design contro cal substance is NOT nent, there is no cred ulatory scheme worl ability standard for p astics/ are made from polyvi this form concerning of its knowledge and secrets and some ini of these parts and th contained within sili nty, express or implie its subsidiaries are c ges to Material Conte	202/95/EC (RoHS Directive), EU Directive 2011/65/EU (Rol Is, supplier declarations, and /or analytical test data. an intentional ingredient in the semiconductor device an ible reason to believe that the unavoidable impurity conc d-wide. lastics. You can access the UL iQTM family of databases nyl chloride (PVC) plastic. "Window envelopes" used to I substances restricted by RoHS in Microchip Technology belief, as of the date listed in this form. Microchip Technology belief, as of the date listed in this form. Microchip Technology belief, as of the date not the provided by subcontract as a average weight of anticipated significant toxic metals c con devices (silicon IC) in the finished parts. rd, with respect to the information provided in this declar ontained in Microchip's standard terms and conditions o nt Declarations and shall not be liable for any damages, a	d, to the best of entration of the to obtain a tes nold the packin lncorporated's lology Incorpor ovided by raw i semblers and r omponents. Th ation. The excl f sale. These a direct or indirect	f Microchip To chemical sub t report at g slip on the o semiconduct ated cannot g naterial suppl aw material su ese estimates usive, limited re provided in ct, consequen	echnology sstance, if outer box or devices uarantee the iers. uppliers. do not product Microchip's tial or	0.03	(mg) Total Copper Palladium	7440-21-3 Total Wire Bond - Copper, palladium coated (CuPd) 7440-50-8 7440-05-3 Total Plating on external leads (pins) - Matte Tin	100 100.00 % of Total Weight 98 2 2 100.00	0.2

Total 100.000 100.000

Semiconductor Device Type: PT 44 (Lead) TQFP 10x10x1mm (T4/TY) Basic Substance CAS Number Sub-Component				ation Base A oper Alloy (C		Package Homogeneous Materials				JEDEC 97 Product Markin and/or Pkg. Labeling e3
			% Total			218.09	(mg) Total	Mold Compound	% ot Total Weight	79.8
			Weight	mg/part	ppm				•	
Silica, vitreous	60676-86-0	Mold Compound	69.354	189.545	693,542		Silica, vitreous	60676-86-0	86.91	
Epoxy Resin	Trade Secret	Mold Compound	6.121	16.728	61,207		Epoxy Resin	Trade Secret	7.67	
Phenolic Resin	Trade Secret	Mold Compound	4.078	11.145	40,778		Phenolic Resin	Trade Secret	5.11	
Carbon Black	1333-86-4	Mold Compound	0.247	0.676	2,474		Carbon Black	1333-86-4 Total	0.31	
Copper	7440-50-8	Lead Frame	10.000	27.331	100,003					
Nickel	7440-02-0	Lead Frame	0.267	0.729	2,667	28.70	(mg) Total	Lead Frame	% of Total Weight	10.5
Silver	7440-22-4	Lead Frame	0.175	0.479	1,752		Copper	7440-50-8	95.24	
Silicon	7440-21-3	Lead Frame	0.047	0.129	473		Nickel	7440-02-0	2.54	
Magnesium	7439-95-4	Lead Frame	0.011	0.029	105		Silver	7440-22-4	1.67	
Silver (Ag)	7440-22-4	Die Attach	0.600	1.640	6,000		Silicon	7440-21-3	0.45	
Acrylate Urethane Oligomer	General	Die Attach	0.150	0.410	1,500		Magnesium	7439-95-4	0.10	
Silicon	7440-21-3	Chip (Die)	7.500	20.498	75,000			Total	100.00	
Copper	7440-50-8	Wire Bond palladium coated copper (CuPd)	0.197	0.537	1,965	2.05	(mg) Total	Die Attach	% of Total Weight	0.75
Palladium	7440-05-3	Wire Bond palladium coated copper (CuPd)	0.004	0.010	35		Silver (Ag)	7440-22-4	80	
Tin	7440-31-5	Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	1.250	3.416	12,500		Acrylate Urethane Oligome		20	
			100.000	273.300	1.000.000			Total	100.00	
		TOTALS:	100.000	210.000	.,,					
	comply with EU Directive 2	g Total Mass 2002/95/EC (RoHS Directive), EU Directive 2011/65/EU (RoH				20.50	Total (mg) Doped Silicon	Chip (Die) 7440-21-3	% of Total Weight	7.5
emiconductor device and its homogenous materials ive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). liance with the above EU Directives has been verified	comply with EU Directive 2	g Total Mass 2002/95/EC (RoHS Directive), EU Directive 2011/65/EU (RoH				20.50		Chip (Die)		7.5
ive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). liance with the above EU Directives has been verified remical substance is absent from the list above, the c	comply with EU Directive 2 I via internal design contro :hemical substance is NOT document, there is no cred	g Total Mass 2002/95/EC (RoHS Directive), EU Directive 2011/65/EU (RoH els, supplier declarations, and /or analytical test data. an intentional ingredient in the semiconductor device and ible reason to believe that the unavoidable impurity conce	IS Recast Dire	ctive) and with f Microchip Te	n EU echnology	20.50 0.55		Chip (Die) 7440-21-3	100	0.2
ive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). liance with the above EU Directives has been verified memical substance is absent from the list above, the c porated's knowledge and belief as of the date of this o s not below the threshold of regulatory concern for a	comply with EU Directive 2 I via internal design contro chemical substance is NOT document, there is no cred ny regulatory scheme worl flammability standard for p	g Total Mass 2002/95/EC (RoHS Directive), EU Directive 2011/65/EU (RoH els, supplier declarations, and /or analytical test data. an intentional ingredient in the semiconductor device and ible reason to believe that the unavoidable impurity conce	IS Recast Dire I, to the best o entration of the	ctive) and with f Microchip Te chemical sub	n EU echnology		Doped Silicon	Chip (Die) 7440-21-3 Total Wire Bond palladium coated	100 100.00	
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Directive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). Compliance with the above EU Directives has been verified via internal design controls, supplier declarations, and /or analytical test data. f a chemical substance is absent from the list above, the chemical substance is NOT an intentional ingredient in the semiconductor device and, to the best of Microchip Technology norporated's knowledge and belief as of the date of this document, there is no credible reason to believe that the unavoidable impurity concentration of the chemical substance, if a chemical substance is absent from the U.94 V0 flammability standard for plastics. You can access the UL iQTM family of databases to obtain a test report at thy://uL.com/global/eng/pages/offerings/infunds/infunds/is/fest-femicals/plastics/ The protective "tubes" in which the specific product is shipped are made from polyvinyl choride (PVC) plastic. "Window envelopes" used to hold the packing align on the outer box and certain "reels" may be made from PVC plastic. Wicrochip Technology Incorporated believes the information in this form concerning substances restricted by ROHS in Microchip Technology Incorporated cannot guarantee the completeness and accuracy of data in this form because it has been compiled based on the ranges provided by subcontract assemblers and raw material suppliers. Supplier information is often protected from disclosure as trade secrets and some information may not have been provided by subcontract assemblers and raw material suppliers. Supplier information is othen protected from disclosure as trade secrets and some information may not have been provided by Microchip Technology Incorporated does not provide any warranty, express or implied, with respect to the information provided by Microchip Technology Incorporated does not provide and its subsidiaries are contained within silicon devices (silicon IC) in the finished parts. Wicrochip Technology Incorporated does not provide and its subsidiaries are contained in Microchip's	JEDEC 97 Product Marking and/or Pkg. Labeling e3
Silica, vitrous 90776 98-0 Mold Compound 69.324 199.323 693.522 Silica Silica 90776 96-0 89.01 Percel Rean Trade Secret Mold Compound 4.078 11.991 40.778 Febry Rean Trade Secret 6.11 17.764 61.21 7.77 Percel Rean Trade Secret 6.11 17.764 61.21 7.77 Percel Rean Trade Secret 6.11 17.764 61.21 17.764 61.21 17.764 61.21 17.764 61.21 17.764 61.21 17.764 61.21 17.764 61.21 17.764 61.21 17.72 60.000 17.22 60.000 7.92 7.40.203 2.54 61.72 60.000 7.72 7.40.204 2.54 1.67 80.01 7.40.203 2.54 60.000 7.72 80.00 7.72 80.00 7.72 80.00 7.740.203 2.54 7.40.213 0.42 7.40.213 0.42 7.40.213 0.42 7.40.213 0.42 7.40.213 0.42	79.8
Phenolog Resin Trade Secter Mode Compound 4.078 11.691 40.778 Composite Resin Trade Secter 5.11 Copper 7440-50-8 Lead Frame 0.247 7.09 2.747 100.003<	1
Cathon Black 1333-864 Mold Compound 0.247 0.709 2.474 Cathon Black 1333-864 0.31 Nickel 7440-02-0 Lead Frame 0.267 0.765 2.667 30.10 (mg] Teal Lead Frame 0.31 Silver 7440-02-0 Lead Frame 0.047 0.153 473 Copport 7440-05-0 0.624 17.22 Copport 7440-05-0 0.624 17.22 Copport 7440-05-0 0.624 17.22 0.00 Nickel 7440-05-0 0.624 17.22 0.00 Nickel 7440-05-0 0.624 17.22 0.000 17.20 0.000 75.00 17.00 0.600 7440-05-0 0.645 17.00 75.00 17.00	1
Copper 7440-50-8 Least Frame 10:00 28:671 00:00.00 Nickel 7440-50-8 Least Frame 0.775 2.67 30:10 (mg) Total Least Frame 90:10 10:00 Sliver 7440-52-4 Least Frame 0.017 0.552 1.752 Noted 7460-50-8 95:24 Mignetium 7429-55-4 Least Frame 0.011 0.020 10:5 Noted 7460-50-8 95:24 1.67 Acrysia Bineting Dilgomer General Dilatain 0.150 0.50 1.55 Silese 7440-22-4 1.67 Magenesium 7440-21-3 Chip (Dil) 7.500 21:50 7500 21:50 1.55 Sileser 7440-22-4 0.50 Tin 7440-51 Wire Bond paliadum coated copper (CuPd) 0.004 0.010 3.55 1.50 Acrysite Underson 7440-22-4 00 Tin 7440-51 Barge meant astity 0.75 0.500 2.554 1.200 2.554 1.200 2.554 1.200	
Nicket 7440-02-0 Lead Frame 0.287 0.785 2.887 30.0 (mg) Total Lead Frame % of Total Weight Silvor 7440-02-3 Lead Frame 0.047 0.135 473 Magnesium 7439-95-4 Lead Frame 0.047 0.135 473 Silvor (Ag) 7440-22-4 Die Attach 0.600 1.722 6.000 Silver (740-02-4 1.67 Arylate Urefiname Oligomer Greenal Die Attach 0.600 1.720 6.000 Silver (740-02-4 0.16 Copper 7440-22-3 Wire Bond palladum coaled copper (CuPd) 0.503 1.500 Total 7440-22-3 0.64 Copper 7440-23-3 Wire Bond palladum coaled copper (CuPd) 0.197 2.503 75.000 2.15 (mg) Total Die Attach % of Total Weigh Tin 7440-21-3 Wire Bond palladum coaled copper (CuPd) 0.290 2.854 1.2500 Acreate United Cupmer 4.94 Total Weigh Tin 7440-21-3 Wire Bond palladum coaled copper 1.2500 <t< td=""><td></td></t<>	
Silver 7440-224 Lead Frame 0.175 0.502 17.52 Copper 7440-50.8 95.24 Magnesium 7439-85.4 Lead Frame 0.011 0.033 105 Silver (Ag) 7440-52.4 Die Attach 0.050 1.750 8.000 Acytate Unframe Oligomer General Die Attach 0.050 1.750 1.650 Acytate Unframe Oligomer General Die Attach 0.150 0.430 1.500 Magnesium 7440-52.4 1.67 Silicon 7440-51.3 United Mathematics 0.64 1.750 1.650 Magnesium 7440-52.4 1.67 Copper 7440-50.3 Wire Bord palladium coated copper (CuPd) 0.04 0.010 35 Astrone Copper (CuPd) 0.04 0.010 35 Astrone Copper (CuPd) 1.200 3.584 1.2500 Acytate Unframe Oligome General 0.0 Tin 7440-51.5 Pallogo on estate law (and y and y	
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Tin 7440-31-5 Putting on external leads (priv) - Matte Tin / annealed at 150°C for thoru 12.500 3.584 12.500 Acrylate Urethano Oligome General 201 0.2867 g Total Mass TOTALS: 100.000 286.700 1,000,000 21.50 Total (mg) Chip (Die) %, of Total Weigh is semiconductor devices and its homogenous materials comply with EU Directives 0.2867 g Total Mass Total 100.00 21.50 Total (mg) Chip (Die) %, of Total Weigh mpliance with the above EU Directives has been verified via internal design controls, supplier declarations, and /or analytical test data. Total 0.57 (mg) Total Daped Silicon 7440-21-3 100.00 uchemical substance is absent from the list above, the chemical substance is NOT an intentional ingredient in the semiconductor device and, to the best of Microchip Technology 0.57 (mg) Total Daped Silicon 7440-21-3 100.00 Juin convigiobal/englopase/Softerings/industries/chemical/splastics/ protective 'nubes' in which the specific product is shipped are made from polyvinyl chloride (PVC) plastic. "Wire Bond 0.57 (mg) Total Palladium 7440-05-3 2 Cochper 7440-05-3 2 Cochper 7440-05-3 2 2 To	1
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is semiconductor device and its homogenous materials comply with EU Directive 2002/95/EC (RoHS Directive), EU Directive 2011/65/EU (RoHS Recast Directive) and with EU ective 2002/35/EC (End-of-Life Vehicles (ELV) Directive). mpliance with the above EU Directives has been verified via internal design controls, supplier declarations, and /or analytical test data. chemical substance is absent from the list above, the chemical substance is NOT an intentional ingredient in the semiconductor device and, to the best of Microchip Technology orporated's knowledge and belief as of the date of this document, there is no credible reason to believe that the unavoidable impurity concentration of the chemical substance, if is not below the threshold of regulatory concern for any regulatory scheme world-wide. Iding compounds used by Microchip meet the UL94 V0 flammability standard for plastics. You can access the UL iQTM family of databases to obtain a test report at p//ul.com/global/eng/pages/offerings/industries/chemicals/plastics/ a portective "tubes" in which the specific product is shipped are made from polyvinyl chloride (PVC) plastic. "Window envelopes" used to hold the packing slip on the outer box a certain "reels" may be made from PVC plastic. rerochip Technology Incorporated believes the information in this form concerning substances restricted by ROHS in Microchip Technology Incorporated cannot guarantee the heir original packing materials is true and correct to the best of its knowledge and belief, as of the date listed in this form. Microchip Technology Incorporated cannot guarantee the pplier information is often protected from disclosure as trade secrets and some information may not have been provided by subcontract assemblers and raw material suppliers. rorochip Technology Incorporated dees not provided any warranty, express or implied, with respect to the information provided by subcontract assemblers and raw material suppliers. rorochip Technology Incorporated dees not provide any warranty, expr	
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p://ul.com/global/eng/pages/offerings/industries/chemicals/plastics/ Copper 7440-50-8 98 p: p://ul.com/global/eng/pages/offerings/industries/chemicals/plastics/ Palladium 7440-50-3 2 corochip Technology Incorporated believes the information in this form concerning substances restricted by RoHS in Microchip Technology Incorporated cannot guarantee the information is often protected from disclosure as trade secrets and some information may not have been provided by subcontract assemblers and raw material suppliers. coromation is often protected from disclosure as trade secrets and some information may not have been provided by subcontract assemblers and raw material suppliers. corothip technology Incorporated does not provide any warranty, express or implied, with respect to the information provided in this declaration. The exclusive, limited product information provided by Microchip Technology Incorporated does not provide any warranty, express or implied, with respect to the information provided in Microchip's standard terms and conditions of sale. These are provided in Microchip's 3.58 (mg) Total Plating on external leads (pins) - Matter Tin / annealed at 150°C for / hour % of Total Weigh	0.2
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this Certificate of Compliance for semiconductor products.	1.25

Semiconductor Device Type: MS and UA 8 (Lead) MSOP 3x3mm (A3) "Contained In"				Termination Base Alloy: Copper Alloy (Cu)				geneous Materials: J. pc boards, displays	5)	JEDEC 97 Product Markin and/or Pkg. Labeling e3
Semiconductor Device	Type: MS and UA			1				1		
Basic Substance	CAS Number	"Contained in" Sub-Component	% Total Weight	mg/part	ppm	20.43	(mg) Total	Mold Compound	% ot Total Weight	79.8
Silica, vitreous	60676-86-0	Mold Compound	69.354	17.755	693,542		Silica, vitreous	60676-86-0	86.91	
Epoxy Resin	Trade Secret	Mold Compound	6.121	1.567	61,207		Epoxy Resin	Trade Secret	7.67	
Phenolic Resin	Trade Secret	Mold Compound	4.078	1.044	40,778		Phenolic Resin	Trade Secret	5.11	
Carbon Black	1333-86-4	Mold Compound	0.247	0.063	2,474		Carbon Black	1333-86-4	0.31	
Copper	7440-50-8	Lead Frame	10.031	2.568	100,314			Total		
Iron	7439-89-6	Lead Frame	0.247	0.063	2,468	2.69	(mg) Total	Lead Frame	% of Total Weight	10.5
Silver	7440-22-4	Lead Frame	0.200	0.051	2,000		Copper	7440-50-8	95.54	
Zinc	7440-66-6	Lead Frame	0.013	0.003	131		Iron	7439-89-6	2.35	
Phosphorous	7723-14-0	Lead Frame	0.009	0.002	87		Silver	7440-22-4	1.91	
Silver (Ag)	7440-22-4	Die Attach	0.563	0.144	5,625		Zinc	7440-66-6	0.13	
Modified Epoxy Resin	13561-08-5	Die Attach	0.105	0.027	1,050		Phosphorous	7723-14-0	0.08	
Diglycidylether of bisphenol-F	54208-63-8	Die Attach	0.056	0.014	563			Total		
Modified Amine	827-43-0	Die Attach	0.026	0.007	263	0.19	(mg) Total	Die Attach	% of Total Weight	0.75
Silicon	7440-21-3	Chip (Die)	7.500	1.920	75,000		Silver (Ag)		75	
Copper	7440-50-8	Wire Bond palladium coated copper (CuPd)	0.197	0.050	1,965		Modified Epoxy Resin		14	
Palladium	7440-05-3	Wire Bond palladium coated copper (CuPd)	0.004	0.001	35	Di	glycidylether of bisphenol-F		8	
Tin	7440-31-5	Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	1.250	0.320	12,500		Modified Amine		4	
		TOTALS:	100.000	25.600	1,000,000			Total		
	0.0256	g Total Mass				1.92	Total (mg)	Chip (Die)	% of Total Weight	7.5
tive 2002/53/EC (End-of-Life Vehicles (ELV) Directive).		2002/95/EC (RoHS Directive), EU Directive 2011/65/EU (Roh	IS Recast Dire	ective) and with	h EU		Doped Silicon	7440-21-3 Total	100	
tive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). pliance with the above EU Directives has been verified hemical substance is absent from the list above, the cl porated's knowledge and belief as of the date of this d	via internal design contro hemical substance is NOT locument, there is no crec	ols, supplier declarations, and /or analytical test data. an intentional ingredient in the semiconductor device and lible reason to believe that the unavoidable impurity conce	l, to the best c	of Microchip T	echnology	0.05		7440-21-3 Total Wire Bond - Copper, palladium	100	
tive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). pliance with the above EU Directives has been verified hemical substance is absent from the list above, the cl porated's knowledge and belief as of the date of this d is not below the threshold of regulatory concern for ar ing compounds used by Microchip meet the UL94 V0 f	via internal design contro hemical substance is NOT locument, there is no crec ny regulatory scheme wor 'lammability standard for J	ols, supplier declarations, and /or analytical test data. an intentional ingredient in the semiconductor device and lible reason to believe that the unavoidable impurity conce	d, to the best o entration of the	of Microchip T e chemical sub	echnology	0.05	Doped Silicon	7440-21-3 Total Wire Bond -	100	
tive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). pliance with the above EU Directives has been verified hemical substance is absent from the list above, the cl porated's knowledge and belief as of the date of this d is not below the threshold of regulatory concern for ar ing compounds used by Microchip meet the UL94 V0 f //ul.com/global/eng/pages/offerings/industries/chemica protective "tubes" in which the specific product is ship	via internal design contro hemical substance is NOT locument, there is no crec y regulatory scheme wor lammability standard for als/plastics/	ols, supplier declarations, and /or analytical test data. an intentional ingredient in the semiconductor device and lible reason to believe that the unavoidable impurity conce d-wide.	d, to the best c entration of the to obtain a tes	of Microchip To e chemical sub st report at	echnology ostance, if	0.05	(mg) Total	7440-21-3 Total Wire Bond - Copper, palladium coated (CuPd)	100 100.00 % of Total Weight	
stive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). pliance with the above EU Directives has been verified themical substance is absent from the list above, the cl prorated's knowledge and belief as of the date of this d is not below the threshold of regulatory concern for ar ling compounds used by Microchip meet the UL94 V0 f //ul.com/global/eng/pages/offerings/industries/chemica protective "tubes" in which the specific product is ship certain "reels" may be made from PVC plastic.	via internal design contro hemical substance is NOT locument, there is no crec ny regulatory scheme wor 'lammability standard for plastics/ oped are made from polyv	ols, supplier declarations, and /or analytical test data. an intentional ingredient in the semiconductor device and lible reason to believe that the unavoidable impurity conce d-wide. plastics. You can access the UL iQTM family of databases inyl chloride (PVC) plastic. "Window envelopes" used to h	I, to the best o entration of the to obtain a tes old the packin	of Microchip Tr e chemical sub st report at ng slip on the e	echnology ostance, if outer box	0.05	(mg) Total	7440-21-3 Total Wire Bond - Copper, palladium coated (CuPd) 7440-50-8	100 100.00 % of Total Weight 98 2	0.2
tive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). pliance with the above EU Directives has been verified hemical substance is absent from the list above, the cl porated's knowledge and belief as of the date of this d is not below the threshold of regulatory concern for ar ing compounds used by Microchip meet the UL94 V0 f //ul.com/global/eng/pages/offerings/industries/chemica protective "tubes" in which the specific product is ship certain "reels" may be made from PVC plastic.	via internal design contro hemical substance is NOT locument, there is no crec ny regulatory scheme wor 'lammability standard for als/plastics/ opped are made from polyv on in this form concerning best of its knowledge and has been compiled based trade secrets and some in eight of these parts and th	ols, supplier declarations, and /or analytical test data. an intentional ingredient in the semiconductor device and ible reason to believe that the unavoidable impurity conce d-wide. olastics. You can access the UL iQTM family of databases inyl chloride (PVC) plastic. "Window envelopes" used to h substances restricted by RoHS in Microchip Technology I belief, as of the date listed in this form. Microchip Technology of the ranges provided in Material Safety Data Sheets pro formation may not have been provided by subcontract ass e average weight of anticipated significant toxic metals co	d, to the best o nutration of the to obtain a tes old the packin Incorporated's ology Incorpor vided by raw n emblers and r	of Microchip T e chemical sub st report at ng slip on the o s semiconduct rated cannot g material suppl	echnology ostance, if outer box or devices juarantee the iers. uppliers.	0.05	(mg) Total	7440-21-3 Total Wire Bond - Copper, palladium coated (CuPd) 7440-50-8 7440-05-3	100 100.00 % of Total Weight 98 2	0.2
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	erwise, suffered by users or third parties as a result of	the users' reliance on the in						Tin		100.00	
								u	Total	100.00	100.0

Semiconductor Device Type: SP 28 (Lead) SPDIP .300" (M3 / MD) Contained In" Sub Comparent				Fermination Base Alloy: Copper Alloy (Cu)			Package Homogeneous Materials			
Basic Substance	CAS Number	"Contained In" Sub-Component	% Total Weight	mg/part	ppm	1656.43	(mg) Total	Mold Compound	% ot Total Weight	79.35
Fused Silica	60676-86-0	Mold Compound	57,132	1192.631	571,320	EME-GE800	Fused Silica	60676-86-0	72.00	
Metal Hydro Oxide	Trade Secret	Mold Compound Mold Compound	8.729	182.207	87,285	EMIE-GE000	Metal Hydro Oxide	Trade Secret	11.00	
Epoxy Resin	Trade Secret	Mold Compound	5.555	115.950	55,545		Epoxy Resin	Trade Secret	7.00	
Phenol Resin	Trade Secret	Mold Compound	5.555	115.950	55,545		Phenol Resin	Trade Secret	7.00	
SiO2	14808-60-7	Mold Compound	1.984	41.411	19,838		SiO2	14808-60-7	2.50	
Carbon Black	1333-86-4	Mold Compound	0.397	8.282	3,968		Carbon Black	1333-86-4	0.50	
Copper	7440-50-8	Lead Frame Tape	9.984	208.409	99,837			Total	100.00	
Iron	7439-89-6	Lead Frame Tape	0.246	5.126	2,456	218.14	(mg) Total	Lead Frame	% of Total Weight	10.45
Silver	7440-22-4	Lead Frame Tape	0.199	4.156	1,991	194+AG	Copper	7440-50-8	95.54	
Zinc	7440-66-6	Lead Frame Tape	0.013	0.273	131		Iron	7439-89-6	2.35	
Phosphorous	7723-14-0	Lead Frame Tape	0.009	0.180	86		Silver	7440-22-4	1.91	
Polyimide	25038-81-7	Lead Frame Tape	0.215	4.488	2,150		Zinc	7440-66-6	0.13	
Poly - ethylene – terephthalate	25038-59-9	Lead Frame Tape	0.190	3.966	1,900		Phosphorous	7723-14-0	0.08	
NBR	9003-18-3	Lead Frame Tape	0.035	0.731	350	1	· · · · · · · · · · · · · · · · · · ·	Total	100.00	•
Bismaleimide	79922-55-7	Lead Frame Tape	0.030	0.626	300	10.44	(mg) Total	Lead Frame Tape	% of Total Weight	0.5
Phenol resin	153-20-5 / 9016-8	Lead Frame Tape	0.030	0.626	300	Таре	Polyimide	25038-81-7	43.00	
Silver	7440-22-4	Die Attach	0.550	11.485	5,502		Poly - ethylene - terephthala		38.00	
Epoxy Resin	9003-36-5	Die Attach	0.110	2.297	1,100		NBR	9003-18-3	7.00	
Diluent	3101-60-8	Die Attach	0.055	1,148	550		Bismaleimide	79922-55-7	6.00	
Phenolic hardener	Trade secret	Die Attach	0.022	0.459	220		Phenol resin	28453-20-5 / 9016-83-5	6.00	
Amine type hardener	827-43-0	Die Attach	0.011	0.230	110			Total		1
Dicyandiamide	461-58-5	Die Attach	0.002	0.038	18	15.66	(mg) Total	Die Attach	% of Total Weight	0.75
Silicon	7440-21-3	Chip (Die)	7.500	156.563	75,000	CRM-1064L	Silver	7440-22-4	73.36	0.10
Copper	7440-21-5	Wire Bond palladium coated copper (CuPd)	0.197	4.102	1,965	OKIN-1004E	Epoxy Resin	9003-36-5	14.67	
Palladium	7440-05-3	Wire Bond palladium coated copper (CuPd)	0.004	0.073	35		Diluent	3101-60-8	7.33	
Tin		Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour				-	Dirdon	5101-00-0		
				26.004	12 500		Phenolic hardener	Trado coorot	2.02	
100			1.250	26.094	12,500	_	Phenolic hardener	Trade secret 827-43-0	2.93	
	2.0875 g	TOTALS:	100.000	2,087.500	1,000,000	-	Phenolic hardener Amine type hardener Dicyandiamide	827-43-0 461-58-5	1.47 0.24	
emiconductor device and its homogenous materials	2.0875 c s comply with EU Directive 20	TOTALS:	100.000	2,087.500	1,000,000	-	Amine type hardener	827-43-0	1.47 0.24	
miconductor device and its homogenous materials ve 2002/53/EC (End-of-Life Vehicles (ELV) Directive)	2.0875 g s comply with EU Directive 20	TOTALS: <u>1 Total Mass</u> 102/95/EC (RoHS Directive), EU Directive 2011/65/EU (Ro	100.000	2,087.500	1,000,000	156.56	Amine type hardener	827-43-0 461-58-5	1.47 0.24	7.5
emiconductor device and its homogenous materials ve 2002/53/EC (End-of-Life Vehicles (ELV) Directive) iance with the above EU Directives has been verified emical substance is absent from the list above, the orated's knowledge and belief as of the date of this not below the threshold of regulatory concern for a	2.0875 <u>c</u> s comply with EU Directive 2(). d via internal design control: chemical substance is NOT a document, there is no credit any regulatory scheme world	TOTALS: J Total Mass 102/95/EC (RoHS Directive), EU Directive 2011/65/EU (Ro s, supplier declarations, and /or analytical test data. In intentional ingredient in the semiconductor device and le reason to believe that the unavoidable impurity conc wide.	100.000 HS Recast Dire	2,087.500 ective) and with of Microchip Te e chemical sub	1,000,000 n EU echnology	156.56	Amine type hardener Dicyandiamide	827-43-0 461-58-5 Total Chip (Die) 7440-21-3	1.47 0.24 100.00 % of Total Weight 100	7.5
miconductor device and its homogenous materials re 2002/53/EC (End-of-Life Vehicles (ELV) Directive) ance with the above EU Directives has been verifier mical substance is absent from the list above, the o varted's knowledge and belief as of the date of this not below the threshold of regulatory concern for a g compounds used by Microchip meet the UL94 V0	2.0875 g comply with EU Directive 20 d via internal design controls chemical substance is NOT a document, there is no credit any regulatory scheme world flammability standard for pl	TOTALS: 1 Total Mass 102/95/EC (RoHS Directive), EU Directive 2011/65/EU (Ro s, supplier declarations, and /or analytical test data. In intentional ingredient in the semiconductor device an le reason to believe that the unavoidable impurity conc	100.000 HS Recast Dire	2,087.500 ective) and with of Microchip Te e chemical sub	1,000,000 n EU echnology	156.56	Amine type hardener Dicyandiamide Total (mg)	827-43-0 461-58-5 Total Chip (Die) 7440-21-3 Total	1.47 0.24 100.00 % of Total Weight 100	7.5
miconductor device and its homogenous materials re 2002/53/EC (End-of-Life Vehicles (ELV) Directive) ance with the above EU Directives has been verifier mical substance is absent from the list above, the orated's knowledge and belief as of the date of this not below the threshold of regulatory concern for a g compounds used by Microchip meet the UL94 V0 Loom/global/eng/pages/offerings/Industries/chemic toetive "tubes" in which the specific product is shi	2.0875 g comply with EU Directive 20 d via internal design controls chemical substance is NOT a document, there is no credit any regulatory scheme world flammability standard for pl cals/plastics/	TOTALS: J Total Mass 102/95/EC (RoHS Directive), EU Directive 2011/65/EU (Ro s, supplier declarations, and /or analytical test data. In intentional ingredient in the semiconductor device and le reason to believe that the unavoidable impurity conc wide.	100.000 HS Recast Dire	2,087.500 ective) and with of Microchip Te e chemical sub st report at	1,000,000 n EU echnology ostance, if	4.18	Amine type hardener Dicyandiamide Total (mg)	827-43-0 461-58-5 Total Chip (Die) 7440-21-3	1.47 0.24 100.00 % of Total Weight 100	0.2
miconductor device and its homogenous materials re 2002/53/EC (End-of-Life Vehicles (ELV) Directive) ance with the above EU Directives has been verifier mical substance is absent from the list above, the or vated's knowledge and belief as of the date of this not below the threshold of regulatory concern for a g compounds used by Microchip meet the UL94 VO Lcom/global/eng/pages/offerings/industries/chemic obtective "tubes" in which the specific product is shi tain "reels" may be made from PVC plastic. hip Technology Incorporated believes the informati original packing materials is true and correct to the teness and accuracy of data in this form because it er information is often protected from disclosure as ation is provided only as estimates of the average w	2.0875 c comply with EU Directive 2(), d via internal design controls chemical substance is NOT a document, there is no credit any regulatory scheme world iflammability standard for pl cals/plastics/ ipped are made from polyvin ion in this form concerning s e best of its knowledge and l t has been compiled based o strade secrets and some info	TOTALS: J Total Mass 102/95/EC (RoHS Directive), EU Directive 2011/65/EU (Ro is, supplier declarations, and /or analytical test data. In intentional ingredient in the semiconductor device an le reason to believe that the unavoidable impurity conc- wide. astics. You can access the UL iQTM family of databases yl chloride (PVC) plastic. "Window envelopes" used to l ubstances restricted by RoHS in Microchip Technology belief, as of the date listed in this form. Microchip Technology belief, as of the date listed in this form. Microchip Technology rmation may not have been provided by subcontract as average weight of anticipated significant toxic metals c	100.000 HS Recast Dire d, to the best d entration of th to obtain a te: hold the packin loogy Incorpo ovided by raw semblers and	2,087.500 ective) and with of Microchip Te e chemical sub st report at ng slip on the o s semiconduct rated cannot g material suppi	1,000,000 a EU echnology sstance, if puter box or devices uarantee the iers.	4.18	Amine type hardener Dicyandiamide Total (mg) Doped Silicon	827-43-0 461-58-5 Total Chip (Die) 7440-21-3 Total Wire Bond palladium coated	1.47 0.24 100.00 % of Total Weight 100 100.00	
miconductor device and its homogenous materials e 2002/53/EC (End-of-Life Vehicles (ELV) Directive) ance with the above EU Directives has been verifier mical substance is absent from the list above, the or rated's knowledge and belief as of the date of this not below the threshold of regulatory concern for a g compounds used by Microchip meet the UL94 V0 .com/global/eng/pages/offerings/industries/chemic tective "tubes" in which the specific product is shi tain "reels" may be made from PVC plastic. hip Technology Incorporated believes the informati original packing materials is true and correct to the teness and accuracy of data in this form because it ir information is often protected from disclosure as tion is provided only as estimates of the average w trace levels of dopants, metals, and non-metal mat hip Technology Incorporated does not provide any les provided by Microchip Technology Incorporated	2.0875 c comply with EU Directive 20 d via internal design controls chemical substance is NOT a document, there is no credit any regulatory scheme world flammability standard for pl cals/plastics/ ipped are made from polyvin ion in this form concerning s e best of its knowledge and 1 thas been compiled based o s trade secrets and some info tegisht of these parts and the terials contained within silic: warranty, express or implied	TOTALS: J Total Mass 102/95/EC (RoHS Directive), EU Directive 2011/65/EU (Ro is, supplier declarations, and /or analytical test data. In intentional ingredient in the semiconductor device an le reason to believe that the unavoidable impurity conc- wide. astics. You can access the UL iQTM family of databases yl chloride (PVC) plastic. "Window envelopes" used to l ubstances restricted by RoHS in Microchip Technology belief, as of the date listed in this form. Microchip Technology belief, as of the date listed in this form. Microchip Technology rmation may not have been provided by subcontract as average weight of anticipated significant toxic metals c	100.000 HS Recast Dire entration of th to obtain a ter hold the packin lincorporated ology Incorpo ovided by raw semblers and omponents. Th ation. The exc	2,087.500 ective) and with of Microchip Tr e chemical sub st report at ng slip on the c s semiconduct rated cannot g material suppli raw material suppli raw material suppli raw settimates lusive, limited	1,000,000 a EU achnology ustance, if puter box or devices uarantee the iers. do not product	4.18	Amine type hardener Dicyandiamide Total (mg) Doped Silicon (mg) Total	827-43-0 461-58-5 Total Chip (Die) 7440-21-3 Total Wire Bond palladium coated copper (CuPd)	1.47 0.24 100.00 % of Total Weight 100 100.00 % of Total Weight	
emiconductor device and its homogenous materials ve 2002/53/EC (End-of-Life Vehicles (ELV) Directive) iance with the above EU Directives has been verified emical substance is absent from the list above, the or orated's knowledge and belief as of the date of this not below the threshold of regulatory concern for a g compounds used by Microchip meet the UL94 V0 il.com/global/eng/pages/offerings/industries/chemic otective "tubes" in which the specific product is shi rtain "reels" may be made from PVC plastic. hip Technology Incorporated believes the informati e information is often protected from disclosure as ation is provided only as estimates of the average w terace levels of dopants, metals, and non-metal mat hip Technology Incorporated does not provide any ties provided by Microchip Technology Incorporate ions, sales order acknowledgement, and invoices. hip disclaims any duty to notify users of updates on	2.0875 c comply with EU Directive 20). d via internal design control: chemical substance is NOT a document, there is no credit any regulatory scheme world flammability standard for pl cals/plastics/ ipped are made from polyvin ion in this form concerning s e best of its knowledge and 1 thas been compiled based o strade secrets and some info weight of these parts and the terials contained within silic warranty, express or implied ad and its subsidiaries are co r changes to Material Conten the users' reliance on the int	TOTALS: Total Mass 102/95/EC (RoHS Directive), EU Directive 2011/65/EU (Ro s, supplier declarations, and /or analytical test data. In intentional ingredient in the semiconductor device an le reason to believe that the unavoidable impurity conc wide. astics. You can access the UL iQTM family of databases yl chloride (PVC) plastic. "Window envelopes" used to l ubstances restricted by RoHS in Microchip Technology belief, as of the date listed in this form. Microchip Technology belief, as of the date listed in this form. Microchip Technology rmation may not have been provided by subcontract as average weight of anticipated significant toxic metals c on devices (silicon IC) in the finished parts.	100.000 HS Recast Dire entration of th to obtain a te: hold the packii lncorporated' ology Incorpo ovided by raw semblers and omporents. TI ation. The exc f sale. These a direct or indire	2,087.500 ective) and with of Microchip Te e chemical sub st report at ng slip on the c s semiconduct rated cannot g material sup raw material su nese estimates lusive, limited are provided in act, consequent	a EU echnology stance, if puter box or devices uarantee the iers. uppliers. do not product Microchip's tial or	4.18	Amine type hardener Dicyandiamide Total (mg) Doped Silicon (mg) Total Copper	827-43-0 461-58-5 Total Chip (Die) 7440-21-3 Total Wire Bond palladium coated copper (CuPd) 7440-50-8 7440-05-3 Total	1.47 0.24 100.00 % of Total Weight 100 100.00 % of Total Weight 98	
miconductor device and its homogenous materials re 2002/53/EC (End-of-Life Vehicles (ELV) Directive) ance with the above EU Directives has been verifier mical substance is absent from the list above, the c rated's knowledge and belief as of the date of this not below the threshold of regulatory concern for a g compounds used by Microchip meet the UL94 V0 Loom/global/eng/pages/offerings/industries/chemic otective "tubes" in which the specific product is shi tain "reels" may be made from PVC plastic. hip Technology Incorporated believes the informati original packing materials is true and correct to the teness and accuracy of data in this form because is er information is often protected from disclosure as titon is provided only as estimates of the average w trace levels of dopants, metals, and non-metal mal hip Technology Incorporated does not provide any lies provided by Microchip Technology Incorporate ons, sales order acknowledgement, and invoices. hip disclaims any duty to notify parties as a result of se, suffered by users or third parties as a result of	2.0875 c comply with EU Directive 20). d via internal design control: chemical substance is NOT a document, there is no credit any regulatory scheme world flammability standard for pl cals/plastics/ ipped are made from polyvin ion in this form concerning s e best of its knowledge and 1 thas been compiled based o strade secrets and some info weight of these parts and the terials contained within silic warranty, express or implied ad and its subsidiaries are co r changes to Material Conten the users' reliance on the int	TOTALS: Total Mass 102/95/EC (RoHS Directive), EU Directive 2011/65/EU (Ro s, supplier declarations, and /or analytical test data. In intentional ingredient in the semiconductor device an le reason to believe that the unavoidable impurity conc wide. astics. You can access the UL iQTM family of databases yl chloride (PVC) plastic. "Window envelopes" used to l ubstances restricted by RoHS in Microchip Technology belief, as of the date listed in this form. Microchip Technology average weight of anticipated significant toxic metals c on devices (silicon IC) in the finished parts. I, with respect to the information provided in this declar ntained in Microchip's standard terms and conditions o t Declarations and shall not be liable for any damages, i	100.000 HS Recast Dire entration of th to obtain a te: hold the packii lncorporated' ology Incorpo ovided by raw semblers and omporents. TI ation. The exc f sale. These a direct or indire	2,087.500 ective) and with of Microchip Te e chemical sub st report at ng slip on the c s semiconduct rated cannot g material sup raw material su nese estimates lusive, limited are provided in act, consequent	a EU echnology stance, if puter box or devices uarantee the iers. uppliers. do not product Microchip's tial or	4.18	Amine type hardener Dicyandiamide Total (mg) Doped Silicon (mg) Total Copper	827-43-0 461-58-5 Total Chip (Die) 7440-21-3 Total Wire Bond palladium coated copper (CuPd) 7440-50-8 7440-05-3	1.47 0.24 100.00 % of Total Weight 100 100.00 % of Total Weight 98	
miconductor device and its homogenous materials e 2002/53/EC (End-of-Life Vehicles (ELV) Directive) ance with the above EU Directives has been verifier mical substance is absent from the list above, the c rated's knowledge and belief as of the date of this not below the threshold of regulatory concern for a g compounds used by Microchip meet the UL94 V0 .com/global/eng/pages/offerings/industries/chemic tective "tubes" in which the specific product is shi tain "reels" may be made from PVC plastic. hip Technology Incorporated believes the informati original packing materials is true and correct to the teness and accuracy of data in this form because is r information is often protected from disclosure as tion is provided only as estimates of the average w trace levels of dopants, metals, and non-metal mal hip Technology Incorporated does not provide any les provided by Microchip Technology Incorporates nos, sales order acknowledgement, and invoices. hip disclaims any duty to notify users of updates or se, suffered by users or third parties as a result of	2.0875 c comply with EU Directive 20). d via internal design control: chemical substance is NOT a document, there is no credit any regulatory scheme world flammability standard for pl cals/plastics/ ipped are made from polyvin ion in this form concerning s e best of its knowledge and 1 thas been compiled based o strade secrets and some info weight of these parts and the terials contained within silic warranty, express or implied ad and its subsidiaries are co r changes to Material Conten the users' reliance on the int	TOTALS: Total Mass 102/95/EC (RoHS Directive), EU Directive 2011/65/EU (Ro s, supplier declarations, and /or analytical test data. In intentional ingredient in the semiconductor device an le reason to believe that the unavoidable impurity conc wide. astics. You can access the UL iQTM family of databases yl chloride (PVC) plastic. "Window envelopes" used to l ubstances restricted by RoHS in Microchip Technology belief, as of the date listed in this form. Microchip Technology average weight of anticipated significant toxic metals c on devices (silicon IC) in the finished parts. I, with respect to the information provided in this declar ntained in Microchip's standard terms and conditions o t Declarations and shall not be liable for any damages, i	100.000 HS Recast Dire entration of th to obtain a te: hold the packii lncorporated' ology Incorpo ovided by raw semblers and omporents. TI ation. The exc f sale. These a direct or indire	2,087.500 ective) and with of Microchip Te e chemical sub st report at ng slip on the c s semiconduct rated cannot g material sup raw material su nese estimates lusive, limited are provided in act, consequent	a EU echnology stance, if puter box or devices uarantee the iers. uppliers. do not product Microchip's tial or	4.18	Amine type hardener Dicyandiamide Total (mg) Doped Silicon (mg) Total Copper Palladium	827-43-0 461-58-5 Total Chip (Die) 7440-21-3 Total Wire Bond palladium coated copper (CuPd) 7440-50-8 7440-05-3 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for	1.47 0.24 100.00 % of Total Weight 100 % of Total Weight 98 2 2 100.00 % of Total Weight 100.00	0.2

Desire CASE Number Constructed in the first origination of the second					Termination Base Alloy: Copper Alloy (Cu)			Package Homogeneous Materials: 8.1 Electronics (e.g. pc boards, displays)			
Sector 0007/840 Model Componed 60.24 65.06 0007.840 <			"Contained In"				62.24	(mg) Total	Mold Compound	% ot Total Weight	79.8
Enory Rem Tade Sect Mod Compand 6.12 7.47.4 6.1207 Provide Rem Tade Sect Mod Compand 6.02 7.47.4 6.1207 Concept Sta Tade Sect 7.40			-	•				Ciliae vitreeve	60676.96.0	96.01	
Binotic Biain Total Sortel Model Compound 0.278 3.181 4.0778 Carbon Black 1333.864 Model Compound 0.287 3.181 4.0778 Carbon Black 1333.864 Model Compound 0.297 10.314 2.078 10.314 0.31 0.310											
$ \frac{Carbon Black}{C} 1333 64 \\ Carbon Black}{C}$											
$ \frac{1}{100} + \frac{1}{7460.96} = \frac{1}{100} + \frac{1}{7460.96} + \frac{1}{100} + \frac{1}{10$											
Inc. 7436-96-9 Lead Frame 0.247 0.156 2.06 8.19 (m) Total Lead Frame 10.2 2000 74462-24 Lead Frame 0.233 0.014 0.026										100.00	
Silver 7440224 Lead Fame 0.200 0.556 2.000 0.556 2.000 1556 2.000 1556 2.000 1556 2.000 1556 2.000 1556 2.000 1556 2.000 1556 2.000 1556 2.000 1556 2.000 1556 2.000 1556 2.000 1556 2.000 1556 2.000 1556 1550 1560 1550 1560 1560 1560 1560 1560 1560 1560 1560 1560 1560 1560 1560 1560							8.19	(mg) Total	Lead Frame	% of Total Weight	10.5
Data Type Lade Finne 0.013 0.010 131 Byorkhows T/2514-0 Lead Finne 0.020 67 Share (Ag) T/2514-0 Lead Finne 0.053 0.439 6.055 Share (Ag) T/2614-0 Lead Finne 0.053 0.439 6.055 Digrady-their at lightman F 5202-653 Digrady-their at lightman F 520-653 Total Digrady-their at lightman F 520-653 Total 520-653 Total Digrady-their at lightman F 520-655 Total Total Digrady-their at lightman F 520-55 Total Total Total Total Total	Silver	7440-22-4	Lead Frame	0.200		2.000					
Phosphorus 773-14-0 Lead Frame 0.009 0.07 67 Modical Egycy Rein 13681-08-6 Die Altach 0.105 0.032 1.00 2.000 772-14-0 0.000 772-14-0 100.00 772-14-0 100.00 772-14-0 100.00 72-00 10000 72-00 <td></td>											
Modified Exposy Resin 1358-106-5 Die Attach 0.105 0.082 1.600 Diglycic/jefter of bighnock-F 64200-65-8 Die Attach 0.065 0.044 563 Die Attach 0.065 0.044 563 Modified Exposy Resin 827-45-0 Die Attach 0.065 0.020 263 0.99 regit Test Note Test	Phosphorous	7723-14-0		0.009	0.007	87					
Diglycic/ellever of bispherol-F 6520 Die Attach 0.066 0.044 653 Unter the test of	Silver (Ag)	7440-22-4	Die Attach	0.563	0.439	5,625		Zinc	7440-66-6	0.13	
Modified Ammine 827-63-0 Die Attach % of Total Weight 0.75 Silicon 7440-21-3 Chip (Die) 7,500 5.80 75,000 Silicon 760 6.25 (mg) Total Die Attach % of Total Weight 0.75 Copper 7440-50-8 Wire Bond palladium coated coper (G/R4) 0.004 0.038 35 1.965 Tin 7440-50-8 Wire Bond palladium coated coper (G/R4) 0.004 0.038 35 1.965 Modified Ammine 827-83-0 1.0000 750 5.80 1.0000	Modified Epoxy Resin	13561-08-5	Die Attach	0.105	0.082	1,050		Phosphorous	7723-14-0	0.08	
Siltor7440-21-3Chip (Die)7.5006.86075.000Copper7440-50-8Wire Bord palladium coaled copper (CuPd)0.1931.1930.1531.196Tin7440-51-5Pulladium coaled copper (CuPd)0.0040.0033.51.000,000To7440-51-5Pulladium coaled copper (CuPd)0.0040.0033.5Tin7440-51-5Pulladium coaled copper (CuPd)0.0040.00751.200,000To0.0780 g Total MassTotal winnessist at 100° ter tire).Total winnessist at 100° ter tire).1.500Total0.0780 g Total MassTotal winnessist at 200° ter tire).Total winnessist at 200° ter tire).1.000Norder's handling for the shore (CuPd)0.0111 (CuPd)1.0101.0001.000Total0.0000Total winnessist1.0001.0001.000Total0.016(mg) Total Wash1.0001.0001.000Total0.016(mg) Total Wash1.0001.0001.000Total100.001.0001.0001.0001.0001.000Total100.001.0001.0001.0001.0001.000Total1.0001.0001.0001.0001.0001.000Total1.0001.0001.0001.0001.0001.000Total1.0001.0001.0001.0001.0001.000Total1.0001.0001.0001.0001.0001.000Total1.000 <td>Diglycidylether of bisphenol-F</td> <td>54208-63-8</td> <td>Die Attach</td> <td>0.056</td> <td>0.044</td> <td></td> <td></td> <td></td> <td>Total</td> <td>100.00</td> <td></td>	Diglycidylether of bisphenol-F	54208-63-8	Die Attach	0.056	0.044				Total	100.00	
Copper 7440-50-81 Wire Boord palladium coaled copper (CuPd) 0.197 0.183 1.065 Tin 7440-51-5 Puil go a exernal load gooper (CuPd) 0.004 3.00	Modified Amine	827-43-0	Die Attach	0.026	0.020	263	0.59	(mg) Total	Die Attach	% of Total Weight	0.75
Pailadum 7440-05-3 Wire Bond pailadum coated copper (C)/Pi) 0.004 0.033 35 Tin 7440-31-5 Purgo on extemal loads (pm). Mates TV anneaded at 190° (V IIIV) 1.250 1.000.00 78.000 1,000.00 78.000 1,000.00 5.55 Total (Pm) Voltadie Annie Pail 75.000 1000.00 Intel DU Prective 2002/35EC (End-of-Life Vehicles (ELV) Directive). 2002/35EC (End-of-Life Vehicles (ELV) Directive). 100.00 74.00.11 100.00 74.00.11 100.00 74.00.11 100.00 74.00.11 100.00 1	Silicon	7440-21-3	Chip (Die)	7.500	5.850	75,000		Silver (Ag)	7440-22-4	75	
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Iron 743-98-6 Lead Frame 0.247 1.901 2.468 06.09 (mg) Total Lead Frame % of Total Weight Silver 7440-224 Lead Frame 0.001 1.511 2.000 95.54 95.54 Prosphorous 7723-14-0 Lead Frame 0.001 1.01 1.31 Inon 743-98-96 2.35 Silver (Ag) 7440-224 Die Attach 0.500 4.622 6.000 2.067 7440-96-6 0.031 Arytato Urethane Oligomer General Die Attach 0.500 1.550 75.00 77.00 77.00 77.20 77.20 77.20 77.20 77.20 77.20 77.20 77.20 77.20 77.20 77.20 77.20 77.20 77.20 77.20 77.20 75.00 75.700 75.700 75.700 75.700 75.700 75.78 (mg) Total Main 2.24 80 Copper 77.40-05.3 Wire Bond palladum coated copper (CuPd) 0.004 0.027 35 Steret (Mg) 7440-	
Silver 7440-22-4 Lead Frame 0.200 1.541 2.000 Zinc 7440-66-6 Lead Frame 0.013 0.101 131 Phosphorous 7723-14-0 Lead Frame 0.009 0.067 87 Silver (Ag) 7740-22-4 Die Attach 0.069 4.87 5.16 5.00 Acrylate Urehane Olgomer General Die Attach 0.150 1.156 1.500 7723-14-0 0.08 Copper 7440-25-3 Wire Bond paladium coated copper (CuPd) 0.197 1.514 1.965 5.78 (mg) Total Die Attach % of Total Weight Palacium 7440-25-3 Wire Bond paladium coated copper (CuPd) 0.004 0.027 35 (mg) Total Die Attach % of Total Weight Tin 7440-31-5 Paling on examinates (grap) - Mate Tri ameada at 10°C EV to Loc 1.250 Acrylate Urehane Color 7440-22-4 80 Cherica Del Mass 5.778 (mg) Total Die Attach % of Total Weight Steice Clanck-Lif Weight 100.00 770400	10.5
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TOTALS: 100.000 770.400 1,000,000 Total 100.00 OTALS: 100.00 770.400 1,000,000 57.78 Total (mg) Chip (bie) % of Total Weight Semiconductor device and its homogenous materials comply with EU Directive 2002/95/EC (RoHS Directive), EU Directive 2011/65/EU (RoHS Recast Directive) and with EU Doped Silicon 7440-21-3 100 uppliance with the above EU Directives has been verified via internal design controls, supplier declarations, and /or analytical test data. Total 100.00 ting compounds used by Microchip meet the UL94 V0 flammability standard for plastics. You can access the UL iQTM family of databases to obtain a test report at ://ul.com/global/eng/pages/offerings/industries/chemicals/plastics/ Mire Bond paladium coated copper (CuPd) % of Total Weight copper (CuPd) protective "tubes" in which the specific product is shipped are made from polyvinyl chloride (PVC) plastic. "Window envelopes" used to hold the packing slip on the outer box certain "reels" may be made from PVC plastic. Copper 7440-05-3 2 total 100.00 Total 100.00 Total 100.00	
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mation is provided only as estimates of the average weight of these parts and the average weight of anticipated significant toxic metals components. These estimates do not de trace levels of dopants, metals, and non-metal materials contained within silicon devices (silicon IC) in the finished parts.	
rochip Technology Incorporated does not provide any warranty, express or implied, with respect to the information provided in this declaration. The exclusive, limited product ranties provided by Microchip Technology Incorporated and its subsidiaries are contained in Microchip's standard terms and conditions of sale. These are provided in Microchip's 9.63 (mg) Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour % of Total Weight tations, sales order acknowledgement, and invoices.	
rochip disclaims any duty to notify users of updates or changes to Material Content Declarations and shall not be liable for any damages, direct or indirect, consequential or	1.25

Tin

770.400

7440-31-5

Total

100.00

100.00

3:10 PM : 5/2/2014

CROCHIP	a Type: SM 08 //	SOIJ (Small Outline-208 mil) (C3)	Termination Base Alloy: Copper Alloy (Cu)			Package Homogeneous Materials: 8.1 Electronics (e.g. pc boards, displays)				JEDEC 97 Product Markin and/or Pkg. Labeling e3
Semiconductor Device	e Type. Sivi 00 (Lead	"Contained In"	% Total	1						
Basic Substance	CAS Number	Sub-Component	Weight	mg/part	ppm	99.27	(mg) Total	Mold Compound	% ot Total Weight	79.8
Silica, vitreous	60676-86-0	Mold Compound	69.354	86.277	693,542		Silica, vitreous	60676-86-0	86.91	
Epoxy Resin	Trade Secret	Mold Compound	6.121	7.614	61,207		Epoxy Resin	Trade Secret	7.67	
Phenolic Resin	Trade Secret	Mold Compound	4.078	5.073	40,778		Phenolic Resin	Trade Secret	5.11	
Carbon Black	1333-86-4	Mold Compound	0.247	0.308	2,474		Carbon Black	1333-86-4	0.31	
Copper	7440-50-8	Lead Frame	10.031	12.479	100,314			Total	100.00	
Iron	7439-89-6	Lead Frame	0.247	0.307	2,468	13.06	(mg) Total	Lead Frame	% of Total Weight	10.5
Silver	7440-22-4	Lead Frame	0.200	0.249	2,000		Copper	7440-50-8	95.54	
Zinc	7440-66-6	Lead Frame	0.013	0.016	131		Iron	7439-89-6	2.35	
Phosphorous	7723-14-0	Lead Frame	0.009	0.011	87		Silver	7440-22-4	1.91	
Silver (Ag)	7440-22-4	Die Attach	0.563	0.700	5,625		Zinc	7440-66-6	0.13	
Modified Epoxy Resin	13561-08-5	Die Attach	0.105	0.131	1,050		Phosphorous	7723-14-0	0.08	
Diglycidylether of bisphenol-F	54208-63-8	Die Attach	0.056	0.070	563			Total	100.00	
Modified Amine	827-43-0	Die Attach	0.026	0.033	263	0.93	(mg) Total	Die Attach	% of Total Weight	0.75
Silicon	7440-21-3	Chip (Die)	7.500	9.330	75.000		Silver (Ag)	7440-22-4	75	
Copper	7440-50-8	Wire Bond palladium coated copper (CuPd)	0.197	0.244	1,965		Modified Epoxy Resin	13561-08-5	14	
Palladium	7440-05-3	Wire Bond palladium coated copper (CuPd)	0.004	0.004	35	Di	glycidylether of bisphenol-F	54208-63-8	8	
Tin	7440-31-5	Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	1.250	1.555	12,500		Modified Amine	827-43-0	4	
		TOTALS:	100.000	124.400	1,000,000		<u>u</u>	Total	100.00	
	comply with EU Directive 2	g Total Mass 002/95/EC (RoHS Directive), EU Directive 2011/65/EU (RoH				9.33	Total (mg) Doped Silicon	Chip (Die) 7440-21-3	% of Total Weight	7.5
ve 2002/53/EC (End-of-Life Vehicles (ELV) Directive). liance with the above EU Directives has been verified emical substance is absent from the list above, the c orated's knowledge and belief as of the date of this (comply with EU Directive 2 d via internal design contro chemical substance is NOT document, there is no cred	g Total Mass 002/95/EC (RoHS Directive), EU Directive 2011/65/EU (RoH Is, supplier declarations, and /or analytical test data. an intentional ingredient in the semiconductor device and ble reason to believe that the unavoidable impurity conce	IS Recast Dire	ctive) and with	n EU echnology	9.33		Chip (Die)		0.2
ve 2002/53/EC (End-of-Life Vehicles (ELV) Directive). liance with the above EU Directives has been verified emical substance is absent from the list above, the orated's knowledge and belief as of the date of this is not below the threshold of regulatory concern for a ng compounds used by Microchip meet the UL94 V0	comply with EU Directive 2 d via internal design contro :hemical substance is NOT document, there is no cred ny regulatory scheme work flammability standard for p	g Total Mass 002/95/EC (RoHS Directive), EU Directive 2011/65/EU (RoH Is, supplier declarations, and /or analytical test data. an intentional ingredient in the semiconductor device and ble reason to believe that the unavoidable impurity conce	IS Recast Dire d, to the best c entration of the	ctive) and with of Microchip To e chemical sub	n EU echnology		Doped Silicon	Chip (Die) 7440-21-3 Total Wire Bond - Copper, palladium	100 100.00	
ve 2002/53/EC (End-of-Life Vehicles (ELV) Directive). liance with the above EU Directives has been verified emical substance is absent from the list above, the c orated's knowledge and belief as of the date of this is in ot below the threshold of regulatory concern for a g compounds used by Microchip meet the UL94 VO ul.com/global/eng/pages/offerings/industries/chemic otective "tubes" in which the specific product is shi	comply with EU Directive 2 d via internal design contro shemical substance is NOT document, there is no cred ny regulatory scheme work flammability standard for p rals/plastics/	g Total Mass 002/95/EC (RoHS Directive), EU Directive 2011/65/EU (RoH Is, supplier declarations, and /or analytical test data. an intentional ingredient in the semiconductor device and ble reason to believe that the unavoidable impurity conce s-wide.	IS Recast Dire d, to the best c entration of the to obtain a tes	ctive) and with of Microchip Tr e chemical sub at report at	n EU echnology ostance, if		(mg) Total	Chip (Die) 7440-21-3 Total Wire Bond - Copper, palladium coated (CuPd)	100 100.00 % of Total Weight	
ve 2002/53/EC (End-of-Life Vehicles (ELV) Directive). liance with the above EU Directives has been verified emical substance is absent from the list above, the c orated's knowledge and belief as of the date of this not below the threshold of regulatory concern for a to compounds used by Microchip meet the UL94 V0 ul.com/global/eng/pages/offerings/industries/chemic otective "tubes" in which the specific product is shi ertain "reels" may be made from PVC plastic.	comply with EU Directive 2 d via internal design contro chemical substance is NOT document, there is no cred ny regulatory scheme work flammability standard for p rals/plastics/ pped are made from polyvi	g Total Mass 002/95/EC (RoHS Directive), EU Directive 2011/65/EU (RoH Is, supplier declarations, and /or analytical test data. an intentional ingredient in the semiconductor device and ble reason to believe that the unavoidable impurity conce d-wide. lastics. You can access the UL iQTM family of databases nyl chloride (PVC) plastic. "Window envelopes" used to h	IS Recast Dire d, to the best c entration of the to obtain a tes iold the packin	ctive) and with of Microchip To e chemical sub at report at ng slip on the o	n EU echnology ostance, if		Copper	Chip (Die) 7440-21-3 Total Wire Bond - Copper, palladium coated (CuPd) 7440-50-8	100 100.00 % of Total Weight 98	
ve 2002/53/EC (End-of-Life Vehicles (ELV) Directive). liance with the above EU Directives has been verified emical substance is absent from the list above, the c orated's knowledge and belief as of the date of this s is not below the threshold of regulatory concern for a g compounds used by Microchip meet the UL94 VO ul.com/global/eng/pages/offerings/industries/chemic rotective "tubes" in which the specific product is shi rtain "reels" may be made from PVC plastic. The Technology Incorporated believes the informatii r original packing materials is true and correct to the eteness and accuracy of data in this form because it er information is often protected from disclosure as	comply with EU Directive 2 d via internal design contro shemical substance is NOT document, there is no cred ny regulatory scheme work flammability standard for p als/plastics/ pped are made from polyvi on in this form concerning b best of its knowledge and has been compiled based trade secrets and some inf	g Total Mass 002/95/EC (RoHS Directive), EU Directive 2011/65/EU (RoH Is, supplier declarations, and /or analytical test data. an intentional ingredient in the semiconductor device and ble reason to believe that the unavoidable impurity conce 4-wide. lastics. You can access the UL iQTM family of databases nyl chloride (PVC) plastic. "Window envelopes" used to h substances restricted by RoHS in Microchip Technology belief, as of the date listed in this form. Microchip Technology ormation may not have been provided by subcontract ass a verage weight of anticipated significant toxic metals co	IS Recast Dire d, to the best o entration of the to obtain a tes old the packin Incorporated's ology Incorpor wided by raw i semblers and r	ctive) and with of Microchip Tr e chemical sut at report at ng slip on the o s semiconduct rated cannot g material suppl aw material suppl	n EU echnology sstance, if outer box or devices juarantee the iers. appliers.		Copper	Chip (Die) 7440-21-3 Total Wire Bond - Copper, palladium coated (CuPd) 7440-50-8 7440-05-3	100 100.00 % of Total Weight 98 2	
ive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). liance with the above EU Directives has been verified emical substance is absent from the list above, the c orated's knowledge and belief as of the date of this of not below the threshold of regulatory concern for a ng compounds used by Microchip meet the UL94 VO ul.com/global/eng/pages/offerings/industries/chemic otective "tubes" in which the specific product is shi rtain "reels" may be made from PVC plastic. chip Technology Incorporated believes the informatic re original packing materials is true and correct to the teeness and accuracy of data in this form because it ier information is often protected from disclosure as ation is provided only as estimates of the average w e trace levels of dopants, metals, and non-metal mat chip Technology Incorporated does not provide any	comply with EU Directive 2 d via internal design contro shemical substance is NOT document, there is no cred ny regulatory scheme work flammability standard for p ials/plastics/ pped are made from polyvi on in this form concerning b best of its knowledge and has been compiled based trade secrets and some int eight of these parts and the rials contained within silit warranty, express or implie	g Total Mass 002/95/EC (RoHS Directive), EU Directive 2011/65/EU (RoH Is, supplier declarations, and /or analytical test data. an intentional ingredient in the semiconductor device and ble reason to believe that the unavoidable impurity conce 4-wide. lastics. You can access the UL iQTM family of databases nyl chloride (PVC) plastic. "Window envelopes" used to h substances restricted by RoHS in Microchip Technology belief, as of the date listed in this form. Microchip Technology ormation may not have been provided by subcontract ass a verage weight of anticipated significant toxic metals co	IS Recast Dire d, to the best of entration of the to obtain a tes iold the packin Incorporated's ology Incorpor ivided by raw i semblers and r mponents. Th	ctive) and with of Microchip To e chemical sub at report at ag slip on the of s semiconduct rated cannot g material sup aw material sup aw material sup aw material sup aw material sup aw material sup aw material sup	n EU echnology sstance, if outer box or devices juarantee the iers. ado not ppliers. do not		Copper	Chip (Die) 7440-21-3 Total Wire Bond - Copper, palladium coated (CuPd) 7440-50-8 7440-05-3	100 100.00 % of Total Weight 98 2	
ive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). liance with the above EU Directives has been verified emical substance is absent from the list above, the c orated's knowledge and belief as of the date of this is not below the threshold of regulatory concern for a ag compounds used by Microchip meet the UL94 V0 ul.com/global/eng/pages/offerings/industries/chemic otective "tubes" in which the specific product is shi ertain "reels" may be made from PVC plastic. The provided only as estimates of the average we terness and accuracy of data in this form because it er information is often protected from disclosure as ation is provided only as estimates of the average we trace levels of dopants, metals, and non-metal mat thip Technology Incorporated does not provide any tites provided by Microchip Technology Incorporates ions, sales order acknowledgement, and invoices.	comply with EU Directive 2 d via internal design contro chemical substance is NOT document, there is no cred ny regulatory scheme work flammability standard for p als/plastics/ pped are made from polyvi on in this form concerning best of its knowledge and has been compiled based thade secrets and some inf eight of these parts and the erials contained within silie warranty, express or implied d and its subsidiaries are c changes to Material Conte the users' reliance on the in	g Total Mass 0002/95/EC (RoHS Directive), EU Directive 2011/65/EU (RoH Is, supplier declarations, and /or analytical test data. an intentional ingredient in the semiconductor device and ble reason to believe that the unavoidable impurity conce 4-wide. lastics. You can access the UL iQTM family of databases nyl chloride (PVC) plastic. "Window envelopes" used to h substances restricted by RoHS in Microchip Technology belief, as of the date listed in this form. Microchip Technology belief, as of the date listed in Material Safety Data Sheets pro ormation may not have been provided by subcontract ass e average weight of anticipated significant toxic metals co con devices (silicon IC) in the finished parts. d, with respect to the information provided in this declaration.	IS Recast Dire d, to the best of entration of the to obtain a tes old the packin incorporated's ology Incorpor incorporated's ology Incorpor semblers and r semblers and r mponents. Th ation. The excl i sale. These at	ctive) and with of Microchip Tr a chemical sub it report at ing slip on the of a semiconduct rated cannot g material suppl aw material sup	n EU echnology ostance, if outer box or devices juprantee the iers. uppliers. do not product Microchip's tial or	0.25	Copper Palladium	Chip (Die) 7440-21-3 Total Wire Bond - Copper, palladium coated (CuPd) 7440-50-8 7440-05-3 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for	100 100.00 % of Total Weight 98 2 100.00	0.2
ve 2002/53/EC (End-of-Life Vehicles (ELV) Directive). iance with the above EU Directives has been verified amical substance is absent from the list above, the c orated's knowledge and belief as of the date of this or not below the threshold of regulatory concern for a g compounds used by Microchip meet the UL94 V0 II.com/global/eng/pages/offerings/Industries/chemic otective "tubes" in which the specific product is shi rtain "reels" may be made from PVC plastic. hip Technology Incorporated believes the informatio original packing materials is true and correct to the steness and accuracy of data in this form because it e information is often protected from disclosure as ation is provided only as estimates of the average w trace levels of dopants, metals, and non-metal mat hip Technology Incorporated does not provide any ties provided by Microchip Technology Incorporate ions, sales order acknowledgement, and invoices. hip disclaims any duty to notify users of updates or fise, suffered by users or third parties as a result of 1	comply with EU Directive 2 d via internal design contro chemical substance is NOT document, there is no cred ny regulatory scheme work flammability standard for p als/plastics/ pped are made from polyvi on in this form concerning best of its knowledge and has been compiled based thade secrets and some inf eight of these parts and the erials contained within silie warranty, express or implied d and its subsidiaries are c changes to Material Conte the users' reliance on the in	g Total Mass 0002/95/EC (RoHS Directive), EU Directive 2011/65/EU (RoH Is, supplier declarations, and /or analytical test data. an intentional ingredient in the semiconductor device and ble reason to believe that the unavoidable impurity conce I-wide. Iastics. You can access the UL iQTM family of databases nyl chloride (PVC) plastic. "Window envelopes" used to h substances restricted by RoHS in Microchip Technology belief, as of the date listed in this form. Microchip Technology belief, as of the date listed in this form. Microchip Technology ormation may not have been provided by subcontract ass average weight of anticipated significant toxic metals co con devices (silicon IC) in the finished parts. d, with respect to the information provided in this declara ontained in Microchip's standard terms and conditions of the Declarations and shall not be liable for any damages, d	IS Recast Dire d, to the best of entration of the to obtain a tes old the packin incorporated's ology Incorpor incorporated's ology Incorpor semblers and r semblers and r mponents. Th ation. The excl i sale. These at	ctive) and with of Microchip Tr a chemical sub it report at ing slip on the of a semiconduct rated cannot g material suppl aw material sup	n EU echnology ostance, if outer box or devices juprantee the iers. uppliers. do not product Microchip's tial or	0.25	(mg) Total Copper Palladium (mg) Total	Chip (Die) 7440-21-3 Total Wire Bond - Copper, palladium coated (CuPd) 7440-50-8 7440-50-8 7440-05-3 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	100 100.00 % of Total Weight 98 2 100.00 % of Total Weight	0.2

MICROCHIP Semiconductor Device	95 (Lead) SOT-23 (C7)	Termination Base Alloy: Copper Alloy (Cu)				JEDEC 97 Product Marking and/or Pkg. Labeling e3				
		"Contained In"	% Total			12.77	(mg) Total	Mold Compound	% ot Total Weight	79.8
Basic Substance	CAS Number	Sub-Component	Weight	mg/part	ppm		(5/ 5			1010
Silica, vitreous	60676-86-0	Mold Compound	69.354	11.097	693,542		Silica, vitreous	60676-86-0	86.91	
Epoxy Resin	Trade Secret	Mold Compound	6.121	0.979	61,207		Epoxy Resin	Trade Secret	7.67	
Phenolic Resin	Trade Secret	Mold Compound	4.078	0.652	40,778		Phenolic Resin	Trade Secret	5.11	
Carbon Black	1333-86-4	Mold Compound	0.247	0.040	2,474		Carbon Black	1333-86-4	0.31	
Copper	7440-50-8	Lead Frame	10.031	1.605	100,314			Total	100.00	
Iron	7439-89-6	Lead Frame	0.247	0.039	2,468	1.68	(mg) Total	Lead Frame	% of Total Weight	10.5
Silver	7440-22-4	Lead Frame	0.200	0.032	2,000		Copper	7440-50-8	95.54	
Zinc	7440-66-6	Lead Frame	0.013	0.002	131		Iron	7439-89-6	2.35	
Phosphorous	7723-14-0	Lead Frame	0.009	0.001	87		Silver	7440-22-4	1.91	
Silver (Ag)	7440-22-4	Die Attach	0.563	0.090	5,625		Zinc	7440-66-6	0.13	
Modified Epoxy Resin	13561-08-5	Die Attach	0.105	0.017	1,050		Phosphorous	7723-14-0	0.08	
Diglycidylether of bisphenol-F	54208-63-8	Die Attach	0.056	0.009	563			Total	100.00	
Modified Amine	827-43-0	Die Attach	0.026	0.004	263	0.12	(mg) Total	Die Attach	% of Total Weight	0.75
Silicon	7440-21-3	Chip (Die)	7.500	1.200	75,000		Silver (Ag)	7440-22-4	75	
Copper	7440-50-8	Wire Bond palladium coated copper (CuPd)	0.197	0.031	1,965		Modified Epoxy Resin	13561-08-5	14	
Palladium	7440-05-3	Wire Bond palladium coated copper (CuPd)	0.004	0.001	35	Di	glycidylether of bisphenol-F	54208-63-8	8	
Tin	7440-31-5	Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	1.250	0.200	12,500		Modified Amine	827-43-0	4	
		TOTALS:	100.000	16.000	1,000,000			Total	100.00	
	0.0160	g Total Mass				1.20	Total (mg)	Chip (Die)	% of Total Weight	7.5
his semiconductor device and its homogenous materials or rective 2002/53/EC (End-of-Life Vehicles (ELV) Directive). Compliance with the above EU Directives has been verified		2002/95/EC (RoHS Directive), EU Directive 2011/65/EU (RoH Is, supplier declarations, and /or analytical test data.	IS Recast Dire	ctive) and with	h EU		Doped Silicon	7440-21-3 Total	100 100.00	
a chemical substance is absent from the list above, the ch corporated's knowledge and belief as of the date of this d	locument, there is no cred	ible reason to believe that the unavoidable impurity conce				0.03	(mg) Total	Wire Bond - Copper, palladium coated (CuPd)	% of Total Weight	0.2
y, is not below the threshold of regulatory concern for an					-					
vy, is not below the threshold of regulatory concern for an olding compounds used by Microchip meet the UL94 V0 fl tp://ul.com/global/eng/pages/offerings/industries/chemica		lastics. You can access the UL iQTM family of databases	to obtain a tes	t report at			Copper	7440-50-8	98	
olding compounds used by Microchip meet the UL94 V0 fl	als/plastics/				outer box		Copper Palladium	7440-50-8 7440-05-3 Total	98 2 100.00	

Tin

16.000

7440-31-5

Total

100.00

100.00

AICROCHIP Semiconductor Device Typ	De: CH and OT	D6 (Lead) SOT-23 (C8)	-	nation Base A pper Alloy (C				geneous Materials: g. pc boards, displays	3)	JEDEC 97 Product Markin and/or Pkg. Labeling e3
Basic Substance	CAS Number	"Contained In" Sub-Component	% Total Weight	mg/part	ppm	13.57	(mg) Total	Mold Compound	% ot Total Weight	79.8
Silica, vitreous	60676-86-0	Mold Compound	69.354	11.790	693,542		Silica, vitreous	60676-86-0	86.91	1
Epoxy Resin (No bromine, No diantimony trioxide)	Trade Secret	Mold Compound	6.121	1.041	61,207		Epoxy Resin	Trade Secret	7.67	
Phenolic Resin (No Br / CL SbO3, No diantimony trioxide)	Trade Secret	Mold Compound	4.078	0.693	40,778		Phenolic Resin	Trade Secret	5.11	
Carbon Black	1333-86-4	Mold Compound	0.247	0.042	2,474		Carbon Black	1333-86-4	0.31	
Copper	7440-50-8	Lead Frame	10.031	1.705	100,314			Total	100.00	9
Iron	7439-89-6	Lead Frame	0.247	0.042	2,468	1.79	(mg) Total	Lead Frame	% of Total Weight	10.5
Silver	7440-22-4	Lead Frame	0.200	0.034	2,000		Copper	7440-50-8	95.54	
Zinc	7440-66-6	Lead Frame	0.013	0.002	131		Iron	7439-89-6	2.35	
Phosphorous	7723-14-0	Lead Frame	0.009	0.001	87		Silver	7440-22-4	1.91	
Epoxy resin	Trade Secret	Die Attach	0.563	0.096	5,625		Zinc	7440-66-6	0.13	
Silicon dioxide	Trade Secret	Die Attach	0.169	0.029	1,688		Phosphorous	7723-14-0	0.08	
Curing / Hardener	Polymeric Retanning Agent	Die Attach	0.019	0.003	188			Total	100.00	-
Silicon			7,500	1.275						
	7440-21-3	Chip (Die)			75,000	0.13	(mg) Total	Die Attach	% of Total Weight	0.75
Copper Palladium	7440-50-8 7440-05-3	Wire Bond palladium coated copper (CuPd)	0.197	0.033	1,965 35		Epoxy resin Silicon dioxide	Trade Secret	75 23	
Tin	7440-05-3	Wire Bond palladium coated copper (CuPd) Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	1.250	0.001	12,500		Curing / Hardener	7631-86-9 Trade Secret	23	
IIn	7440-31-5	Plating on external leads (pins) - Matte I in / annealed at 150°C for 1 hour TOTALS:	1.250				Curing / Hardener	Trade Secret	÷	
			100.000	17.000	1,000,000					
	0.0170	g Total Mass				1.28				
	ly with EU Directive 2	2002/95/EC (RoHS Directive), EU Directive 2011/65/EU (Rol	HS Recast Dire	ctive) and with	n EU		Total (mg) Doped Silicon	Chip (Die) 7440-21-3	% of Total Weight	7.5
semiconductor device and its homogenous materials comp ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). Ipliance with the above EU Directives has been verified via in		2002/95/EC (RoHS Directive), EU Directive 2011/65/EU (Rol	HS Recast Dire	ctive) and with	ι EU			,	100	
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). pliance with the above EU Directives has been verified via in chemical substance is absent from the list above, the chemic rporated's knowledge and belief as of the date of this docun	nternal design contro cal substance is NOT nent, there is no cred	0002/95/EC (RoHS Directive), EU Directive 2011/65/EU (Ro ls, supplier declarations, and /or analytical test data. an intentional ingredient in the semiconductor device an ible reason to believe that the unavoidable impurity conc	d, to the best c	f Microchip To	echnology	0.03		7440-21-3	100	
tive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). pliance with the above EU Directives has been verified via in themical substance is absent from the list above, the chemic prorated's knowledge and belief as of the date of this docun is not below the threshold of regulatory concern for any reg ling compounds used by Microchip meet the UL94 V0 flamm	nternal design contro cal substance is NOT nent, there is no cred gulatory scheme worl nability standard for p	0002/95/EC (RoHS Directive), EU Directive 2011/65/EU (Ro Is, supplier declarations, and /or analytical test data. an intentional ingredient in the semiconductor device an ible reason to believe that the unavoidable impurity conc d-wide.	d, to the best o entration of the	f Microchip To chemical sub	echnology		Doped Silicon	7440-21-3 Total Wire Bond - Copper, palladium	100	
ctive 2002/53/EC (End-of-Life Vehicles (ELV) Directive).	nternal design contro cal substance is NOT nent, there is no cred gulatory scheme worl nability standard for p astics/	2002/95/EC (RoHS Directive), EU Directive 2011/65/EU (Ro Is, supplier declarations, and /or analytical test data. an intentional ingredient in the semiconductor device an ible reason to believe that the unavoidable impurity conc d-wide. lastics. You can access the UL iQTM family of databases	d, to the best o entration of the to obtain a tes	f Microchip To chemical sub t report at	echnology ostance, if		Doped Silicon (mg) Total	7440-21-3 Total Wire Bond - Copper, palladium coated (CuPd)	100 100.00 % of Total Weight	
tive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). bliance with the above EU Directives has been verified via in memical substance is absent from the list above, the chemic porated's knowledge and belief as of the date of this docum s not below the threshold of regulatory concern for any reg ng compounds used by Microchip meet the UL94 V0 flamm 'ul.com/global/eng/pages/offerings/industries/chemicals/pl rotective "tubes" in which the specific product is shipped ertain "reels" may be made from PVC plastic. chip Technology Incorporated believes the information in 1 ir original packing materials is true and correct to the best leteness and accuracy of data in this form because it has b lier information is often protected from disclosure as trade nation is provided only as estimates of the average weight	nternal design contro cal substance is NOT nent, there is no cred ulatory scheme worl ability standard for p astics/ are made from polyvi this form concerning of its knowledge and secrets and some ind of these parts and th	202/95/EC (RoHS Directive), EU Directive 2011/65/EU (Ro Is, supplier declarations, and /or analytical test data. an intentional ingredient in the semiconductor device an ible reason to believe that the unavoidable impurity conc d-wide. lastics. You can access the UL iQTM family of databases nyl chloride (PVC) plastic. "Window envelopes" used to I substances restricted by RoHS in Microchip Technology belief, as of the date listed in this form. Microchip Techn on the ranges provided in Material Safety Data Sheets pr ormation may not have been provided by subcontract as a verenge weight of anticipated significant toxic metals c	d, to the best of entration of the to obtain a tes nold the packin locorporated's lology Incorpor vided by raw i	f Microchip To chemical sub t report at g slip on the o semiconduct ated cannot g naterial suppl aw material sup	echnology ostance, if outer box or devices uarantee the iers. uppliers.		(mg) Total	7440-21-3 Total Wire Bond - Copper, palladium coated (CuPd) 7440-50-8	100 100.00 % of Total Weight 98 2	0.2
tive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). pliance with the above EU Directives has been verified via in hemical substance is absent from the list above, the chemic porated's knowledge and belief as of the date of this docum is not below the threshold of regulatory concern for any reg ing compounds used by Microchip meet the UL94 V0 flamm //ul.com/global/eng/pages/offerings/industries/chemicals/pl protective "tubes" in which the specific product is shipped	nternal design contro cal substance is NOT nent, there is no cred ulatory scheme worl ability standard for p astics/ are made from polyvi this form concerning of its knowledge and secrets and some int of these parts and th contained within sili nty, express or implie	202/95/EC (RoHS Directive), EU Directive 2011/65/EU (Ro Is, supplier declarations, and /or analytical test data. an intentional ingredient in the semiconductor device an ible reason to believe that the unavoidable impurity conc d-wide. lastics. You can access the UL iQTM family of databases nyl chloride (PVC) plastic. "Window envelopes" used to I substances restricted by RoHS in Microchip Technology belief, as of the date listed in this form. Microchip Technology belief, as of the date listed in this form. Microchip Technology romation may not have been provided by subcontract as a verage weight of anticipated significant toxic metals c con devices (silicon IC) in the finished parts. d, with respect to the information provided in this declar	d, to the best of entration of the to obtain a tes nold the packin lncorporated's lology Incorpor ovided by raw i semblers and r omponents. Th ation. The excl	f Microchip To chemical sub t report at g slip on the o semiconduct ated cannot g naterial suppl aw material su ese estimates usive, limited	echnology sstance, if outer box or devices uarantee the iers. uppliers. do not product		(mg) Total	7440-21-3 Total Wire Bond - Copper, palladium coated (CuPd) 7440-50-8 7440-05-3 Total Plating on external leads (pins) - Matte Tin / annealed at 150°C for	100 100.00 % of Total Weight 98 2	0.2
tive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). bliance with the above EU Directives has been verified via in nemical substance is absent from the list above, the chemic porated's knowledge and belief as of the date of this docum s not below the threshold of regulatory concern for any reg ing compounds used by Microchip meet the UL94 V0 flamm ful.com/global/eng/pages/offerings/industries/chemicals/pl protective "tubes" in which the specific product is shipped ertain "reels" may be made from PVC plastic. chip Technology Incorporated believes the information in 1 is original packing materials is true and correct to the best leteness and accuracy of data in this form because it has b lier information is often protected from disclosure as trade de trace levels of dopants, metals, and non-metal materials chip Technology Incorporated does not provide any warran inties provided by Microchip Technology Incorporated and	nternal design contro cal substance is NOT nent, there is no cred ulatory scheme worl ability standard for p astics/ are made from polyvi this form concerning of its knowledge and secrets and some ini of these parts and th contained within sili nty, express or implie its subsidiaries are c ges to Material Conte	202/95/EC (RoHS Directive), EU Directive 2011/65/EU (Rol Is, supplier declarations, and /or analytical test data. an intentional ingredient in the semiconductor device an ible reason to believe that the unavoidable impurity conc d-wide. lastics. You can access the UL iQTM family of databases nyl chloride (PVC) plastic. "Window envelopes" used to I substances restricted by RoHS in Microchip Technology belief, as of the date listed in this form. Microchip Technology belief, as of the date listed in this form. Microchip Technology belief, as of the date not the provided by subcontract as a average weight of anticipated significant toxic metals c con devices (silicon IC) in the finished parts. rd, with respect to the information provided in this declar ontained in Microchip's standard terms and conditions o nt Declarations and shall not be liable for any damages, a	d, to the best of entration of the to obtain a tes nold the packin lncorporated's lology Incorpor ovided by raw i semblers and r omponents. Th ation. The excl f sale. These a direct or indirect	f Microchip To chemical sub t report at g slip on the o semiconduct ated cannot g naterial suppl aw material su ese estimates usive, limited re provided in ct, consequen	echnology sstance, if outer box or devices uarantee the iers. uppliers. do not product Microchip's tial or	0.03	(mg) Total Copper Palladium	7440-21-3 Total Wire Bond - Copper, palladium coated (CuPd) 7440-50-8 7440-05-3 Total Plating on external leads (pins) - Matte Tin	100 100.00 % of Total Weight 98 2 2 100.00	0.2

Total 100.000 100.000

Semiconductor Device Type: PT 44 (Lead) TQFP 10x10x1mm (T4/TY) Basic Substance CAS Number Sub-Component				ation Base A oper Alloy (C		Package Homogeneous Materials				JEDEC 97 Product Markin and/or Pkg. Labeling e3
			% Total			218.09	(mg) Total	Mold Compound	% ot Total Weight	79.8
			Weight	mg/part	ppm				•	
Silica, vitreous	60676-86-0	Mold Compound	69.354	189.545	693,542		Silica, vitreous	60676-86-0	86.91	
Epoxy Resin	Trade Secret	Mold Compound	6.121	16.728	61,207		Epoxy Resin	Trade Secret	7.67	
Phenolic Resin	Trade Secret	Mold Compound	4.078	11.145	40,778		Phenolic Resin	Trade Secret	5.11	
Carbon Black	1333-86-4	Mold Compound	0.247	0.676	2,474		Carbon Black	1333-86-4 Total	0.31	
Copper	7440-50-8	Lead Frame	10.000	27.331	100,003					
Nickel	7440-02-0	Lead Frame	0.267	0.729	2,667	28.70	(mg) Total	Lead Frame	% of Total Weight	10.5
Silver	7440-22-4	Lead Frame	0.175	0.479	1,752		Copper	7440-50-8	95.24	
Silicon	7440-21-3	Lead Frame	0.047	0.129	473		Nickel	7440-02-0	2.54	
Magnesium	7439-95-4	Lead Frame	0.011	0.029	105		Silver	7440-22-4	1.67	
Silver (Ag)	7440-22-4	Die Attach	0.600	1.640	6,000		Silicon	7440-21-3	0.45	
Acrylate Urethane Oligomer	General	Die Attach	0.150	0.410	1,500		Magnesium	7439-95-4	0.10	
Silicon	7440-21-3	Chip (Die)	7.500	20.498	75,000			Total	100.00	
Copper	7440-50-8	Wire Bond palladium coated copper (CuPd)	0.197	0.537	1,965	2.05	(mg) Total	Die Attach	% of Total Weight	0.75
Palladium	7440-05-3	Wire Bond palladium coated copper (CuPd)	0.004	0.010	35		Silver (Ag)	7440-22-4	80	
Tin	7440-31-5	Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	1.250	3.416	12,500		Acrylate Urethane Oligome		20	
			100.000	273.300	1.000.000			Total	100.00	
		TOTALS:	100.000	210.000	.,,					
	comply with EU Directive 2	g Total Mass 2002/95/EC (RoHS Directive), EU Directive 2011/65/EU (RoH				20.50	Total (mg) Doped Silicon	Chip (Die) 7440-21-3	% of Total Weight	7.5
emiconductor device and its homogenous materials ive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). liance with the above EU Directives has been verified	comply with EU Directive 2	g Total Mass 2002/95/EC (RoHS Directive), EU Directive 2011/65/EU (RoH				20.50		Chip (Die)		7.5
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Directive 2002/53/EC (End-of-Life Vehicles (ELV) Directive). Compliance with the above EU Directives has been verified via internal design controls, supplier declarations, and /or analytical test data. f a chemical substance is absent from the list above, the chemical substance is NOT an intentional ingredient in the semiconductor device and, to the best of Microchip Technology norporated's knowledge and belief as of the date of this document, there is no credible reason to believe that the unavoidable impurity concentration of the chemical substance, if a chemical substance is absent from the U.94 V0 flammability standard for plastics. You can access the UL iQTM family of databases to obtain a test report at thy://uL.com/global/eng/pages/offerings/infunds/infunds/is/fest-femicals/plastics/ The protective "tubes" in which the specific product is shipped are made from polyvinyl choride (PVC) plastic. "Window envelopes" used to hold the packing align on the outer box and certain "reels" may be made from PVC plastic. Wicrochip Technology Incorporated believes the information in this form concerning substances restricted by ROHS in Microchip Technology Incorporated cannot guarantee the completeness and accuracy of data in this form because it has been compiled based on the ranges provided by subcontract assemblers and raw material suppliers. Supplier information is often protected from disclosure as trade secrets and some information may not have been provided by subcontract assemblers and raw material suppliers. Supplier information is othen protected from disclosure as trade secrets and some information may not have been provided by Microchip Technology Incorporated does not provide any warranty, express or implied, with respect to the information provided by Microchip Technology Incorporated does not provide and its subsidiaries are contained within silicon devices (silicon IC) in the finished parts. Wicrochip Technology Incorporated does not provide and its subsidiaries are contained in Microchip's	JEDEC 97 Product Marking and/or Pkg. Labeling e3
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