MICROCHIP

Semiconductor Device Type: ML (J3X) 024 QFN 4x4x0.9mm Matte Tin

Termination Base Alloy: Copper Alloy (Cu)

Basic Substance	CAS Number	"Contained In" Sub-Component	% Total Weight	mg/part	ppm
Silica, fused	60676-86-0	Mold Compound	43.902	19.361	439,020
Epoxy Resin (NLP # 500-033-5)	Trade Secret	Mold Compound	2.366	1.043	23,658
Phenolic Resin	Trade Secret	Mold Compound	2.366	1.043	23,658
Carbon Black	1333-86-4	Mold Compound	0.146	0.065	1,463
Copper	7440-50-8	Lead Frame	36.476	16.086	364,762
Iron	7439-89-6	Lead Frame	0.897	0.396	8,972
Silver	7440-22-4	Lead Frame	0.727	0.321	7,273
Zinc	7440-66-6	Lead Frame	0.048	0.021	477
Phosphorous	7723-14-0	Lead Frame	0.031	0.014	315
Silver	7440-22-4	Die Attach	0.930	0.410	9,300
Epoxy resin	68475-94-5	Die Attach	0.260	0.115	2,604
Copper(II) oxide	1317-38-0	Die Attach	0.050	0.022	496
Silicon	7440-21-3	Chip (Die)	6.770	2.986	67,700
Copper	7440-50-8	Wire Bond Copper palladium coated (CuPd)	0.737	0.325	7,369
Palladium	7440-05-3	Wire Bond Copper palladium coated (CuPd)	0.013	0.006	131
Tin	7440-31-5	Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	4.280	1.887	42,800
		TOTALS:	**100.000**	**44.100**	**1,000,000**

0.0441 g Total Mass

Package Homogeneous Materials

JEDEC 97 Product Marking and/or Pkg. Labeling e3

21.51	(mg) Total	Mold Compound	% ot Total Weight	48.78
	Silica, fused	60676-86-0	90.00	
	Epoxy Resin (NLP # 500-033-5)	Trade Secret	4.85	
	Phenolic Resin	Trade Secret	4.85	
	Carbon Black	1333-86-4	0.30	
		Total	**100.00**	

16.84	(mg) Total	Lead Frame	% of Total Weight	38.18
	Copper	7440-50-8	95.54	
	Iron	7439-89-6	2.35	
	Silver	7440-22-4	1.91	
	Zinc	7440-66-6	0.13	
	Phosphorous	7723-14-0	0.08	
		Total	**100.00**	

0.55	(mg) Total	Die Attach	% of Total Weight	1.24
	Silver	7440-22-4	75.00	
	Epoxy resin	68475-94-5	21.00	
	Copper(II) oxide	1317-38-0	4.00	
		Total	**100.00**	

2.99	Total (mg)	Chip (Die)	% of Total Weight	6.77
	Doped Silicon	7440-21-3	100.00	
		Total	**100.00**	

0.33	(mg) Total	Wire Bond Copper palladium coated (CuPd)	% of Total Weight	0.75
	Copper	7440-50-8	98.25	
	Palladium	7440-05-3	1.75	
		Total	**100.00**	

1.89	(mg) Total	Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	% of Total Weight	4.28
	Tin	7440-31-5	100.00	
		Total	**100.00**	

44.100 **100.000**

This semiconductor device and its homogenous materials comply with EU Directives: 2002/95/EC (27 January 2003) & Directive 2011/65/EU (08 June 2011) and 2015/863/EU (31 March 2015) and 2002/53/EC (End-of-Life Vehicles (ELV) without exemption (zero)

Compliance with the above EU Directives has been verified via internal design controls, supplier declarations, and /or analytical test data.

If 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 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 threshold of regulatory concern for any regulatory scheme world-wide.

Molding 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 http://ul.com/global/eng/pages/offerings/industries/chemicals/plastics/

The 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 certain "reels" may be made from PVC plastic.

Microchip Technology Incorporated believes the information in this form concerning substances restricted by RoHS in Microchip Technology Incorporated's semiconductor devices 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 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 by 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. 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 include trace levels of dopants, metals, and non-metal materials contained within silicon devices (silicon IC) in the finished parts.

Microchip Technology Incorporated does not provide any warranty, express or implied, with respect to the information provided in this declaration. The exclusive, limited product warranties 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 quotations, sales order acknowledgement, and invoices.

Microchip 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 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 reports (SGS) or of this Certificate of Compliance for semiconductor products.

Assembled package referenced above is EU REACH compliant based on the latest SVHC candidate list of ECHA which can be found at http://echa.europa.eu/web/guest/candidate-list-table