MICROCHIP

Semiconductor Device Type: **JQ** **(JQX) 16 UQFN 4x4x0.5mm Matte Tin**

Termination Base Alloy: Copper Alloy (Cu)

Package Homogeneous Materials: 8.1 Electronics (e.g. pc boards, displays)

J-STD-609A Product Marking and/or Pkg. Labeling e3

Basic Substance	CAS Number	"Contained In" Sub-Component	% Total Weight	mg/part	ppm
Silica, fused	60676-86-0	Mold Compound	45.702	10.283	457,020
Epoxy Resin (NLP # 500-033-5)	Trade Secret	Mold Compound	2.463	0.554	24,628
Phenolic Resin	Trade Secret	Mold Compound	2.463	0.554	24,628
Carbon Black	1333-86-4	Mold Compound	0.152	0.034	1,523
Copper	7440-50-8	Lead Frame	41.463	9.329	414,633
Iron	7439-89-6	Lead Frame	1.020	0.229	10,199
Silver	7440-22-4	Lead Frame	0.827	0.186	8,268
Zinc	7440-66-6	Lead Frame	0.054	0.012	543
Phosphorous	7723-14-0	Lead Frame	0.036	0.008	358
Silver	7440-22-4	Die Attach	1.326	0.298	13,260
Acrylate resins Proprietary	Trade Secret	Die Attach	0.306	0.069	3,060
Treated silica	Trade Secret	Die Attach	0.034	0.008	340
Heterocyclic organic compound	Trade Secret	Die Attach	0.034	0.008	340
Silicon	7440-21-3	Chip (Die)	1.350	0.304	13,500
Gold	7440-57-5	Wire Bond	0.450	0.101	4,500
Tin	7440-31-5	Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	2.320	0.522	23,200
		TOTALS:	**100.000**	**22.500**	**1,000,000**
	0.0225 g	**Total Mass**			

11.43	(mg) Total	Mold Compound	% ot Total Weight	50.78
	Silica, fused	60676-86-0	90.00	
	Epoxy Resin (NLP # 500-033	Trade Secret	4.85	
	Phenolic Resin	Trade Secret	4.85	
	Carbon Black	1333-86-4	0.30	
		Total	**100.00**	

9.77	(mg) Total	Lead Frame	% of Total Weight	43.40
	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**	

0.38	(mg) Total	Die Attach	% of Total Weight	1.70
	Silver	7440-22-4	78.00	
	Acrylate resins Proprietary	Trade Secret	18.00	
	Treated silica	Trade Secret	2.00	
	Heterocyclic organic compou	Trade Secret	2.00	
		Total	**100.00**	

0.30	Total (mg)	Chip (Die)	% of Total Weight	1.35
	Doped Silicon	7440-21-3	100.00	
		Total	**100.00**	

0.10	(mg) Total	Wire Bond	% of Total Weight	0.45
	Gold	7440-57-5	100.00	
		Total	**100.00**	

0.52	(mg) Total	Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	% of Total Weight	2.32
	Tin	7440-31-5	100.00	
		Total	**100.00**	

22.50 100.00

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.

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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