MICROCHIP

Semiconductor Device Type: MB (A5X) 003 SOT-89 Matte Tin

Termination Base Alloy: Copper Alloy (Cu)

Basic Substance	CAS Number	"Contained In" Sub-Component	% Total Weight	mg/part	ppm
Silica, vitreous	60676-86-0	Mold Compound	46.376	24.023	463,760
Epoxy Resin (No bromine, No diantimony trioxide)	Trade Secret	Mold Compound	3.342	1.731	33,418
Phenolic Resin (No Br / CL SbO3, No diantimony trioxide)	Trade Secret	Mold Compound	3.342	1.731	33,418
Epoxy, Cresol Novolac	29690-82-2	Mold Compound	1.337	0.692	13,367
Carbon Black	1333-86-4	Mold Compound	0.164	0.085	1,637
Copper	7440-50-8	Lead Frame	42.275	21.899	422,753
Iron	7439-89-6	Lead Frame	1.040	0.539	10,399
Silver	7440-22-4	Lead Frame	0.843	0.437	8,430
Zinc	7440-66-6	Lead Frame	0.055	0.029	553
Phosphorous	7723-14-0	Lead Frame	0.037	0.019	365
Metal oxide	Trade Secret	Die Attach	0.102	0.053	1,023
Epoxy resins	Trade Secret	Die Attach	0.102	0.053	1,023
Glycol ethers	Trade Secret	Die Attach	0.078	0.040	775
Curing / Hardener	Trade Secret	Die Attach	0.028	0.014	279
Silicon	7440-21-3	Chip (Die)	0.410	0.212	4,100
Gold	7440-57-5	Wire Bond	0.350	0.181	3,500
Tin	7440-31-5	Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour	0.120	0.062	1,200
		TOTALS:	**100.000**	**51.800**	**1,000,000**

0.0518 g Total Mass

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

JEDEC 97 Product Marking and/or Pkg. Labeling e3

28.26	**(mg) Total**	**Mold Compound**	**% ot Total Weight**	**54.56**
	Silica, vitreous	60676-86-0	85.00	
	Epoxy Resin	Trade Secret	6.13	
	Phenolic Resin	Trade Secret	6.13	
	Epoxy, Cresol Novolac	29690-82-2	2.45	
	Carbon Black	1333-86-4	0.30	
		Total	**100.00**	
22.92	**(mg) Total**	**Lead Frame**	**% of Total Weight**	**44.25**
	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**	
0.16	**(mg) Total**	**Die Attach**	**% of Total Weight**	**0.31**
	Metal oxide	Trade Secret	33.00	
	Epoxy resins	Trade Secret	33.00	
	Glycol ethers	Trade Secret	25.00	
	Curing / Hardener	Trade Secret	9.00	
		Total	**100.00**	
0.21	**Total (mg)**	**Chip (Die)**	**% of Total Weight**	**0.41**
	Doped Silicon	7440-21-3	100.00	
		Total	**100.00**	
0.18	**(mg) Total**	**Wire Bond**	**% of Total Weight**	**0.35**
	Doped Gold	7440-57-5	100.00	
		Total	**100.00**	
0.06	**(mg) Total**	**Plating on external leads (pins) - Matte Tin / annealed at 150°C for 1 hour**	**% of Total Weight**	**0.12**
	Tin	7440-31-5	100.00	
		Total	**100.00**	
51.800				**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.

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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