MICROCHIP

Semiconductor Device Type: **(ALX) 004 CSP SAC**

Pattern (Graphic)

Basic Substance	CAS Number	"Contained In" Sub-Component	% Total Weight	mg/part	ppm
Silica	Proprietary	Backside Coating	4.153	0.051	41,528
Epoxy Resin	Proprietary	Backside Coating	1.551	0.019	15,509
Acrylic Resin	Proprietary	Backside Coating	1.551	0.019	15,509
Carbon Black	Proprietary	Backside Coating	0.096	0.001	956
Organosilicate polymer	Trade Secret	PBO Layer	1.230	0.015	12,300
Copper	7440-50-8	Under Bump Metal	0.212	0.003	2,120
Aluminum	7429-90-5	Under Bump Metal	0.077	0.001	774
Nickel	7440-02-0	Under Bump Metal	0.042	0.001	421
Vanadium	7440-62-2	Under Bump Metal	0.028	0.000	284
Silicon	7440-21-3	Chip (Die)	76.390	0.932	763,900
Aluminum	7429-60-5	Redistribution Layer	0.152	0.002	1,522
Titanium	7440-32-6	Redistribution Layer	0.068	0.001	678
Tin	7440-31-5	Solder Ball	14.233	0.174	142,333
Silver	7440-22-4	Solder Ball	0.145	0.002	1,445
Copper	7440-50-8	Solder Ball	0.072	0.001	723
		TOTALS:	**100.000**	**1.220**	**1,000,000**

0.00122 g Total Mass

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

JEDEC 97 Product Marking and/or Pkg. Labeling
e1

0.09	(mg) Total	Backside Coating	% of Total Weight	7.35
	Silica	Proprietary	56.5	
	Epoxy Resin	Proprietary	21.1	
	Acrylic Resin	Proprietary	21.1	
	Carbon Black	Proprietary	1.3	
		Total	**100.00**	

0.02	(mg) Total	PBO Layer	% of Total Weight	1.23
	Organosilicate polymer	Trade Secret	100.00	
		Total	**100.00**	

0.00	(mg) Total	Under Bump Metal	% of Total Weight	0.36
	Copper	7440-50-8	58.90	
	Aluminum	7429-90-5	21.50	
	Nickel	7440-02-0	11.70	
	Vanadium	7440-62-2	7.90	
		Total	**100.00**	

0.93	(mg) Total	Chip (Die)	% of Total Weight	76.39
	Doped Silicon	7440-21-3	100.00	
		Total	**100.00**	

0.00	(mg) Total	Redistribution Layer	% of Total Weight	0.22
	Aluminum	7429-60-5	69.20	
	Titanium	7440-32-6	30.80	
		Total	**100.00**	

0.18	(mg) Total	Solder Ball	% of Total Weight	14.45
	Tin	7440-31-5	98.50	
	Silver	7440-22-4	1.00	
	Copper	7440-50-8	0.50	
		Total	**100.00**	

1.22 100.00

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