



Package Material Content Declaration

Package Description	48-Lead, 7.0 x 7.0 mm Body, 5.6 mm Exposed Pad, 0.50 mm Pitch, Very-Thin Quad Flat No Lead Package (VQFN) Punched						
Lead Finish	Matte Tin (Sn)			Package Code / GPC		SMB / ZMA	
J-STD-609 Category	e3			Termination Base Alloy:		Copper	
Package Material Declaration							
Material	Substance	CAS #	Weight (mg)	Homogeneous Material		Package	
				Percentage	ppm	Percentage	ppm
Leadframe	Copper (Cu)	7440-50-8	62.165	97.4	974000	43.08	430800
	Iron (Fe)	7439-89-6	1.532	2.4	24000	1.06	10615
	Phosphorous (P)	7723-14-0	0.064	0.1	1000	0.04	442
	Zinc (Zn)	7440-66-6	0.064	0.1	1000	0.04	442
Sub-Total			63.824	100.0	1000000	44.23	442300
Integrated Circuit	Silicon (Si)	7440-21-3	11.182	100.0	1000000	7.75	77494
Sub-Total			11.182	100.0	1000000	7.75	77494
Die Attach	Silver (Ag)	7440-22-4	0.568	76.6	766000	0.39	3937
	Acrylic Resin	Proprietary	0.062	8.3	83000	0.04	427
	Acrylate	Proprietary	0.039	5.3	53000	0.03	272
	Polybutadiene Copolymer	Proprietary	0.039	5.2	52000	0.03	267
	Epoxy Resin	Proprietary	0.018	2.4	24000	0.01	123
	Additive	Proprietary	0.007	0.9	9000	0.00	46
	Butadiene Copolymer	Proprietary	0.007	0.9	9000	0.00	46
	Peroxide	Proprietary	0.003	0.4	4000	0.00	21
Sub-Total			0.742	100.0	1000000	0.51	5140
Die Pad Plating	Silver (Ag)	7440-22-4	1.431	100.0	1000000	0.99	9918
Sub-Total			1.431	100.0	1000000	0.99	9918
Bond Wire	Gold (Au)	7440-57-5	0.618	100.0	1000000	0.43	4284
Sub-Total			0.618	100.0	1000000	0.43	4284
Encapsulation	Silica (Amorphous) A	60676-86-0	49.290	77.6	776000	34.16	341577
	Epoxy Resin	Proprietary	5.590	8.8	88000	3.87	38736
	Silica (Amorphous) B	7631-86-9	5.590	8.8	88000	3.87	38736
	Phenol Resin	Proprietary	2.541	4.0	40000	1.76	17607
	Carbon Black	1333-86-4	0.508	0.8	8000	0.35	3521
Sub-Total			63.518	100.0	1000000	44.02	440177
Terminal Plating	Tin (Sn)	7440-31-5	2.985	100.0	1000000	2.07	20687
Sub-Total			2.985	100.0	1000000	2.07	20687
Total			144.301			100.00	1000000

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>.