Package Material Content Declaration

Package Description	48-Lead, 0.50 mm Pitch, 7 x 7 x 1.0 mm Body Size, Very Thin Quad Flat No Lead Package (VQFN)		
Lead Finish	Matte Tin (Sn)	**Package Code / GPC**	T2B / ZGF
J-STD-609 Category	e3	**Termination Base Alloy:**	Copper

Package Material Declaration

				Homogeneous Material		Package	
Material	**Substance**	**CAS #**	**Weight (mg)**	**Percentage**	**ppm**	**Percentage**	**ppm**
Leadframe	Copper (Cu)	7440-50-8	44.180	97.4	974000	36.65	366451
	Iron (Fe)	7439-89-6	1.089	2.4	24000	0.90	9030
	Phosphorous (P)	7723-14-0	0.045	0.1	1000	0.04	376
	Zinc (Zn)	7440-66-6	0.045	0.1	1000	0.04	376
Sub-Total			**45.360**	**100.0**	**1000000**	**37.62**	**376233**
Integrated Circuit # 1	Silicon (Si)	7440-21-3	1.497	100.0	1000000	1.24	12419
Sub-Total			**1.497**	**100.0**	**1000000**	**1.24**	**12419**
Die Attach # 1	Modified Epoxy Resin	Proprietary	0.032	70.5	705000	0.03	262
	Epoxy Resin	Proprietary	0.008	17.2	172000	0.01	64
	Dapsone	80-08-0	0.003	6.3	63000	0.00	23
	Elastomeric Polumer	Proprietary	0.001	2.0	20000	0.00	7
	Substituted Silane	Proprietary	0.001	2.0	20000	0.00	7
	Treated Fumed Silica	67762-90-7	0.001	2.0	20000	0.00	7
Sub-Total			**0.045**	**100.0**	**1000000**	**0.04**	**372**
Integrated Circuit # 2	Silicon (Si)	7440-21-3	3.371	100.0	1000000	2.80	27957
Sub-Total			**3.371**	**100.0**	**1000000**	**2.80**	**27957**
Die Attach # 2	Silver (Ag)	7440-22-4	0.356	76.5	765000	0.30	2953
	2-Propionic Acid, Methyl Ester Reaction Products	Proprietary	0.085	18.3	183000	0.07	706
	Dicyclopentenyloxyethyl Methacrylate	68586-19-6	0.022	4.7	47000	0.02	181
	Bis(alpha,alpha-Dimethylbenzyl) Peroxide	80-43-3	0.002	0.5	5000	0.00	19
Sub-Total			**0.465**	**100.0**	**1000000**	**0.39**	**3860**
Die Pad Plating	Silver (Ag)	7440-22-4	1.002	100.0	1000000	0.83	8312
Sub-Total			**1.002**	**100.0**	**1000000**	**0.83**	**8312**
Bond Wire	Copper (Cu)	7440-50-8	0.325	97.6	976000	0.27	2692
	Palladium (Pd)	7440-05-3	0.008	2.4	24000	0.01	66
Sub-Total			**0.333**	**100.0**	**1000000**	**0.28**	**2758**
Encapsulation	Silica (Amorphous) A	60676-86-0	45.949	69.2	692000	38.11	381120
	Silica (Amorphous) B	7631-86-9	9.362	14.1	141000	7.77	77656
	Epoxy Resin	Proprietary	6.042	9.1	91000	5.01	50118
	Phenol Resin	Proprietary	4.714	7.1	71000	3.91	39103
	Carbon Black	1333-86-4	0.332	0.5	5000	0.28	2754
Sub-Total			**66.400**	**100.0**	**1000000**	**55.08**	**550752**
Terminal Plating	Tin (Sn)	7440-31-5	2.090	100.0	1000000	1.73	17337
Sub-Total			**2.090**	**100.0**	**1000000**	**1.73**	**17337**
Total			**120.562**			**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.

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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.