Package Material Content Declaration

Package Description	20-Lead, 4.4 x 6.5 mm Body, 0.65 mm Lead Pitch, Thin Shrink Small Outline Package (TSSOP)		
Lead Finish	Nickel-Palladium-Gold (Ni-Pd-Au)	**Package Code / GPC**	NVB / TLN
J-STD-609 Category	e4	**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	24.199	97.4	974000	30.50	304974
	Iron (Fe)	7439-89-6	0.596	2.4	24000	0.75	7515
	Phosphorous (P)	7723-14-0	0.025	0.1	1000	0.03	313
	Zinc (Zn)	7440-66-6	0.025	0.1	1000	0.03	313
Sub-Total			**24.845**	**100.0**	**1000000**	**31.31**	**313114**
Integrated Circuit	Silicon (Si)	7440-21-3	3.174	100.0	1000000	4.00	40005
Sub-Total			**3.174**	**100.0**	**1000000**	**4.00**	**40005**
Die Attach	Silver (Ag)	7440-22-4	0.172	73.1	731000	0.22	2168
	Bisphenol-F Epichlorhydrin Resin	9003-36-5	0.014	6.0	60000	0.02	178
	Polyglycidyl Ester	68475-94-5	0.014	6.0	60000	0.02	178
	2,6-Diglycidyl Phenyl Allyl Ether Oligomer	Proprietary	0.012	5.2	52000	0.02	154
	Copper Oxide	1317-38-0	0.011	4.6	46000	0.01	136
	gamma-Butyrolactone	96-48-0	0.005	2.3	23000	0.01	68
	Poly(oxypropylene)diamine	Proprietary	0.005	2.3	23000	0.01	68
	1,4-Bis(2,3-epoxypropoxy)butane	2425-79-8	0.001	0.5	5000	0.00	15
Sub-Total			**0.235**	**100.0**	**1000000**	**0.30**	**2966**
Bond Wire	Gold (Au)	7440-57-5	0.131	99.0	990000	0.17	1653
	Palladium (Pd)	7440-05-3	0.001	1.0	10000	0.00	17
Sub-Total			**0.132**	**100.0**	**1000000**	**0.17**	**1670**
Encapsulation	Silica (Amorphous) A	60676-86-0	34.965	69.2	692000	44.07	440656
	Silica (Amorphous) B	7631-86-9	7.124	14.1	141000	8.98	89787
	Epoxy Resin	Proprietary	4.598	9.1	91000	5.79	57948
	Phenol Resin	Proprietary	3.587	7.1	71000	4.52	45212
	Carbon Black	1333-86-4	0.253	0.5	5000	0.32	3184
Sub-Total			**50.527**	**100.0**	**1000000**	**63.68**	**636786**
Terminal Plating	Nickel (Ni)	7440-02-0	0.402	92.7	927000	0.51	5061
	Palladium (Pd)	7440-05-3	0.028	6.5	65000	0.04	355
	Gold (Au)	7440-57-5	0.003	0.8	8000	0.00	44
Sub-Total			**0.433**	**100.0**	**1000000**	**0.55**	**5459**
Total			**79.347**			**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.

Microchip Technology Incorporated does not provide any warranty, express or implied, with respect to the information provided in this declaration. The exclusive, limited product warranties provided by Microchip Technology Incorporated and its subsidiaries are contained in Microchip’s standard terms and conditions of sale. These are provided in Microchip’s quotations, sales order acknowledgement, and invoices.

Microchip disclaims any duty to notify users of updates or changes to Material Content Declarations and shall not be liable for any damages, direct or indirect, consequential or otherwise, suffered by users or third parties as a result of the users’ reliance on the information in Material Content Declarations (MCD) or independent third party test reports (SGS) or of this Certificate of Compliance for semiconductor products.

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.