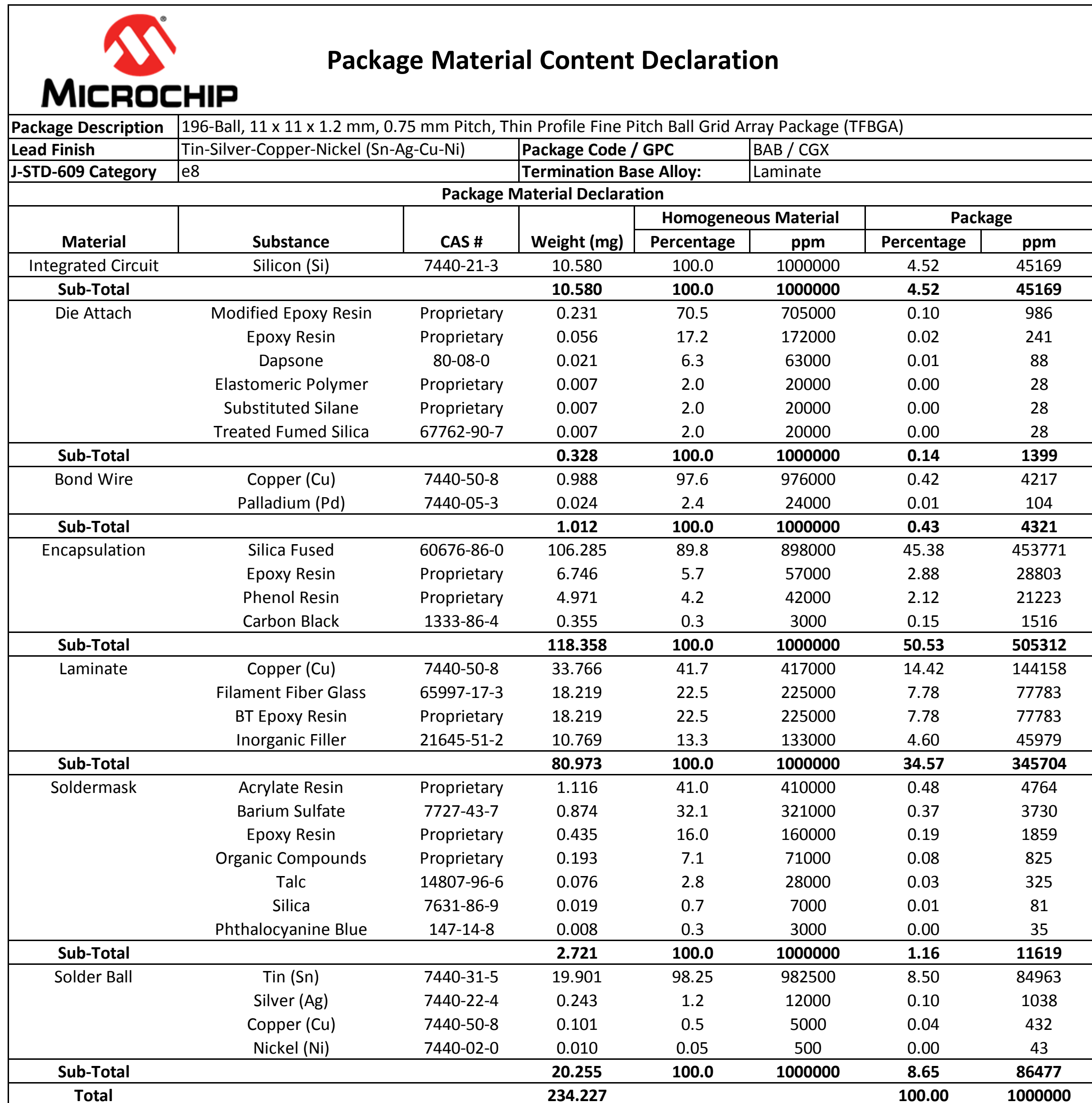

Package Material Content Declaration

Package Description	196-Ball, 11 x 11 x 1.2 mm, 0.75 mm Pitch, Thin Profile Fine Pitch Ball Grid Array Package (TFBGA)		
Lead Finish	Tin-Silver-Copper-Nickel (Sn-Ag-Cu-Ni)	Package Code / GPC	BAB / CGX
J-STD-609 Category	e8	Termination Base Alloy:	Laminate

Package Material Declaration

Material	Substance	CAS #	Weight (mg)	Homogeneous Material		Package	
				Percentage	ppm	Percentage	ppm
Integrated Circuit	Silicon (Si)	7440-21-3	10.580	100.0	1000000	4.52	45169
Sub-Total			**10.580**	**100.0**	**1000000**	**4.52**	**45169**
Die Attach	Modified Epoxy Resin	Proprietary	0.231	70.5	705000	0.10	986
	Epoxy Resin	Proprietary	0.056	17.2	172000	0.02	241
	Dapsone	80-08-0	0.021	6.3	63000	0.01	88
	Elastomeric Polymer	Proprietary	0.007	2.0	20000	0.00	28
	Substituted Silane	Proprietary	0.007	2.0	20000	0.00	28
	Treated Fumed Silica	67762-90-7	0.007	2.0	20000	0.00	28
Sub-Total			**0.328**	**100.0**	**1000000**	**0.14**	**1399**
Bond Wire	Copper (Cu)	7440-50-8	0.988	97.6	976000	0.42	4217
	Palladium (Pd)	7440-05-3	0.024	2.4	24000	0.01	104
Sub-Total			**1.012**	**100.0**	**1000000**	**0.43**	**4321**
Encapsulation	Silica Fused	60676-86-0	106.285	89.8	898000	45.38	453771
	Epoxy Resin	Proprietary	6.746	5.7	57000	2.88	28803
	Phenol Resin	Proprietary	4.971	4.2	42000	2.12	21223
	Carbon Black	1333-86-4	0.355	0.3	3000	0.15	1516
Sub-Total			**118.358**	**100.0**	**1000000**	**50.53**	**505312**
Laminate	Copper (Cu)	7440-50-8	33.766	41.7	417000	14.42	144158
	Filament Fiber Glass	65997-17-3	18.219	22.5	225000	7.78	77783
	BT Epoxy Resin	Proprietary	18.219	22.5	225000	7.78	77783
	Inorganic Filler	21645-51-2	10.769	13.3	133000	4.60	45979
Sub-Total			**80.973**	**100.0**	**1000000**	**34.57**	**345704**
Soldermask	Acrylate Resin	Proprietary	1.116	41.0	410000	0.48	4764
	Barium Sulfate	7727-43-7	0.874	32.1	321000	0.37	3730
	Epoxy Resin	Proprietary	0.435	16.0	160000	0.19	1859
	Organic Compounds	Proprietary	0.193	7.1	71000	0.08	825
	Talc	14807-96-6	0.076	2.8	28000	0.03	325
	Silica	7631-86-9	0.019	0.7	7000	0.01	81
	Phthalocyanine Blue	147-14-8	0.008	0.3	3000	0.00	35
Sub-Total			**2.721**	**100.0**	**1000000**	**1.16**	**11619**
Solder Ball	Tin (Sn)	7440-31-5	19.901	98.25	982500	8.50	84963
	Silver (Ag)	7440-22-4	0.243	1.2	12000	0.10	1038
	Copper (Cu)	7440-50-8	0.101	0.5	5000	0.04	432
	Nickel (Ni)	7440-02-0	0.010	0.05	500	0.00	43
Sub-Total			**20.255**	**100.0**	**1000000**	**8.65**	**86477**
Total			**234.227**			**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.