



Material Composition Declaration
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This document is a declaration of the substances within the manufacturer listed item. Note: if the item is an assembly with lower level parts, the declaration encompasses all lower level materials for which the manufacturer has engineering responsibility.

1752-21.1	IPC Web Site for Information on IPC-1752 Standard http://www.ipc.org/IPC-175x	Form Type * Distribute	Declaration Class * Class 6 - RoHS Yes/No, Homogeneous Materials and Mfg Information
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Supplier Information

Company name* onsemi	Company unique ID	Unique ID Authority	Response Date* 2023-06-08
Contact Name Product-Env-Stewards	Title - Contact Product Enviro Compliance	Phone - Contact* NA	Email - Contact* Product-Env-Stewards@onsemi.com
Authorized Representative* Product-Env-Stewards	Title - Representative Product Enviro Compliance	Phone - Representative* NA	Email - Representative* Product-Env-Stewards@onsemi.com

Requester Item Number	Mfr Item Number	Mfr Item Name	Effective Date	Version	Manufacturing Site	Weight*	UOM	Unit Type
	STK531U394A-E	Inverter	2023-06-08		VN2	14100.0	mg	Each

Manufacturing Process Information

Terminal Plating / Grid Array Material	Terminal Base Alloy	J-STD-020 MSL Rating	Peak Process Body Temperature	Max Time at Peak Temperature	Number of Reflow Cycles
Matte Tin (Sn) - annealed	CU Alloy	NA	0 C	30 seconds	3

Comments

For more information regarding material composition please refer to page 3

RoHS Material Composition Declaration		Declaration Type *	Detailed
Directive 2015/863/EU amending RoHS Directive 2011/65/EU	RoHS Definition: Quantity limit of 0.01% by mass (100 PPM) in homogeneous material for Cadmium and quantity limit of 0.1% by mass (1000 PPM) in homogeneous material for: Lead (Pb), Mercury (Hg), Hexavalent Chromium (Cr6+), Polybrominated Biphenyls (PBB), Polybrominated Diphenyl Ethers (PBDE), and Bis(2-ethylhexyl) phthalate (DEHP), Benzyl-butyl phthalate (BBP), Dibutyl phthalate (DBP), Diisobutyl phthalate (DIBP).		
<p>Please indicate whether any homogeneous material (as defined by the RoHS Directive, EU 2011/65/EU and implemented by the laws of the European Union member states) of the part identified on this form contains lead, mercury, cadmium, hexavalentchromium, polybrominated biphenyls and/or polybrominated diphenyl ethers (each a "RoHS restricted substance") in excess of the applicable quantity limit identified above. If a homogeneous material within the part contains a RoHS restricted substance in excess of an applicable quantity limit, please indicate below which, if any, RoHS exemption you believe may apply. If the part is an assembly with lower level components, the declaration shall encompass all such components. Supplier certifies that it gathered the information it provides in this form using appropriate methods to ensure its accuracy and that such information is true and correct to the best of its knowledge and belief, as of the date that Supplier completes this form. Supplier acknowledges that Company will rely on this certification in determining the compliance of its products with European Union member state laws that implement the RoHS Directive. Company acknowledges that Supplier may have relied on information provided by others in completing this form, and that Supplier may not have independently verified such information. However, in situations where Supplier has not independently verified information provided by others, Supplier agrees that, at a minimum, its suppliers have provided certifications regarding their contributions to the part, and those certifications are at least as comprehensive as the certification in this paragraph. If the Company and the Supplier enter into a written agreement with respect to the identified part, the terms and conditions of that agreement, including any warranty rights and/or remedies provided as part of that agreement, will be the sole and exclusive source of the Supplier's liability and the Company's remedies for issues that arise regarding information the Supplier provides in this form. In the absence of such written agreement, the warranty rights and/or remedies of Supplier's Standard Terms and Conditions of Sale applicable to such part shall apply.</p>			
RoHS Declaration *	4 - Item(s) does not contain RoHS restricted substances per the definition above except for selected exemptions		Supplier Acceptance * Accepted
Exemption: 7c-I Electrical and electronic components containing lead in a glass or ceramic other than dielectric ceramic in capacitors, e.g. piezoelectronic devices, or in a glass or ceramic matrix compound.			
Exemption List Version	EL-2011/534/EU		
Declaration Signature			
Instructions: Complete all of the required fields on all pages of this form. Select the "Accepted" on the Supplier Acceptance drop-down. This will display the signature area. Digitally sign the declaration (if required by the Requester) and click on Submit Form to have the form returned to the Requester.			
Supplier Digital Signature	Rastislav Drska		

Homogeneous Material Composition Declaration for Electronic Products

SubItem Instructions: The presence of any JIG Level A or B substances must be declared. [1] indicate the subpart in which the substance is located, [2] provide a description of the homogeneous material [3], enter the weight of the homogeneous material.

Substance Instructions: [A] select the Level (JIG A, JIG B, Requester or Supplier) [B] select the substance category (JIG or Requester) or enter a value (Supplier). [C] select the substance (JIG) or enter the substance and CAS (Other). [D] select a RoHS exemption, if applicable [E] enter the weight of the substance or the PPM concentration [F] Optionally enter the positive (+) and negative (-) tolerance in percent (Note: percent tolerance values are expected to cover a 3 sigma range of distribution unless otherwise noted).

Homogeneous Material	Weight	Unit of Measure	Level	Substance	CAS	Exempt	Weight	Unit of Measure
Chip Parts	48.77	mg	Supplier	Titanium Dioxide (TiO2)	13463-67-7		1.2778	mg
			Supplier	Silver (Ag)	7440-22-4		1.2095	mg
			Supplier	Epoxy resins	129915-35-1		0.4097	mg
			Supplier	Tin (Sn)	7440-31-5		1.3314	mg
			Supplier	Magnesium Monoxide (MgO)	1309-48-4		0.0878	mg
			Supplier	Silica Amorphous (SiO2)	7631-86-9		0.834	mg
			Supplier	Ceramic	12013-47-7, 12047-27-7		6.6474	mg
			Supplier	Phenolic resins	Proprietary Data		0.0585	mg
			Supplier	Palladium (Pd)	7440-05-3		0.0195	mg
			Supplier	Aluminum Trioxide (Al2O3)	1344-28-1		30.5203	mg
			B	Nickel (Ni)	7440-02-0		3.0335	mg
			A	Lead Oxide (PbO)	1317-36-8	7c	0.0585	mg
			Supplier	Chromium Trioxide (Cr2O3)	1308-38-9		0.0049	mg
			Supplier	Copper (Cu)	7440-50-8		2.8726	mg
Supplier	Silica Crystalline (SiO2)	14808-60-7		0.4048	mg			
Die	33.44	mg	Supplier	Silicon (Si)	7440-21-3		33.44	mg
Die Attach	2.03	mg	Supplier	Silver (Ag)	7440-22-4		1.4642	mg
			Supplier	Other Epoxy resins	Proprietary Data		0.3536	mg
			Supplier	Tin (Sn)	7440-31-5		0.1192	mg
			Supplier	Other Metal Oxide	Proprietary Data		0.0818	mg
			B	Antimony (Sb)	7440-36-0		0.0112	mg
Heat Sink	864.0	mg	Supplier	Silver (Ag)	7440-22-4		138.24	mg
			Supplier	Copper (Cu)	7440-50-8		725.7599	mg
Lead Frame	523.74	mg	Supplier	Tin (Sn)	7440-31-5		0.3142	mg
			Supplier	Copper (Cu)	7440-50-8		523.4257	mg
Mold Compound-Black	8485.29	mg		Brominated epoxy resin	proprietary data		21.2132	mg
			Supplier	Phenolic Resin	Proprietary Data		439.538	mg
			B	Antimony Trioxide (Sb2O3)	1309-64-4		15.2735	mg
			Supplier	Carbon Black (C)	1333-86-4		34.7897	mg
			Supplier	Aluminum Hydroxide (Al(OH)3)	21645-51-2		594.8188	mg
			Supplier	Fused Silica (SiO2)	60676-86-0		5573.1387	mg

			Supplier	Ortho-Cresol Novolac Resin	29690-82-2		934.2305	mg
			Supplier	Silica Crystalline (SiO2)	14808-60-7		872.2878	mg
Plating	1.05	mg	Supplier	Tin (Sn)	7440-31-5		0.6499	mg
			B	Nickel (Ni)	7440-02-0		0.4	mg
RDL	3991.0	mg	B	Nickel (Ni)	7440-02-0		2470.429	mg
			Supplier	Gold (Au)	7440-57-5		21.5514	mg
			Supplier	Copper (Cu)	7440-50-8		7.5829	mg
			Supplier	Aluminum (Al)	7429-90-5		1491.4366	mg
Solder Ball	77.8	mg	Supplier	Silver (Ag)	7440-22-4		2.1706	mg
			Supplier	Tin (Sn)	7440-31-5		75.1704	mg
			B	Antimony (Sb)	7440-36-0		0.07	mg
			Supplier	Copper (Cu)	7440-50-8		0.389	mg
Wire Bond	72.88	mg	Supplier	Silicon (Si)	7440-21-3		0.0073	mg
			Supplier	Aluminum (Al)	7429-90-5		72.8727	mg