



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* On Semiconductor	Company unique ID	Unique ID Authority	Response Date* 2019-09-20
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
	ASX344ATSC00XUE A0-DRBR-E	VGA 1/4 SOC	2019-09-20		MY5	180.8	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
SnAgCu	CU Alloy	3	260 C	30 seconds	3

Comments
ATTENTION: MSL 3 Rated item requires Bake and Dry Pack (after electrical test)
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 *	1 - Item(s) does not contain RoHS restricted substances per the definition above		Supplier Acceptance * Accepted
Exemption: If the declared item does not contain RoHS restricted substances per the definition above except for defined RoHS exemptions, then select the corresponding response in the RoHS Declaration above and choose all applicable exemptions.			
Exemption List Version	EL-2006/690/EC		
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	Jozef Vavro		

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
Die	22.05	mg	Supplier	Misc.	n/a		0.0838	mg
			Supplier	Silicon (Si)	7440-21-3		21.7479	mg
			Supplier	Aluminum (Al)	7429-90-5		0.2183	mg
Die Attach	0.97	mg	Supplier	Bisphenol A_Epichlorohydrin polymer	25068-38-6		0.3638	mg
			Supplier	Ethylene Glycol	107-21-1		0.0097	mg
			Supplier	Sulfonium (Thiodi-4,1-phenylene)	89452-37-9		0.0291	mg
			Supplier	Modified Silicon Dioxide (SiO2)	67762-90-7		0.2037	mg
			Supplier	Formaldehyde Polymer	9003-36-5		0.3638	mg
Imaging Lens	34.06	mg	Supplier	Titanium Dioxide (TiO2)	13463-67-7		1.7926	mg
			Supplier	Sodium Monoxide (Na2O)	1313-59-3		1.7926	mg
			Supplier	Zinc Monoxide (ZnO)	1314-13-2		1.7926	mg
			B	Antimony Trioxide (Sb2O3)	1309-64-4		0.1795	mg
			Supplier	Aluminum Trioxide (Al2O3)	1344-28-1		1.7926	mg
			Supplier	Potassium Monoxide (K2O)	12136-45-7		1.7926	mg
			Supplier	Silica Crystalline (SiO2)	14808-60-7		24.9176	mg
Lid Attach	1.05	mg	Supplier	Bisphenol A_Epichlorohydrin polymer	25068-38-6		0.315	mg
			Supplier	Filler (SiO2)	68909-20-6		0.0525	mg
			Supplier	Epoxy Prepolymer	n/a		0.3412	mg
			Supplier	Formaldehyde Polymer	9003-36-5		0.3412	mg
Mold Compound-Black	40.48	mg	Supplier	Phenolic Resin	n/a		6.072	mg
			Supplier	Oxirane	39817-09-09		6.072	mg
			Supplier	1,4-Butanediol Diglycidyl Ether (DGE)	2425-79-8		1.2144	mg
			Supplier	Carbon Black (C)	1333-86-4		0.4048	mg
			Supplier	Fused Silica (SiO2)	60676-86-0		25.9072	mg
			Supplier	Silica Crystalline (SiO2)	14808-60-7		0.8096	mg
Solder Ball	30.61	mg	Supplier	Silver (Ag)	7440-22-4		0.9183	mg
			Supplier	Tin (Sn)	7440-31-5		29.5387	mg
			Supplier	Copper (Cu)	7440-50-8		0.1531	mg
Substrate and Solder Mask	51.12	mg	Supplier	Bis(3-ethyl-5-methyl-4-maleimidophenyl)methane	105391-33-1		0.5725	mg
			Supplier	Fiber Glass (SiO2)	65997-17-3		6.6252	mg
			Supplier	Zinc (Zn)	7440-66-6		0.0767	mg

			Supplier	Inorganic Filler of Solder Mask_Talc (Mg3Si4O10(OH)2)	14807-96-6		1.1911	mg
			Supplier	Cyanic acid (1-methylethylidene)di-4,1-phenylene ester homopolymer	25722-66-1		0.5725	mg
			Supplier	Silica Amorphous (SiO2)	7631-86-9		0.2965	mg
			Supplier	Chromium (Cr)	7440-47-3		0.0051	mg
			Supplier	Acetophenone Derivative	n/a		1.7841	mg
			Supplier	Carbon Black (C)	1333-86-4		0.2965	mg
			Supplier	2,4-Diethyl-9H-thioxanthen-9-one (DETX)	82799-44-8		0.2965	mg
			Supplier	Aluminum Hydroxide (Al(OH)3)	21645-51-2		6.1344	mg
			B	Nickel (Ni)	7440-02-0		0.7208	mg
			Supplier	Gold (Au)	7440-57-5		0.0256	mg
			Supplier	Solvent Naphtha (Solvent oil)	64742-94-5		3.5733	mg
			Supplier	Formaldehyde Polymer	9003-36-5		0.5725	mg
			Supplier	Copper (Cu)	7440-50-8		19.1496	mg
			Supplier	Barium Sulfate (BaSO4)	7727-43-7		9.2272	mg
Wire Bond - Au	0.46	mg	Supplier	Gold (Au)	7440-57-5		0.46	mg