



**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 <a href="http://www.ipc.org/IPC-175x">http://www.ipc.org/IPC-175x</a>	Form Type * Distribute	Declaration Class * Class 6 - RoHS Yes/No, Homogeneous Materials and Mfg Information
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**Supplier Information**

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

Requester Item Number	Mfr Item Number	Mfr Item Name	Effective Date	Version	Manufacturing Site	Weight*	UOM	Unit Type
	HMHA281R2V	4SO TR T&R VDE	2023-06-08		THH	54.749	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	1	245 C	30 seconds	3

Comments  
**level 1 - maximum time at peak temperature during soldering is 10-30 seconds**  
**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>			
<b>RoHS Declaration *</b>	1 - Item(s) does not contain RoHS restricted substances per the definition above		<b>Supplier Acceptance *</b> Accepted
<b>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.</b>			
Exemption List Version	EL-2011/534/EU		
<b>Declaration Signature</b>			
<b>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.</b>			
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
Die	0.267	mg	B	Gallium Arsenide (AsGa)	1303-00-0		0.0864	mg
			Supplier	Silicon (Si)	7440-21-3		0.1754	mg
			Supplier	Aluminum (Al)	7429-90-5		0.0052	mg
Die Attach	0.021	mg	Supplier	Silver (Ag)	7440-22-4		0.0172	mg
			Supplier	Dicyandiamine	461-58-5		0.0002	mg
			Supplier	Phenolic Resin (Novolac)	9003-35-4		0.0036	mg
Lead Frame	13.225	mg	Supplier	Silver (Ag)	7440-22-4		0.6784	mg
			Supplier	Zinc (Zn)	7440-66-6		0.0238	mg
			Supplier	Iron (Fe)	7439-89-6		0.3253	mg
			Supplier	Copper (Cu)	7440-50-8		12.1789	mg
			Supplier	Phosphorus (P)	7723-14-0		0.0185	mg
Mold Compound-White	31.422	mg	Supplier	Titanium Dioxide (TiO2)	13463-67-7		7.8555	mg
			B	Brominated Bisphenol A Diglycidyl Ether	40039-93-8		0.9427	mg
			Supplier	Ortho Cresol Novolac Resin	29690-82-2		4.242	mg
			B	Antimony Trioxide (Sb2O3)	1309-64-4		0.9427	mg
			Supplier	Fused Silica (SiO2)	60676-86-0		15.711	mg
			Supplier	Phenolic Resin (Novolac)	9003-35-4		1.7282	mg
Plating	0.961	mg	Supplier	Tin (Sn)	7440-31-5		0.961	mg
Protective Coating	8.8	mg	Supplier	Poly(dimethylsiloxane), hydroxy terminated	70131-67-8		4.4	mg
			Supplier	Ethylbenzene	100-41-4		0.88	mg
			Supplier	Filler (SiO2)	68909-20-6		1.672	mg
			Supplier	Misc.	Proprietary Data		0.088	mg
			Supplier	Xylene	1330-20-7		1.76	mg
Wire Bond - Au	0.053	mg	Supplier	Gold (Au)	7440-57-5		0.053	mg