



**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.

1752-2 1.1	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> <b>On Semiconductor</b>	Company unique ID	Unique ID Authority	<b>Response Date*</b> <b>2017-11-13</b>
<b>Contact Name</b> <b>Rastislav Drska</b>	Title - Contact Product Enviro Compliance	<b>Phone - Contact*</b> <b>+421337902123</b>	<b>Email - Contact*</b> <b>Rastislav.Drska@onsemi.com</b>
<b>Authorized Representative*</b> <b>Rastislav Drska</b>	Title - Representative Product Enviro Compliance	<b>Phone - Representative*</b> <b>+421337902123</b>	<b>Email - Representative*</b> <b>Rastislav.Drska@onsemi.com</b>

Requester Item Number	Mfr Item Number	Mfr Item Name	Effective Date	Version	Manufacturing Site	Weight*	UOM	Unit Type
	STK681-320	DC brush motor driver	2017-11-13		VN2, OSV-VIETNAM	3800.0	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
		NA	0 C	30 seconds	3

RoHS Material Composition Declaration		Declaration Type *	Detailed
RoHS Directive 2011/65/EU	RoHS Definition: Quantity limit of 0.1% by mass (1000 PPM) in homogeneous material for: Lead (Pb), Mercury, Hexavalent Chromium, Polybrominated Biphenyls (PBB), Polybrominated Diphenyl Ethers (PBDE) and quantity limit of 0.01% by mass (100 PPM) of homogeneous material for Cadmium		
<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, hexavalent chromium, 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
<b>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.</b>			
Exemption List Version	EL-2006/690/EC		
<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
Ceramic Substrate	1128.58	mg	Supplier	Bisphenol A_Epichlorohydrin polymer	25068-38-6		6.4329	mg
			Supplier	Aluminum Trioxide (Al2O3)	1344-28-1		42.886	mg
			B	Nickel (Ni)	7440-02-0		2.0314	mg
			Supplier	Acrylic resins	n/a		0.79	mg
			Supplier	Copper (Cu)	7440-50-8		40.0646	mg
			Supplier	Barium Sulfate (BaSO4)	7727-43-7		0.6771	mg
			Supplier	Aluminum (Al)	7429-90-5		1035.6979	mg
Chip Parts	17.4	mg	Supplier	Titanium Dioxide (TiO2)	13463-67-7		0.0017	mg
			Supplier	Silver (Ag)	7440-22-4		0.6334	mg
			Supplier	Epoxy resins	129915-35-1		0.2836	mg
			Supplier	Bisphenol A, Epichlorohydrin polymer	25036-25-3, 25068-38-6		0.0365	mg
			Supplier	Tin (Sn)	7440-31-5		0.5951	mg
			Supplier	Magnesium Monoxide (MgO)	1309-48-4		0.0209	mg
			Supplier	Silica Amorphous (SiO2)	7631-86-9		0.3271	mg
			Supplier	Ceramic	12013-47-7, 12047-27-7		3.1529	mg
			Supplier	Palladium (Pd)	7440-05-3		0.0017	mg
			Supplier	Aluminum Trioxide (Al2O3)	1344-28-1		9.5961	mg
			B	Nickel (Ni)	7440-02-0		1.5747	mg
			A	Lead Oxide (PbO)	1317-36-8		0.0452	mg
			Supplier	Chromium Trioxide (Cr2O3)	1308-38-9		0.0052	mg
			Supplier	Copper (Cu)	7440-50-8		1.0266	mg
			Supplier	Silica Crystalline (SiO2)	14808-60-7		0.0992	mg
Die	9.03	mg	Supplier	Silicon (Si)	7440-21-3		9.0264	mg
			A	Lead Oxide (PbO)	1317-36-8	7c	0.0036	mg
Die Attach	0.41	mg	Supplier	Silver (Ag)	7440-22-4		0.3157	mg
			Supplier	Other Epoxy resins	n/a		0.0697	mg
			Supplier	Other Metal Oxide	n/a		0.0176	mg
			B	Antimony Pentoxide (Sb2O5)	1314-60-9		0.007	mg
Lead Frame	468.02	mg	Supplier	Tin (Sn)	7440-31-5		0.2808	mg
			Supplier	Copper (Cu)	7440-50-8		467.7392	mg

Mold Compound-Black	2168.5	mg	Supplier	Brominated epoxy resin	n/a		43.37	mg
			Supplier	Phenolic Resin	n/a		151.795	mg
			B	Antimony Trioxide (Sb2O3)	1309-64-4		43.37	mg
			Supplier	Fused Silica (SiO2)	60676-86-0		1517.95	mg
			Supplier	Ortho Cresol Novolac Resin	n/a		412.015	mg
Plating	0.94	mg	Supplier	Tin (Sn)	7440-31-5		0.582	mg
			B	Nickel (Ni)	7440-02-0		0.358	mg
Solder Ball	6.42	mg	Supplier	Silver (Ag)	7440-22-4		0.1791	mg
			Supplier	Tin (Sn)	7440-31-5		6.2043	mg
			B	Antimony (Sb)	7440-36-0		0.0051	mg
			Supplier	Copper (Cu)	7440-50-8		0.0315	mg
Wire Bond	0.7	mg	Supplier	Silicon (Si)	7440-21-3		0.007	mg
			Supplier	Aluminum (Al)	7429-90-5		0.693	mg