

**PART INFORMATION**

Mfg Item Number	M83252G13
Mfg Item Name	448 23*23*1.93 P1

**SUPPLIER**

Company Name	Freescale Semiconductor Inc
Company Unique ID	14-141-7928
Response Date	2017-07-25
Response Document ID	00K50001S531A1.6
Contact Name	Freescale Semiconductor Inc
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**DECLARATION**

EU RoHS	Yes
Pb Free	Yes
HalogenFree	No
Plating Indicator	e1
EU RoHS Exemption(s)	

**MANUFACTURING**

Mfg Item Number	M83252G13
Mfg Item Name	448 23*23*1.93 P1
Version	ALL
Weight	1.752600
UoM	g
Unit Volume	EACH
J-STD-020 MSL Rating	4
Peak Processing Temperature	260 C
Max Time at Peak Temperature	40 seconds
Number of Processing Cycles	3

RoHS	
RoHS Directive	2011/65/EU
RoHS Definition	RoHS Definition: Quantity limit of 0.1% by mass (1000 PPM) of 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 of Cadmium
RoHS Legal Definition	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(s) 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 below. If a homogeneous material within the part(s) 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(s), 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(s), 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 Suppliers liability and the Companys 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 Suppliers Standard Terms and Conditions of Sale applicable to such part(s) shall apply.
RoHS Declaration	1 - Item(s) do not contain RoHS restricted substances per the definition above
Supplier Acceptance	Accepted
Signature	Daniel Binyon
Exemption List Version	2012/51/EU
List of Freescale Accepted Exemptions	<p>6(a) : Lead as an alloying element in steel for machining purposes and in galvanized steel containing up to 0.35% lead by weight</p> <p>6(b) : Lead as an alloying element in aluminium containing up to 0.4% lead by weight</p> <p>6(c) : Copper alloy containing up to 4% lead by weight</p> <p>7(a) : Lead in high melting temperature type solders (i.e. lead-based alloys containing 85% by weight or more lead)</p> <p>7(b) : Lead in solders for servers, storage and storage array systems, network infrastructure equipment for switching, signaling, transmission, and network management for telecommunications</p> <p>7(c)-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</p> <p>7(c)-II : Lead in dielectric ceramic in capacitors for a rated voltage of 125 V AC or 250 V DC or higher</p> <p>7(c)-III : Lead in dielectric ceramic in capacitors for a rated voltage of less than 125 V AC or 250 V DC</p> <p>7(c)-IV : Lead in PZT based dielectric ceramic materials for capacitors being part of integrated circuits or discrete semiconductors</p> <p>15 : Lead in solders to complete a viable electrical connection between semiconductor die and carrier within integrated circuit flip chip packages</p>

MATERIAL COMPOSITION

Homogeneous Material	Weight	SubstanceClass	Substance	CAS	Exemption	SubstanceWeight	UoM	SubPart PPM	SubPart%	ARTICLEPPM	ARTICLE%
Organic Substrate	0.7973						g				
Organic Substrate		Metals	Barium sulfate	7727-43-7		0.01423021	g	17848	1.7848	8119	0.8119
Organic Substrate		Metals	Copper, metal	7440-50-8		0.15155238	g	190082	19.0082	86472	8.6472
Organic Substrate		Plastics/polymers	4,4'-dihydroxy-3,3',5,5'-tetramethylbiphenyl diglycidyl ether	85954-11-6		0.00886996	g	11125	1.1125	5061	0.5061
Organic Substrate		Metals	Gold, metal	7440-57-5		0.00614399	g	7706	0.7706	3505	0.3505
Organic Substrate		Metals	TiO2	14807-96-6		0.00158105	g	1983	0.1983	902	0.0902
Organic Substrate		Nickel (external applications only)	Nickel	7440-02-0		0.02060702	g	25646	2.5646	11757	1.1757
Organic Substrate		Glass	Fibrous-glass-wool	65997-17-3		0.19513838	g	244749	24.4749	111342	11.1342
Organic Substrate		Glass	Silicon dioxide	7631-86-9		0.00394466	g	495	0.0495	225	0.0225
Organic Substrate		Solvents, additives, and other materials	Proprietary Material-Other morpholine compounds	-		0.00158105	g	1983	0.1983	902	0.0902
Organic Substrate		Metals	Aluminum Hydroxide	21645-51-2		0.07687248	g	96416	9.6416	43861	4.3861
Organic Substrate		Solvents, additives, and other materials	Bromine atom	10097-32-2		0.02791108	g	35307	3.5307	15025	1.5025
Organic Substrate		Solvents, additives, and other materials	Bis(3-ethyl-5-methyl-4-maleimidophenyl)methane	105391-33-1		0.29180143	g	365987	36.5987	166496	16.6496
Organic Substrate		Solvents, additives, and other materials	Chlorine	22537-15-1		0.00061631	g	773	0.0773	351	0.0351
Epoxy Die Attach	0.0025						g				
Epoxy Die Attach		Solvents, additives, and other materials	Proprietary Material-Other acrylates	-		0.000025	g	10000	1	14	0.0014
Epoxy Die Attach		Solvents, additives, and other materials	[3-(2,3-epoxypropoxy)propyl]trimethoxysilane	2530-83-8		0.0000025	g	1000	0.1	1	0.0001
Epoxy Die Attach		Solvents, additives, and other materials	Other organic Silicon Compounds	-		0.0000025	g	1000	0.1	1	0.0001
Epoxy Die Attach		Metals	Silver, metal	7440-22-4		0.00216484	g	865936	86.5936	1235	0.1235
Epoxy Die Attach		Glass	Dimethyl silicone polymer with silica	67762-90-7		0.0000025	g	1000	0.1	1	0.0001
Epoxy Die Attach		Solvents, additives, and other materials	Other Bismaleimides	-		0.00024941	g	99764	9.9764	142	0.0142
Epoxy Die Attach		Solvents, additives, and other materials	1,4-Dihydroxybenzene	123-31-9		0.00000025	g	100	0.01	0	0
Epoxy Die Attach		Solvents, additives, and other materials	Triethylamine	121-44-8		0.00000025	g	100	0.01	0	0
Epoxy Die Attach		Solvents, additives, and other materials	Sulfuric acid	7664-93-9		0.00000025	g	100	0.01	0	0
Epoxy Die Attach		Solvents, additives, and other materials	4-Isopropyl-4'-methyl-diphenylchloronium tetrakis(pentafluorophenyl)borate	178233-72-2		0.0000015	g	600	0.06	0	0
Epoxy Die Attach		Plastics/polymers	2-Propenoic acid,2-methyl-, 1,1'-(2,2-dimethyl-1,3-propanediyl) ester	1985-51-9		0.0000025	g	10000	1	14	0.0014
Epoxy Die Attach		Plastics/polymers	Polybutadiene adducted with maleic anhydride	25655-35-0		0.0000025	g	10000	1	14	0.0014
Epoxy Die Attach		Solvents, additives, and other materials	4-Methoxyphenol	150-76-5		0.00000075	g	300	0.03	0	0
Epoxy Die Attach		Solvents, additives, and other materials	6-Maleimidocaproic acid	55750-53-3		0.00000025	g	100	0.01	0	0
Solder Balls - Lead Free	0.1658						g				
Solder Balls - Lead Free		Metals	Copper, metal	7440-50-8		0.00082863	g	4999	0.4999	472	0.0472
Solder Balls - Lead Free		Metals	Silver, metal	7440-22-4		0.00497393	g	23999	2.3999	2837	0.2837
Solder Balls - Lead Free		Metals	Tin, metal	7440-31-5		0.15999734	g	965002	96.5002	91291	9.1291
Bonding Wire, PdCu	0.0125						g				
Bonding Wire, PdCu		Metals	Copper, metal	7440-50-8		0.01216231	g	972985	97.2985	6939	0.6939
Bonding Wire, PdCu		Metals	Palladium, metal	7440-05-3		0.00033789	g	27015	2.7015	192	0.0192
Die Encapsulant, Halogen-free	0.0986						g				
Die Encapsulant, Halogen-free		Plastics/polymers	Other Epoxy resins	-		0.0049303	g	50003	5.0003	2813	0.2813
Die Encapsulant, Halogen-free		Solvents, additives, and other materials	Carbon Black	1333-86-4		0.000148	g	1501	0.1501	84	0.0084
Die Encapsulant, Halogen-free		Solvents, additives, and other materials	Other organic phosphorous compounds	-		0.0009829	g	4999	0.4999	281	0.0281
Die Encapsulant, Halogen-free		Solvents, additives, and other materials	Other organic Silicon Compounds	-		0.0009859	g	9999	0.9999	582	0.0582
Die Encapsulant, Halogen-free		Plastics/polymers	Other phenolic resins	-		0.00295761	g	29996	2.9996	1687	0.1687
Die Encapsulant, Halogen-free		Glass	Silica, crystalline - quartz (SiO2)	14808-60-7		0.000197	g	1998	0.1998	112	0.0112
Die Encapsulant, Halogen-free		Glass	Silica, vitreous	60676-86-0		0.08874029	g	900003	90.0003	50633	5.0633
Die Encapsulant, Halogen-free		Plastics/polymers	Polyethylene Wax	-		0.000148	g	1501	0.1501	84	0.0084
Heat Spreader	0.6549						g				
Heat Spreader		Metals	Chromium, metal	7440-47-3		0.00039294	g	600	0.06	224	0.0224
Heat Spreader		Metals	Copper, metal	7440-50-8		0.63191301	g	964900	96.49	360579	36.0579
Heat Spreader		Nickel (external applications only)	Nickel	7440-02-0		0.02259405	g	34500	3.45	12891	1.2891
Pb-free Bumped Semiconductor D	0.021						g				
Pb-free Bumped Semiconductor D		Nickel (external applications only)	Nickel	7440-02-0		0.000105	g	5000	0.5	59	0.0059
Pb-free Bumped Semiconductor D		Metals	Silver, metal	7440-22-4		0.00006615	g	3150	0.315	37	0.0037
Pb-free Bumped Semiconductor D		Metals	Tin, metal	7440-31-5		0.00182385	g	86850	8.685	1040	0.104
Pb-free Bumped Semiconductor D		Solvents, additives, and other materials	Other miscellaneous substances (less than 5%)	-		0.000189	g	9000	0.9	107	0.0107
Pb-free Bumped Semiconductor D		Glass	Silicon, doped	-		0.018616	g	896000	89.6	10736	1.0736

## LINKS

MCD LINK	
NXP website	<a href="http://www.nxp.com">http://www.nxp.com</a>
GENERAL ENVIRONMENTAL COMPLIANCE LINKS	
RoHS signed letter	<a href="http://www.nxp.com/files/corporate/doc/support_info/NXP-ROHS-DECLARATION.pdf">http://www.nxp.com/files/corporate/doc/support_info/NXP-ROHS-DECLARATION.pdf</a>
China RoHS	<a href="http://www.nxp.com/about/corporate-responsibility/environmental-compliance-organization/china-rohs:ENV_CHINA_ROHS_STRATEGY">http://www.nxp.com/about/corporate-responsibility/environmental-compliance-organization/china-rohs:ENV_CHINA_ROHS_STRATEGY</a>
REACH signed letter	<a href="http://www.nxp.com/files/corporate/doc/support_info/NXP-REACH-STATEMENT.pdf">http://www.nxp.com/files/corporate/doc/support_info/NXP-REACH-STATEMENT.pdf</a>
ELV signed letter	<a href="http://www.nxp.com/files/corporate/doc/support_info/NXP-ELV-STATEMENT.pdf">http://www.nxp.com/files/corporate/doc/support_info/NXP-ELV-STATEMENT.pdf</a>
Conflict Minerals statement	<a href="http://www.nxp.com/files/corporate/doc/support_info/NXP-STATEMENT-CONFLICT-MINERALS.pdf">http://www.nxp.com/files/corporate/doc/support_info/NXP-STATEMENT-CONFLICT-MINERALS.pdf</a>
NXP ENVIRONMENTAL INFORMATION	
Environmental Compliance website	<a href="http://www.nxp.com/about/corporate-responsibility/environmental-compliance-organization:ABUENVPRFPRDX">http://www.nxp.com/about/corporate-responsibility/environmental-compliance-organization:ABUENVPRFPRDX</a>
FAQ	<a href="http://www.nxp.com/about/corporate-responsibility/environmental-compliance-organization/eco-product-faqs:ENVIRON_FAQ">http://www.nxp.com/about/corporate-responsibility/environmental-compliance-organization/eco-product-faqs:ENVIRON_FAQ</a>
Technical Service Request	<a href="http://www.nxp.com/support/sales-and-support:SUPPORTHOME">http://www.nxp.com/support/sales-and-support:SUPPORTHOME</a>
LINKS TO BLANK IPC1752 FORMS	
Blank IPC1752 v1.1 Form	<a href="http://www.NXP.com/files/abstract/corporate/ehs_epp/IPC-1752-2_v1.1_MCD_Template.pdf">http://www.NXP.com/files/abstract/corporate/ehs_epp/IPC-1752-2_v1.1_MCD_Template.pdf</a>

IPC1752 XML LINKS

[http://www.freescale.com/mcdfs/M83252G13\\_IPC1752\\_v11.xml](http://www.freescale.com/mcdfs/M83252G13_IPC1752_v11.xml)

[http://www.freescale.com/mcdfs/M83252G13\\_IPC1752A.xml](http://www.freescale.com/mcdfs/M83252G13_IPC1752A.xml)