

PART INFORMATION

Mfg Item Number	MCF5481CVR166
Mfg Item Name	PBGA 388 27*27*2.25P1.0

SUPPLIER

Company Name	Freescale Semiconductor Inc
Company Unique ID	14-141-7928
Response Date	2017-03-15
Response Document ID	5367K0003D002A1.26
Contact Name	Freescale Semiconductor Inc
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DECLARATION

EU RoHS	Yes
Pb Free	Yes
HalogenFree	Yes
Plating Indicator	e1
EU RoHS Exemption(s)	

MANUFACTURING

Mfg Item Number	MCF5481CVR166
Mfg Item Name	PBGA 388 27*27*2.25P1.0
Version	ALL
Weight	3.231500
UoM	g
Unit Volume	EACH
J-STD-020 MSL Rating	3
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%
Die Encapsulant	1.4578						g				
Die Encapsulant		Metals	Aluminum, metal	7429-90-5		0.04504019	g	30896	3.0896	13937	1.3937
Die Encapsulant		Arsenic/Arsenic Compounds	Arsenic	7440-38-2		0.00000146	g	1	0.0001	0	0
Die Encapsulant		Cadmium/Cadmium Compounds	Cadmium	7440-43-9		0.00000146	g	1	0.0001	0	0
Die Encapsulant		Plastics/polymers	Proprietary Material-Other Epoxy resins	-		0.04504019	g	30896	3.0896	13937	1.3937
Die Encapsulant		Solvents, additives, and other materials	Carbon Black	1333-86-4		0.0045046	g	3090	0.309	1393	0.1393
Die Encapsulant		Lead/Lead Compounds	Lead	7439-92-1		0.00000146	g	1	0.0001	0	0
Die Encapsulant		Solvents, additives, and other materials	Other organic phosphorous compounds	-		0.0045046	g	3090	0.309	1393	0.1393
Die Encapsulant		Plastics/polymers	Proprietary Material-Other phenolic resins	-		0.08257271	g	56642	5.6642	25552	2.5552
Die Encapsulant		Glass	Silica, vitreous	60676-86-0		1.27613333	g	875383	87.5383	394924	39.4924
Epoxy Die Attach	0.0178						g				
Epoxy Die Attach		Solvents, additives, and other materials	1,3,5-Triazine-2,4-diamine, 6-[2-(2-methyl-1H-imidazol-1-yl)ethyl]	38668-46-1		0.00015043	g	8451	0.8451	46	0.0046
Epoxy Die Attach		Plastics/polymers	Phenolic Polymer Resin, Epikote 155	9003-36-5		0.00230651	g	129579	12.9579	313	0.0713
Epoxy Die Attach		Plastics/polymers	4,4'-Dihydroxydiphenyl	92-88-6		0.00015043	g	8451	0.8451	46	0.0046
Epoxy Die Attach		Metals	Silver, metal	7440-22-4		0.01519263	g	853519	85.3519	4701	0.4701
Organic Substrate, Halogen-free	1.3778						g				
Organic Substrate, Halogen-free		Metals	Barium sulfate	7727-43-7		0.07688146	g	55655	5.5655	23729	2.3729
Organic Substrate, Halogen-free		Metals	Copper, metal	7440-50-8		0.48566791	g	352495	35.2495	150291	15.0291
Organic Substrate, Halogen-free		Plastics/polymers	Proprietary Material-Other Epoxy resins	-		0.10379296	g	75308	7.5308	32108	3.2108
Organic Substrate, Halogen-free		Metals	Gold, metal	7440-57-5		0.01948831	g	14130	1.413	6024	0.6024
Organic Substrate, Halogen-free		Nickel (external applications only)	Nickel	7440-02-0		0.148542	g	107811	10.7811	45966	4.5966
Organic Substrate, Halogen-free		Solvents, additives, and other materials	Other organic Silicon Compounds	-		0.17370614	g	126075	12.6075	53754	5.3754
Organic Substrate, Halogen-free		Glass	Silicon dioxide	7631-86-9		0.35928339	g	260766	26.0766	111181	11.1181
Organic Substrate, Halogen-free		Solvents, additives, and other materials	Proprietary Material-Other Aromatic carbonyl compounds	-		0.01069173	g	7760	0.776	3308	0.3308
Solder Balls - Lead Free	0.3203						g				
Solder Balls - Lead Free		Antimony/Antimony Compounds	Antimony (metallic)	7440-36-0		0.00000224	g	7	0.0007	0	0
Solder Balls - Lead Free		Arsenic/Arsenic Compounds	Arsenic	7440-38-2		0.00000224	g	7	0.0007	0	0
Solder Balls - Lead Free		Bismuth/Bismuth Compounds	Bismuth	7440-69-9		0.0000016	g	5	0.0005	0	0
Solder Balls - Lead Free		Metals	Copper, metal	7440-50-8		0.0022421	g	7000	0.7	693	0.0693
Solder Balls - Lead Free		Metals	Iron, metal	7439-89-6		0.00000577	g	18	0.0018	1	0.0001
Solder Balls - Lead Free		Lead/Lead Compounds	Lead	7439-92-1		0.00001794	g	56	0.0056	5	0.0005
Solder Balls - Lead Free		Metals	Silver, metal	7440-22-4		0.01204328	g	37600	3.76	3726	0.3726
Solder Balls - Lead Free		Metals	Tin, metal	7440-31-5		0.30598483	g	955307	95.5307	94688	9.4688
Silicon Semiconductor Die	0.04						g				
Silicon Semiconductor Die		Solvents, additives, and other materials	Other miscellaneous substances (less than 5%)	-		0.0008	g	20000	2	247	0.0247
Silicon Semiconductor Die		Glass	Silicon, doped	-		0.0392	g	980000	98	12130	1.213
Bonding Wire, PdCu	0.0178						g				
Bonding Wire, PdCu		Metals	Copper, metal	7440-50-8		0.0174618	g	981000	98.1	5403	5.403
Bonding Wire, PdCu		Metals	Gold, metal	7440-57-5		0.0000178	g	1000	0.1	5	0.0005
Bonding Wire, PdCu		Metals	Palladium, metal	7440-05-3		0.0003204	g	18000	1.8	99	0.0099

LINKS

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

IPC1752 XML LINKS

http://www.freescale.com/mcdfs/MCF5481CVR166_IPC1752_v11.xml

http://www.freescale.com/mcdfs/MCF5481CVR166_IPC1752A.xml