Freescale Semiconductor Inc

PART INFORMATION	
Mfg Item Number	MCF54450ACVM180
Mfg Item Name	MAPBGA 256 17*17*1.6P1.0

SUPPLIER	
Company Name	Freescale Semiconductor Inc
Company Unique ID	14-141-7928
Response Date	2017-12-20
Response Document ID	5246A1.34
Contact Name	Freescale Semiconductor Inc
Contact Title	Product Technical Support
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Authorized Representative	Daniel Binyon
Representative Title	EPP Customer Response
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Representative Email	eppanlst@freescale.com
URL for Additional Information	www.freescale.com

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

MANUFACTURING	
Mfg Item Number	MCF54450ACVM180
Mfg Item Name	MAPBGA 256 17*17*1.6P1.0
Version	ALL
Weight	0.785300
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	6(a) : Lead as an alloying element in steel for machining purposes and in galvanized steel containing up to 0.35% lead by weight 6(b) : Lead as an alloying element in aluminium containing up to 0.4% lead by weight 6(c) : Copper alloy containing up to 4% lead by weight 7(a) : Lead in high melting temperature type solders (i.e. lead-based alloys containing 85% by weight or more lead) 7(b) : Lead in solders for servers, storage and storage array systems, network infrastructure equipment for switching, signaling, transmission, and network management for telecommunications 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 7(c)-II : Lead in dielectric ceramic in capacitors for a rated voltage of 125 V AC or 250 V DC or higher 7(c)-III : Lead in dielectric ceramic in capacitors for a rated voltage of less than 125 V AC or 250 V DC 7(c)-IV : Lead in PZT based dielectric ceramic materials for capacitors being part of integrated circuits or discrete semiconductors 15 : Lead in solders to complete a viable electrical connection between semiconductor die and carrier within integrated circuit flip chip packages

MATERIAL COMPOSITION

Homogeneous Material	Weight	SubstanceClass	Substance	CAS	Exemption	SubstanceWeight	UoM	SubPart PPM	SubPart%		ARTICLEPPM	ARTICLE%
Solder Balls - Lead Free	0.1304						g					
Solder Balls - Lead Free		Metals	Aluminum, metal	7429-90-5		0.00000404	g	31	0.0031		5	0.0005
Solder Balls - Lead Free		Antimony/Antimony Compounds	Antimony (metallic)	7440-36-0		0.0000163	g	125	0.0125		20	0.002
Solder Balls - Lead Free		Arsenic/Arsenic Compounds	Arsenic	7440-38-2		0.00000965	g	74	0.0074		12	0.0012
Solder Balls - Lead Free		Bismuth/Bismuth Compounds	Bismuth	7440-69-9		0.00002438	g	187	0.0187		31	0.0031
Solder Balls - Lead Free		Cadmium/Cadmium Compounds	Cadmium	7440-43-9		0.00000156	g	12	0.0012		1	0.0001
Solder Balls - Lead Free		Metals	Copper, metal	7440-50-8		0.00065122	g	4994	0.4994		829	0.0829
Solder Balls - Lead Free		Metals	Gold, metal	7440-57-5		0.00000808	g	62	0.0062		10	0.001
Solder Balls - Lead Free		Metals	Indium, metal	7440-74-6		0.00000808	g	62	0.0062		10	0.001
Solder Balls - Lead Free		Solvents, additives, and other materials	Sulfur	7704-34-9		0.00000078	g	6	0.0006		0	0
Solder Balls - Lead Free		Solvents, additives, and other materials	Phosphorus, elemental (not containing red allotrope)	7723-14-0		0.00000808	g	62	0.0062		10	0.001
Solder Balls - Lead Free		Metals	Iron, metal	7439-89-6		0.0000163	g	125	0.0125		20	0.002
Solder Balls - Lead Free		Lead/Lead Compounds	Lead	7439-92-1		0.0000489	g	375	0.0375		62	0.0062
Solder Balls - Lead Free		Nickel (external applications only)	Nickel	7440-02-0		0.00000404	g	31	0.0031		5	0.0005
Solder Balls - Lead Free		Metals	Silver, metal	7440-22-4		0.00520987	g	39953	3.9953		6634	0.6634
Solder Balls - Lead Free		Metals	Tin, metal	7440-31-5		0.12438624	g	953882	95.3882		158393	15.8393
Solder Balls - Lead Free		Metals	Zinc, metal	7440-66-6		0.00000248	g	19	0.0019		3	0.0003
Non-Conductive Epoxy/Adhesive	0.0105						g					
Non-Conductive Epoxy/Adhesive		Plastics/polymers	Proprietary Material-Other Epoxy resins	-		0.0007875	g	75000	7.5		1002	0.1002
Non-Conductive Epoxy/Adhesive		Plastics/polymers	Crosslinked acrylate polymer	25767-43-5		0.0021	g	200000	20		2674	0.2674
Non-Conductive Epoxy/Adhesive		Plastics/polymers	Other polymers	-		0.0007875	g	75000	7.5		1002	0.1002
Non-Conductive Epoxy/Adhesive		Plastics/polymers	Proprietary Material-Other polymers	-		0.0021	g	200000	20		2674	0.2674
Non-Conductive Epoxy/Adhesive		Glass	Silica, vitreous	60676-86-0		0.004725	g	450000	45		6016	0.6016
Silicon Semiconductor Die	0.0933						g					
Silicon Semiconductor Die		Solvents, additives, and other materials	Other miscellaneous substances (less than 5%).	-		0.001866	g	20000	2		2376	0.2376
Silicon Semiconductor Die		Glass	Silicon, doped	-		0.091434	g	980000	98		116431	11.6431
Die Encapsulant, Halogen-free	0.342						g					
Die Encapsulant, Halogen-free		Metals	Other aluminum compounds	-		0.01026	g	30000	3		13065	1.3065
Die Encapsulant, Halogen-free		Solvents, additives, and other materials	Carbon Black	1333-86-4		0.00342	g	10000	1		4355	0.4355
Die Encapsulant, Halogen-free		Plastics/polymers	Phenol, polymer with formaldehyde	9003-35-4		0.01026	g	30000	3		13065	1.3065
Die Encapsulant, Halogen-free		Plastics/polymers	Other phenolic resins	-		0.01026	g	30000	3		13065	1.3065
Die Encapsulant, Halogen-free		Glass	Silica, vitreous	60676-86-0		0.2907	g	850000	85		370194	37.0194
Die Encapsulant, Halogen-free		Plastics/polymers	Other Non-halogenated Epoxy resins	-		0.0171	g	50000	5		21775	2.1775
Organic Substrate	0.2073						g					
Organic Substrate		Solvents, additives, and other materials	Acrylonitrile/Butadiene copolymer, carboxyl terminated (26/74)	68891-46-3		0.00081904	g	3951	0.3951		1042	0.1042
Organic Substrate		Metals	Barium sulfate	7727-43-7		0.00953228	g	45983	4.5983		12138	1.2138
Organic Substrate		Metals	Copper, metal	7440-50-8		0.0912319	g	440096	44.0096		116174	11.6174
Organic Substrate		Plastics/polymers	4,4'-dihydroxy-3,3',5,5'-tetramethylbiphenyl digycidyl ether	85954-11-6		0.00628679	g	30327	3.0327		8005	0.8005
Organic Substrate		Plastics/polymers	Phenolic Polymer Resin, Epikote 155	9003-36-5		0.05478027	g	264256	26.4256		69757	6.9757
Organic Substrate		Metals	Gold, metal	7440-57-5		0.00060304	g	2909	0.2909		767	0.0767
Organic Substrate		Solvents, additives, and other materials	Silicon	7440-21-3		0.00009867	g	476	0.0476		125	0.0125
Organic Substrate		Nickel (external applications only)	Nickel	7440-02-0		0.00254875	g	12295	1.2295		3245	0.3245
Organic Substrate		Glass	Fibrous-glass-wool	65997-17-3		0.03561704	g	171814	17.1814		45354	4.5354
Organic Substrate		Plastics/polymers	Other acrylic resins	-		0.00578222	g	27893	2.7893		7363	0.7363
Bonding Wire, PdCu	0.0018						g					
Bonding Wire, PdCu		Metals	Copper, metal	7440-50-8		0.00175139	g	972995	97.2995		2230	0.223
Bonding Wire, PdCu		Metals	Palladium, metal	7440-05-3		0.00004861	g	27005	2.7005		61	0.0061

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/mcds/MCF54450ACVM180_IPC1752_v11.xml

http://www.freescale.com/mcds/MCF54450ACVM180_IPC1752A.xml