

**PART INFORMATION**

Mfg Item Number	MK20DX64VMP5
Mfg Item Name	MAPBGA 64 5*5*1.2 P.5 2L

**SUPPLIER**

Company Name	Freescale Semiconductor Inc
Company Unique ID	14-141-7928
Response Date	2016-05-11
Response Document ID	00BEK00194D010A1.15
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	MK20DX64VMP5
Mfg Item Name	MAPBGA 64 5*5*1.2 P.5 2L
Version	ALL
Weight	0.064800
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%
Non-Conductive Epoxy/Adhesive	0.0011						g				
Non-Conductive Epoxy/Adhesive		Plastics/polymers	Proprietary Material-Other Epoxy resins	-		0.0000825	g	75000	7.5	1273	0.1273
Non-Conductive Epoxy/Adhesive		Plastics/polymers	Crosslinked acrylate polymer	25767-43-5		0.00022	g	200000	20	3395	0.3395
Non-Conductive Epoxy/Adhesive		Plastics/polymers	Other polymers	-		0.0000825	g	75000	7.5	1273	0.1273
Non-Conductive Epoxy/Adhesive		Plastics/polymers	Proprietary Material-Other polymers	-		0.00022	g	200000	20	3395	0.3395
Non-Conductive Epoxy/Adhesive		Glass	Silica, vitreous	60676-86-0		0.000495	g	450000	45	7638	0.7638
Solder Balls - Lead Free	0.0069						g				
Solder Balls - Lead Free		Antimony/Antimony Compounds	Antimony (metallic)	7440-36-0		0.00000045	g	65	0.0065	6	0.0006
Solder Balls - Lead Free		Arsenic/Arsenic Compounds	Arsenic	7440-38-2		0.00000022	g	32	0.0032	3	0.0003
Solder Balls - Lead Free		Bismuth/Bismuth Compounds	Bismuth	7440-69-9		0.00000017	g	25	0.0025	2	0.0002
Solder Balls - Lead Free		Metals	Copper, metal	7440-50-8		0.00003263	g	4729	0.4729	503	0.0503
Solder Balls - Lead Free		Metals	Iron, metal	7439-89-6		0.00000023	g	33	0.0033	3	0.0003
Solder Balls - Lead Free		Lead/Lead Compounds	Lead	7439-92-1		0.00000186	g	269	0.0269	28	0.0028
Solder Balls - Lead Free		Nickel (external applications only)	Nickel	7440-02-0		0.00000024	g	35	0.0035	3	0.0003
Solder Balls - Lead Free		Metals	Silver, metal	7440-22-4		0.00006402	g	9278	0.9278	987	0.0987
Solder Balls - Lead Free		Metals	Tin, metal	7440-31-5		0.00679974	g	985470	98.547	104934	10.4934
Solder Balls - Lead Free		Metals	Germanium	7440-56-4		0.00000044	g	64	0.0064	6	0.0006
Bonding Wire, Copper	0.0008						g				
Bonding Wire, Copper		Metals	Copper, metal	7440-50-8		0.000776	g	970000	97	11975	1.1975
Bonding Wire, Copper		Solvents, additives, and other materials	Other miscellaneous substances (less than 5%)	-		0.000024	g	30000	3	370	0.037
Die Encapsulant, Halogen-free	0.03						g				
Die Encapsulant, Halogen-free		Metals	Other aluminum compounds	-		0.0009	g	30000	3	13888	1.3888
Die Encapsulant, Halogen-free		Solvents, additives, and other materials	Carbon Black	1333-86-4		0.0003	g	10000	1	4629	0.4629
Die Encapsulant, Halogen-free		Plastics/polymers	Phenol, polymer with formaldehyde	9003-35-4		0.0009	g	30000	3	13888	1.3888
Die Encapsulant, Halogen-free		Plastics/polymers	Other phenolic resins	-		0.0009	g	30000	3	13888	1.3888
Die Encapsulant, Halogen-free		Glass	Silica, vitreous	60676-86-0		0.0255	g	850000	85	393540	39.354
Die Encapsulant, Halogen-free		Plastics/polymers	Other Non-halogenated Epoxy resins	-		0.0015	g	50000	5	23148	2.3148
Silicon Semiconductor Die	0.006						g				
Silicon Semiconductor Die		Solvents, additives, and other materials	Other miscellaneous substances (less than 5%)	-		0.00012	g	20000	2	1851	0.1851
Silicon Semiconductor Die		Glass	Silicon, doped	-		0.00588	g	980000	98	90740	9.074
Organic Substrate	0.02						g				
Organic Substrate		Solvents, additives, and other materials	Other aromatic amines and their salts	-		0.00000508	g	254	0.0254	78	0.0078
Organic Substrate		Metals	Barium sulfate	7727-43-7		0.00017118	g	8559	0.8559	2641	0.2641
Organic Substrate		Metals	Copper, metal	7440-50-8		0.00959432	g	479716	47.9716	148060	14.806
Organic Substrate		Plastics/polymers	Other Epoxy resins	-		0.00093598	g	46799	4.6799	14444	1.4444
Organic Substrate		Metals	Gold, metal	7440-57-5		0.00040528	g	20264	2.0264	6254	0.6254
Organic Substrate		Metals	Talc	14807-96-6		0.00008622	g	4311	0.4311	1330	0.133
Organic Substrate		Nickel (external applications only)	Nickel	7440-02-0		0.00316242	g	158121	15.8121	48802	4.8802
Organic Substrate		Glass	Fibrous-glass-wool	65997-17-3		0.00415986	g	207993	20.7993	64195	6.4195
Organic Substrate		Glass	Silicon dioxide	7631-86-9		0.0007102	g	35510	3.551	10959	1.0959
Organic Substrate		Solvents, additives, and other materials	Other Aromatic carbonyl compounds	-		0.00003208	g	1604	0.1604	495	0.0495
Organic Substrate		Metals	Copper phthalocyanine	147-14-8		0.00000154	g	77	0.0077	23	0.0023
Organic Substrate		Solvents, additives, and other materials	Quinacridone pigment	1047-16-1		0.00000154	g	77	0.0077	23	0.0023
Organic Substrate		Solvents, additives, and other materials	3-methoxy-3-methyl-1-butyl acetate	103429-90-9		0.00018756	g	9378	0.9378	2894	0.2894
Organic Substrate		Plastics/polymers	Epoxy Resin	115254-47-2		0.0005452	g	27260	2.726	8413	0.8413
Organic Substrate		Solvents, additives, and other materials	1,2,4-Trimethylbenzene	95-63-6		0.00000154	g	77	0.0077	23	0.0023

## 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/MK20DX64VMP5\\_IPC1752\\_v11.xml](http://www.freescale.com/mcdfs/MK20DX64VMP5_IPC1752_v11.xml)

[http://www.freescale.com/mcdfs/MK20DX64VMP5\\_IPC1752A.xml](http://www.freescale.com/mcdfs/MK20DX64VMP5_IPC1752A.xml)