

**PART INFORMATION**

Mfg Item Number	MK22FN1M0AVMC12
Mfg Item Name	MAPBGA 121 8*8*1.5 P0.65

**SUPPLIER**

Company Name	Freescale Semiconductor Inc
Company Unique ID	14-141-7928
Response Date	2017-06-27
Response Document ID	00ADA1.13
Contact Name	Freescale Semiconductor Inc
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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	MK22FN1M0AVMC12
Mfg Item Name	MAPBGA 121 8*8*1.5 P0.65
Version	ALL
Weight	0.167700
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%
Bonding Wire, P0Cu	0.013						g				
Bonding Wire, P0Cu		Metals	Copper, metal	7440-50-8		0.01261	g	970000	97	75193	7.5193
Bonding Wire, P0Cu		Metals	Palladium, metal	7440-05-3		0.00039	g	30000	3	2325	0.2325
Solder Balls - Lead Free	0.013						g				
Solder Balls - Lead Free		Metals	Copper, metal	7440-50-8		0.000065	g	5000	0.5	387	0.0387
Solder Balls - Lead Free		Metals	Silver, metal	7440-22-4		0.00039	g	30000	3	2325	0.2325
Solder Balls - Lead Free		Metals	Tin, metal	7440-31-5		0.012545	g	955000	95.5	74806	7.4806
Epoxy Die Attach	0.0028						g				
Epoxy Die Attach		Plastics/polymers	Phenolic Polymer Resin, Epikote 155	9003-36-5		0.00032458	g	115920	11.592	1935	0.1935
Epoxy Die Attach		Plastics/polymers	Other Epoxy resins	-		0.00017744	g	63370	6.337	1058	0.1058
Epoxy Die Attach		Solvents, additives, and other materials	1-cyanoguanidine	461-58-5		0.00000865	g	3091	0.3091	51	0.0051
Epoxy Die Attach		Metals	Silver, metal	7440-22-4		0.00228933	g	817619	81.7619	13651	1.3651
Die Encapsulant, Halogen-free	0.0704						g				
Die Encapsulant, Halogen-free		Plastics/polymers	Other Epoxy resins	-		0.00352	g	50000	5	20989	2.0989
Die Encapsulant, Halogen-free		Solvents, additives, and other materials	Carbon Black	1333-86-4		0.0002112	g	3000	0.3	1259	0.1259
Die Encapsulant, Halogen-free		Plastics/polymers	Phenol, polymer with formaldehyde	9003-35-4		0.002112	g	30000	3	12593	1.2593
Die Encapsulant, Halogen-free		Glass	Silica, vitreous	80676-86-0		0.0645568	g	917000	91.7	384967	38.4967
Organic Substrate, Halogen-free	0.06						g				
Organic Substrate, Halogen-free		Metals	Barium sulfate	7727-43-7		0.00144714	g	24119	2.4119	8629	0.8629
Organic Substrate, Halogen-free		Metals	Copper, metal	7440-50-8		0.04296438	g	716073	71.6073	256197	25.6197
Organic Substrate, Halogen-free		Plastics/polymers	4,4'-dihydroxy-3,3',5,5'-tetramethylbiphenyl diglycidyl ether	85954-11-6		0.00033744	g	5624	0.5624	2012	0.2012
Organic Substrate, Halogen-free		Metals	Gold, metal	7440-57-5		0.00012954	g	2159	0.2159	772	0.0772
Organic Substrate, Halogen-free		Metals	Talc	14807-96-6		0.0001509	g	2515	0.2515	899	0.0899
Organic Substrate, Halogen-free		Nickel (external applications only)	Nickel	7440-02-0		0.00099324	g	16554	1.6554	5922	0.5922
Organic Substrate, Halogen-free		Glass	Fibrous-glass-wool	65997-17-3		0.01256934	g	209489	20.9489	74951	7.4951
Organic Substrate, Halogen-free		Glass	Silicon dioxide	7631-86-9		0.00050382	g	8397	0.8397	3004	0.3004
Organic Substrate, Halogen-free		Metals	Copper phthalocyanine	147-14-8		0.00000954	g	159	0.0159	56	0.0056
Organic Substrate, Halogen-free		Solvents, additives, and other materials	3-methoxy-3-methyl-1-butyl acetate	103429-90-9		0.00089466	g	14911	1.4911	5334	0.5334
Silicon Semiconductor Die	0.0085						g				
Silicon Semiconductor Die		Solvents, additives, and other materials	Other miscellaneous substances (less than 5%)	-		0.00017	g	20000	2	1013	0.1013
Silicon Semiconductor Die		Glass	Silicon, doped	-		0.00833	g	980000	98	49672	4.9672

## 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/MK22FN1M0AVMC12\\_IPC1752\\_v11.xml](http://www.freescale.com/mcdfs/MK22FN1M0AVMC12_IPC1752_v11.xml)

[http://www.freescale.com/mcdfs/MK22FN1M0AVMC12\\_IPC1752A.xml](http://www.freescale.com/mcdfs/MK22FN1M0AVMC12_IPC1752A.xml)