

PART INFORMATION

Mfg Item Number	MK22FN512VDC12R
Mfg Item Name	MAPBGA 121 8*8*0.5 P0.65

SUPPLIER

Company Name	Freescale Semiconductor Inc
Company Unique ID	14-141-7928
Response Date	2018-06-04
Response Document ID	00F8A1.2
Contact Name	Freescale Semiconductor Inc
Contact Title	Product Technical Support
Contact Phone	1-800-521-6274
Contact Email	support@freescale.com
Authorized Representative	Daniel Binyon
Representative Title	EPP Customer Response
Representative Phone	512-895-3406
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	MK22FN512VDC12R
Mfg Item Name	MAPBGA 121 8*8*0.5 P0.65
Version	ALL
Weight	0.053900
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, PwCu	0.0008						g				
Bonding Wire, PwCu		Metals	Copper, metal	7440-50-8		0.0007848	g	981000	98.1	14560	1.456
Bonding Wire, PwCu		Metals	Gold, metal	7440-57-5		0.0000008	g	1000	0.1	14	0.0014
Bonding Wire, PwCu		Metals	Palladium, metal	7440-05-3		0.0000144	g	18000	1.8	267	0.0267
Solder Balls - Lead Free	0.0038						g				
Solder Balls - Lead Free		Metals	Copper, metal	7440-50-8		0.000019	g	5000	0.5	352	0.0352
Solder Balls - Lead Free		Metals	Silver, metal	7440-22-4		0.0000038	g	10000	1	705	0.0705
Solder Balls - Lead Free		Metals	Tin, metal	7440-31-5		0.003743	g	985000	98.5	69443	6.9443
Die Encapsulant, Halogen-free	0.026						g				
Die Encapsulant, Halogen-free		Solvents, additives, and other materials	Acrylonitrile/Butadiene copolymer, carboxyl terminated (2674)	68891-46-3		0.000013	g	500	0.05	241	0.0241
Die Encapsulant, Halogen-free		Metals	Proprietary Material-Other aluminum compounds	-		0.00026	g	10000	1	4823	0.4823
Die Encapsulant, Halogen-free		Plastics/polymers	Other Epoxy resins	-		0.00065	g	25000	2.5	12059	1.2059
Die Encapsulant, Halogen-free		Plastics/polymers	Proprietary Material-Other Epoxy resins	-		0.00065	g	25000	2.5	12059	1.2059
Die Encapsulant, Halogen-free		Solvents, additives, and other materials	Carbon Black	1333-86-4		0.00013	g	5000	0.5	2411	0.2411
Die Encapsulant, Halogen-free		Plastics/polymers	Proprietary Material-Other phenolic resins	-		0.00104	g	40000	4	19294	1.9294
Die Encapsulant, Halogen-free		Glass	Silicon dioxide	7631-86-9		0.0052	g	200000	20	96474	9.6474
Die Encapsulant, Halogen-free		Glass	Silica, vitreous	60676-86-0		0.018067	g	694500	69.45	335026	33.5026
Adhesive Film	0.0007						g				
Adhesive Film		Plastics/polymers	Poly([o-cresyl glycidyl ether]-co-formaldehyde)	29690-82-2		0.00007	g	100000	10	1298	0.1298
Adhesive Film		Plastics/polymers	4,4'-isopropylidenediphenol-1-chloro-2,3-epoxypropane concentrate	25068-38-6		0.000175	g	250000	25	3246	0.3246
Adhesive Film		Plastics/polymers	Phenol p-xylylene dimethyl ether copolymer	26834-02-6		0.00021	g	300000	30	3896	0.3896
Adhesive Film		Glass	Silicon dioxide	7631-86-9		0.000175	g	250000	25	3246	0.3246
Adhesive Film		Plastics/polymers	Acrylic acid ester copolymer	78506-70-4		0.00007	g	100000	10	1298	0.1298
Organic Substrate	0.0185						g				
Organic Substrate		Solvents, additives, and other materials	Other aromatic amines and their salts	-		0.0000059	g	319	0.0319	109	0.0109
Organic Substrate		Metals	Barium sulfate	7727-43-7		0.00019913	g	10764	1.0764	3694	0.3694
Organic Substrate		Metals	Copper, metal	7440-50-8		0.00608767	g	329064	32.9064	112943	11.2943
Organic Substrate		Plastics/polymers	Phenolic Polymer Resin, Epikote 155	9003-36-5		0.00292881	g	158314	15.8314	54337	5.4337
Organic Substrate		Metals	Gold, metal	7440-57-5		0.0058935	g	31857	3.1857	10934	1.0934
Organic Substrate		Metals	Talc	14807-96-6		0.00010033	g	5423	0.5423	1861	0.1861
Organic Substrate		Nickel (external applications only)	Nickel	7440-02-0		0.00459929	g	248610	24.861	85330	8.533
Organic Substrate		Glass	Fibrous-glass-wool	65997-17-3		0.00039052	g	21109	2.1109	7245	0.7245
Organic Substrate		Glass	Silicon dioxide	7631-86-9		0.00010033	g	5423	0.5423	1861	0.1861
Organic Substrate		Solvents, additives, and other materials	Other Aromatic carbonyl compounds	-		0.00003733	g	2018	0.2018	692	0.0692
Organic Substrate		Metals	Aluminum Hydroxide	21645-51-2		0.00260339	g	140724	14.0724	48300	4.83
Organic Substrate		Metals	Copper phthalocyanine	147-14-8		0.00000178	g	95	0.0095	32	0.0032
Organic Substrate		Solvents, additives, and other materials	Quinacridone pigment	1047-16-1		0.00000178	g	95	0.0095	32	0.0032
Organic Substrate		Solvents, additives, and other materials	3-methoxy-3-methyl-1-butyl acetate	103429-90-9		0.00021832	g	11801	1.1801	4050	0.405
Organic Substrate		Plastics/polymers	Epoxy Resin	115254-47-2		0.00063431	g	34287	3.4287	11768	1.1768
Organic Substrate		Solvents, additives, and other materials	1,2,4-Trimethylbenzene	95-63-6		0.00000178	g	95	0.0095	32	0.0032
Silicon Semiconductor Die	0.0041						g				
Silicon Semiconductor Die		Solvents, additives, and other materials	Other miscellaneous substances (less than 5%)	-		0.000082	g	20000	2	1521	0.1521
Silicon Semiconductor Die		Glass	Silicon, doped	-		0.004018	g	980000	98	74545	7.4545

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/MK22FN512VDC12R_IPC1752_v11.xml

http://www.freescale.com/mcdfs/MK22FN512VDC12R_IPC1752A.xml