Freescale Semiconductor Inc

PART INFORMATION	
Mfg Item Number	MK81FN256VDC15R
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	2016-10-18
Response Document ID	00F8K10949D412A1.0
Contact Name	Freescale Semiconductor Inc
Contact Title	Product Technical Support
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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	MK81FN256VDC15R
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	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%
Bonding Wire, PdCu	0.0008						g					
Bonding Wire, PdCu		Metals	Copper, metal	7440-50-8		0.0007848	g	980994	98.0994		14560	1.456
Bonding Wire, PdCu		Metals	Gold, metal	7440-57-5		0.0000008	g	1000	0.1		14	0.0014
Bonding Wire, PdCu		Metals	Palladium, metal	7440-05-3		0.0000144	g	18006	1.8006		267	0.0267
Non-Conductive Epoxy/Adhesive	0.0007						g					
Non-Conductive Epoxy/Adhesive		Plastics/polymers	Poly[(o-cresyl glycidyl ether)-co-formaldehyde]	29690-82-2		0.00007	g	100000	10		1298	0.1298
Non-Conductive Epoxy/Adhesive		Plastics/polymers	4,4'-Isopropylidenediphenol-1-chloro-2,3-epoxypropane concentrate	25068-38-6		0.000175	g	250000	25		3246	0.3246
Non-Conductive Epoxy/Adhesive		Plastics/polymers	Phenol p-xylylene dimethyl ether copolymer	26834-02-6		0.00021	g	300000	30		3896	0.3896
Non-Conductive Epoxy/Adhesive		Glass	Silicon dioxide	7631-86-9		0.000175	g	250000	25		3246	0.3246
Non-Conductive Epoxy/Adhesive		Plastics/polymers	Acrylic acid ester copolymer	78506-70-4		0.00007	g	100000	10		1298	0.1298
Solder Balls - Lead Free	0.0038						g					
Solder Balls - Lead Free		Metals	Copper, metal	7440-50-8		0.00001905	g	5012	0.5012		353	0.0353
Solder Balls - Lead Free		Metals	Silver, metal	7440-22-4		0.00003809	g	10024	1.0024		706	0.0706
Solder Balls - Lead Free		Metals	Tin, metal	7440-31-5		0.00374286	g	984964	98.4964		69440	6.944
Die Encapsulant, Halogen-free	0.026						g					
Die Encapsulant, Halogen-free		Metals	Other aluminum compounds	-		0.00052	g	20000	2		9647	0.9647
Die Encapsulant, Halogen-free		Plastics/polymers	Other Epoxy resins	-		0.0013	g	50000	5		24118	2.4118
Die Encapsulant, Halogen-free		Solvents, additives, and other materials	Carbon Black	1333-86-4		0.00026	g	10000	1		4823	0.4823
Die Encapsulant, Halogen-free		Solvents, additives, and other materials	Other organic phosphorous compounds	-		0.00026	g	10000	1		4823	0.4823
Die Encapsulant, Halogen-free		Plastics/polymers	Phenol, polymer with formaldehyde	9003-35-4		0.00078	g	30000	3		14471	1.4471
Die Encapsulant, Halogen-free		Plastics/polymers	Other phenolic resins	-		0.00078	g	30000	3		14471	1.4471
Die Encapsulant, Halogen-free		Glass	Silica, vitreous	60676-86-0		0.0221	g	850000	85		410033	41.0033
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
Organic Substrate	0.0185						g					
Organic Substrate		Metals	Aluminum, metal	7429-90-5		0.00004816	g	2603	0.2603		893	0.0893
Organic Substrate		Arsenic/Arsenic Compounds	Arsenic	7440-38-2		0.00000224	g	121	0.0121		41	0.0041
Organic Substrate		Metals	Barium sulfate	7727-43-7		0.00050383	g	27234	2.7234		9347	0.9347
Organic Substrate		Metals	Copper, metal	7440-50-8		0.00678813	g	366926	36.6926		125939	12.5939
Organic Substrate		Metals	Gold, metal	7440-57-5		0.00104667	g	56577	5.6577		19418	1.9418
Organic Substrate		Metals	Magnesium, metal	7439-95-4		0.00017248	g	9323	0.9323		3200	0.32
Organic Substrate		Nickel (external applications only)	Nickel	7440-02-0		0.00680682	g	367936	36.7936		126286	12.6286
Organic Substrate		Glass	Fibrous-glass-wool	65997-17-3		0.00099043	g	53537	5.3537		18375	1.8375
Organic Substrate		Metals	Zinc, metal	7440-66-6		0.00002771	g	1498	0.1498		514	0.0514
Organic Substrate		Metals	Aluminum Hydroxide	21645-51-2		0.00047704	g	25786	2.5786		8850	0.885
Organic Substrate		Solvents, additives, and other materials	3-methoxy-3-methyl-1-butyl acetate	103429-90-9		0.00040382	g	21828	2.1828		7492	0.7492
Organic Substrate		Plastics/polymers	Methacrylic acid, polymer with 2,2-bis(p-(2,3-epoxypropoxy)phenyl)propane	26875-67-2		0.00123267	g	66631	6.6631		22869	2.2869

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/MK81FN256VDC15R_IPC1752_v11.xml

http://www.freescale.com/mcds/MK81FN256VDC15R_IPC1752A.xml