

PART INFORMATION		
Mfg Item Number	MSC8157ESAG1000A	
Mfg Item Name	FCPBGA 783 29SQ3.55P1.0	
SUPPLIER		
Company Name	Freescale Semiconductor Inc	
Company Unique ID	14-141-7928	
Response Date	2017-06-03	
Response Document ID	8448K50008S298A1.4	
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	MSC8157ESAG1000A	
Mfg Item Name	FCPBGA 783 29SQ3.55P1.0	
Version	ALL	
Weight	11.096300	
UoM	g	
Unit Volume	EACH	
J-STD-020 MSL Rating	3	
Peak Processing Temperature	245 C	
Max Time at Peak Temperature	30 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 Agent	0.0852						g					
Bonding Agent		Solvents, additives, and other materials	Siloxanes and silicones, di-Me, vinyl group-terminated	68083-19-2		0.03834	g	450000	45		3455	0.3455
Bonding Agent		Glass	Silica, crystalline - quartz (SiO2)	14808-60-7		0.03408	g	400000	40		3071	0.3071
Bonding Agent		Solvents, additives, and other materials	Dimethylvinylated and trimethylated silica	68988-89-6		0.01278	g	150000	15		1151	0.1151
Die Encapsulant, Filler	0.0281						g					
Die Encapsulant, Filler		Metals	Aluminum, metal	7429-90-5		0.020232	g	720000	72		1823	0.1823
Die Encapsulant, Filler		Solvents, additives, and other materials	Proprietary Material-Other siloxanes and silicones	-		0.002529	g	80000	9		227	0.0227
Die Encapsulant, Filler		Metals	Zinc oxide	1314-13-2		0.005058	g	180000	18		455	0.0455
Die Encapsulant, Filler		Solvents, additives, and other materials	Proprietary Material-Other miscellaneous substances.	-		0.000281	g	10000	1		25	0.0025
Solder Balls - Lead Free	0.7763						g					
Solder Balls - Lead Free		Metals	Copper, metal	7440-50-8		0.00388849	g	5009	0.5009		350	0.035
Solder Balls - Lead Free		Metals	Silver, metal	7440-22-4		0.02333092	g	30054	3.0054		2102	0.2102
Solder Balls - Lead Free		Metals	Tin, metal	7440-31-5		0.74908059	g	964937	96.4937		67507	6.7507
Underfill	0.0424						g					
Underfill		Bismuth/Bismuth Compounds	Bismuth nitrate	10361-44-1		0.000212	g	5000	0.5		19	0.0019
Underfill		Bismuth/Bismuth Compounds	Bismuth trioxide	1304-76-3		0.000212	g	5000	0.5		19	0.0019
Underfill		Plastics/polymers	1,6-Bis(2,3-epoxypropoxy) naphthalene	27610-48-6		0.00636	g	150000	15		573	0.0573
Underfill		Plastics/polymers	Phenolic Polymer Resin, Epikote 155	9003-36-5		0.00424	g	100000	10		382	0.0382
Underfill		Solvents, additives, and other materials	Carbon Black	1333-86-4		0.000212	g	5000	0.5		19	0.0019
Underfill		Plastics/polymers	4,4'-Isopropylidenediphenol-1-chloro-2,3-epoxypropane concentrate	25068-38-6		0.001272	g	30000	3		114	0.0114
Underfill		Glass	Silica, vitreous	60676-86-0		0.02544	g	600000	60		2292	0.2292
Underfill		Solvents, additives, and other materials	Proprietary Material-Other miscellaneous substances.	-		0.000212	g	5000	0.5		19	0.0019
Underfill		Solvents, additives, and other materials	Proprietary Material-Other aliphatic amine compounds	-		0.00424	g	100000	10		382	0.0382
Heat Spreader	7.435						g					
Heat Spreader		Metals	Copper, metal	7440-50-8		6.99043161	g	940206	94.0206		630001	63.0001
Heat Spreader		Nickel (external applications only)	Nickel	7440-02-0		0.44456839	g	59794	5.9794		40064	4.0064
Capacitor, 0402	0.0116						g					
Capacitor, 0402		Solvents, additives, and other materials	Calcium monoxide	1305-79-8		0.00020866	g	17988	1.7988		18	0.0018
Capacitor, 0402		Metals	Cuprous oxide	1317-39-1		0.00054098	g	46636	4.6636		48	0.0048
Capacitor, 0402		Nickel (external applications only)	Nickel	7440-02-0		0.00072645	g	62625	6.2625		65	0.0065
Capacitor, 0402		Metals	Tin, metal	7440-31-5		0.0001623	g	13991	1.3991		14	0.0014
Capacitor, 0402		Metals	Barium titanate	12047-27-7		0.00996161	g	858760	85.876		897	0.0897
Organic Substrate, Halogen-free	2.5						g					
Organic Substrate, Halogen-free		Arsenic/Arsenic Compounds	Arsenic	7440-39-2		0.0000175	g	7	0.0007		1	0.0001
Organic Substrate, Halogen-free		Metals	Barium sulfate	7727-43-7		0.0100575	g	4023	0.4023		906	0.0906
Organic Substrate, Halogen-free		Metals	Copper, metal	7440-50-8		0.911005	g	364402	36.4402		82099	8.2099
Organic Substrate, Halogen-free		Plastics/polymers	2,2'-(1-methylethylidene)bis(4,1-phenyleneoxymethylene)bisoxirane	1675-54-3		0.020155	g	8062	0.8062		1816	0.1816
Organic Substrate, Halogen-free		Plastics/polymers	Other Epoxy resins	-		0.02672	g	82688	8.2688		18629	1.8629
Organic Substrate, Halogen-free		Lead/Lead Compounds	Lead	7439-92-1		0.00001	g	4	0.0004		0	0
Organic Substrate, Halogen-free		Plastics/polymers	4,4'-Isopropylidenediphenol-1-chloro-2,3-epoxypropane concentrate	25068-38-6		0.0350425	g	14017	1.4017		3158	0.3158
Organic Substrate, Halogen-free		Glass	Fibrous-glass-wool	65997-17-3		0.731985	g	292794	29.2794		65966	6.5966
Organic Substrate, Halogen-free		Glass	Silicon dioxide	7631-86-9		0.1834425	g	73377	7.3377		16531	1.6531
Organic Substrate, Halogen-free		Metals	Silver, metal	7440-22-4		0.0006425	g	257	0.0257		57	0.0057
Organic Substrate, Halogen-free		Metals	Tin, metal	7440-31-5		0.0207025	g	8281	0.8281		1865	0.1865
Organic Substrate, Halogen-free		Metals	Aluminum Hydroxide	21645-51-2		0.3786125	g	151445	15.1445		34120	3.412
Organic Substrate, Halogen-free		Metals	Copper phthalocyanine	147-14-8		0.0019075	g	643	0.0643		144	0.0144
Pb-free Bumped Semiconductor D	0.2177						g					
Pb-free Bumped Semiconductor D		Nickel (external applications only)	Nickel	7440-02-0		0.0010885	g	5000	0.5		98	0.0098
Pb-free Bumped Semiconductor D		Metals	Silver, metal	7440-22-4		0.00068576	g	3150	0.315		61	0.0061
Pb-free Bumped Semiconductor D		Metals	Tin, metal	7440-31-5		0.01890725	g	86850	8.685		1703	0.1703
Pb-free Bumped Semiconductor D		Solvents, additives, and other materials	Other miscellaneous substances (less than 5%).	-		0.0019593	g	9000	0.9		176	0.0176
Pb-free Bumped Semiconductor D		Glass	Silicon, doped	-		0.19505919	g	896000	89.6		17578	1.7578

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/MS8157ESAG1000A\\_IPC1752\\_v11.xml](http://www.freescale.com/mcdfs/MS8157ESAG1000A_IPC1752_v11.xml)

[http://www.freescale.com/mcdfs/MS8157ESAG1000A\\_IPC1752A.xml](http://www.freescale.com/mcdfs/MS8157ESAG1000A_IPC1752A.xml)