

PART INFORMATION	
Mfg Item Number	P2020NSN2MHC
Mfg Item Name	TEPBGA 689 31*31*2.23 P1
SUPPLIER	
Company Name	Freescale Semiconductor Inc
Company Unique ID	14-141-7928
Response Date	2018-01-09
Response Document ID	007PK11235D034A1.29
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	e2
EU RoHS Exemption(s)	
MANUFACTURING	
Mfg Item Number	P2020NSN2MHC
Mfg Item Name	TEPBGA 689 31*31*2.23 P1
Version	ALL
Weight	5.247200
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%
Epoxy Die Attach	0.0088						g				
Epoxy Die Attach		Solvents, additives, and other materials	1,3,5-Triazine-2,4-diamine, 6-[2-(2-methyl-1H-imidazol-1-yl)ethyl]	38668-46-1		0.00007437	g	8451	0.8451	14	0.0014
Epoxy Die Attach		Plastics/polymers	Phenolic Polymer Resin, Epikote 155	9003-36-5		0.0011403	g	129579	12.9579	217	0.0217
Epoxy Die Attach		Plastics/polymers	4,4'-Dihydroxydiphenyl	92-88-6		0.00007437	g	8451	0.8451	14	0.0014
Epoxy Die Attach		Metals	Silver, metal	7440-22-4		0.00751096	g	853519	85.3519	1431	0.1431
Solder Balls - Pb Free, Sn/Kg	0.5731						g				
Solder Balls - Pb Free, Sn/Kg		Metals	Silver, metal	7440-22-4		0.0200595	g	35000	3.5	3822	0.3822
Solder Balls - Pb Free, Sn/Kg		Metals	Tin, metal	7440-31-5		0.5530415	g	965000	96.5	105397	10.5397
Non-Conductive Epoxy/Adhesive	0.0088						g				
Non-Conductive Epoxy/Adhesive		Solvents, additives, and other materials	Carbon Black	1333-86-4		0.000088	g	10000	1	16	0.0016
Non-Conductive Epoxy/Adhesive		Solvents, additives, and other materials	Siloxanes and silicones, di-Me, vinyl group-terminated	68083-19-2		0.00396	g	450000	45	754	0.0754
Non-Conductive Epoxy/Adhesive		Glass	Silica, crystalline - quartz (SiO2)	14808-60-7		0.000088	g	10000	1	16	0.0016
Non-Conductive Epoxy/Adhesive		Glass	Silica, vitreous	60676-86-0		0.00176	g	200000	20	335	0.0335
Non-Conductive Epoxy/Adhesive		Glass	Other silica compounds	-		0.00176	g	200000	20	335	0.0335
Non-Conductive Epoxy/Adhesive		Glass	Dimethyl silicone polymer with silica	67762-90-7		0.000704	g	80000	8	134	0.0134
Non-Conductive Epoxy/Adhesive		Solvents, additives, and other materials	Dimethyl,methyl hydrogen siloxane	68037-59-2		0.00044	g	50000	5	83	0.0083
Die Encapsulant	1.3547						g				
Die Encapsulant		Plastics/polymers	Other Epoxy resins	-		0.081262	g	60000	6	15490	1.549
Die Encapsulant		Solvents, additives, and other materials	Carbon Black	1333-86-4		0.013547	g	10000	1	2581	0.2581
Die Encapsulant		Solvents, additives, and other materials	Other inorganic compounds.	-		0.027094	g	20000	2	5163	0.5163
Die Encapsulant		Plastics/polymers	Other phenolic resins	-		0.067735	g	50000	5	12908	1.2908
Die Encapsulant		Glass	Silica, vitreous	60676-86-0		1.165042	g	860000	86	222031	22.2031
Heat Spreader	1.4822						g				
Heat Spreader		Metals	Copper, metal	7440-50-8		1.46405788	g	987760	98.776	279035	27.9035
Heat Spreader		Metals	Eupric oxide	1317-38-0		0.00503948	g	3400	0.34	960	0.096
Heat Spreader		Plastics/polymers	Epoxy resin, EPON Resin 8091	25028-94-3		0.0122815	g	8250	0.825	2330	0.233
Heat Spreader		Solvents, additives, and other materials	Carbon Black	1333-86-4		0.00054841	g	370	0.037	104	0.0104
Heat Spreader		Glass	Silica, amorphous synthetic	112929-00-8		0.00032608	g	220	0.022	62	0.0062
Organic Substrate, Halogen-free	1.753						g				
Organic Substrate, Halogen-free		Metals	Aluminum Oxides (Al2O3)	1344-29-1		0.09972291	g	56887	5.6887	19004	1.9004
Organic Substrate, Halogen-free		Metals	Barium	7440-39-3		0.02055568	g	11726	1.1726	3917	0.3917
Organic Substrate, Halogen-free		Metals	Copper, metal	7440-50-8		1.18608681	g	676604	67.6604	226041	22.6041
Organic Substrate, Halogen-free		Plastics/polymers	2,2'-(1-methylethylidene)bis[4,1-phenyleneoxymethylene]bisoxirane	1675-54-3		0.0045876	g	2617	0.2617	874	0.0874
Organic Substrate, Halogen-free		Metals	Gold, metal	7440-57-5		0.00272592	g	1555	0.1555	519	0.0519
Organic Substrate, Halogen-free		Nickel (external applications only)	Nickel	7440-02-0		0.01614162	g	9208	0.9208	3076	0.3076
Organic Substrate, Halogen-free		Glass	Fibrous-glass-wool	65997-17-3		0.21352066	g	121803	12.1803	40692	4.0692
Organic Substrate, Halogen-free		Glass	Silica, crystalline - quartz (SiO2)	14808-60-7		0.0254781	g	14534	1.4534	4855	0.4855
Organic Substrate, Halogen-free		Solvents, additives, and other materials	Proprietary Material-Other miscellaneous substances.	-		0.08647724	g	49331	4.9331	16480	1.648
Organic Substrate, Halogen-free		Plastics/polymers	Other Non-halogenated Epoxy resins	-		0.09770346	g	55735	5.5735	18620	1.862
Bonding Wire, PdCu	0.0129						g				
Bonding Wire, PdCu		Metals	Copper, metal	7440-50-8		0.01259491	g	976350	97.635	2400	0.24
Bonding Wire, PdCu		Metals	Gold, metal	7440-57-5		0.00002188	g	1696	0.1696	4	0.0004
Bonding Wire, PdCu		Metals	Palladium, metal	7440-05-3		0.00028321	g	21954	2.1954	53	0.0053
Silicon Semiconductor Die	0.0537						g				
Silicon Semiconductor Die		Solvents, additives, and other materials	Other miscellaneous substances (less than 5%).	-		0.001074	g	20000	2	204	0.0204
Silicon Semiconductor Die		Glass	Silicon, doped	-		0.052626	g	980000	98	10029	1.0029

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/P2020NSN2MHC_IPC1752_v11.xml

http://www.freescale.com/mcds/P2020NSN2MHC_IPC1752A.xml