

**PART INFORMATION**

Mfg Item Number	KCU8313VRAFFC
Mfg Item Name	PBGAPGE 516 27SQ*1.25P1

**SUPPLIER**

Company Name	Freescale Semiconductor Inc
Company Unique ID	14-141-7928
Response Date	2017-09-18
Response Document ID	5368K11245D019A1.6
Contact Name	Freescale Semiconductor Inc
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**DECLARATION**

EU RoHS	Yes
Pb Free	Yes
HalogenFree	Yes
Plating Indicator	e2
EU RoHS Exemption(s)	

**MANUFACTURING**

Mfg Item Number	KCU8313VRAFFC
Mfg Item Name	PBGAPGE 516 27SQ*1.25P1
Version	ALL
Weight	5.496900
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%
Epoxy Die Attach	0.01						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		0.00008451	g	8451	0.8451	15	0.0015
Epoxy Die Attach		Plastics/polymers	Phenolic Polymer Resin, Epikote 155	9003-96-5		0.00129579	g	129579	12.9579	235	0.0235
Epoxy Die Attach		Plastics/polymers	4,4'-Dihydroxydiphenyl	92-88-6		0.00008451	g	8451	0.8451	15	0.0015
Epoxy Die Attach		Metals	Silver, metal	7440-22-4		0.00853519	g	853519	85.3519	1552	0.1552
Solder Balls - Pb Free, SnAg	0.426						g				
Solder Balls - Pb Free, SnAg		Metals	Silver, metal	7440-22-4		0.01491	g	35000	3.5	2712	0.2712
Solder Balls - Pb Free, SnAg		Metals	Tin, metal	7440-31-5		0.41109	g	965000	96.5	74785	7.4785
Non-Conductive Epoxy/Adhesive	0.0059						g				
Non-Conductive Epoxy/Adhesive		Solvents, additives, and other materials	Carbon Black	1333-86-4		0.000059	g	10000	1	10	0.001
Non-Conductive Epoxy/Adhesive		Solvents, additives, and other materials	Siloxanes and silicones, di-Me, vinyl group-terminated	68083-19-2		0.002655	g	450000	45	482	0.0482
Non-Conductive Epoxy/Adhesive		Glass	Silica, crystalline - quartz (SiO2)	14808-60-7		0.000059	g	10000	1	10	0.001
Non-Conductive Epoxy/Adhesive		Glass	Silica, vitreous	60676-86-0		0.00118	g	200000	20	214	0.0214
Non-Conductive Epoxy/Adhesive		Glass	Other silica compounds	-		0.00118	g	200000	20	214	0.0214
Non-Conductive Epoxy/Adhesive		Glass	Dimethyl silicone polymer with silica	67762-90-7		0.000472	g	80000	8	85	0.0085
Non-Conductive Epoxy/Adhesive		Solvents, additives, and other materials	Dimethyl methyl hydrogen siloxane	68037-69-2		0.000295	g	50000	5	53	0.0053
Heat Spreader	1.1178						g				
Heat Spreader		Metals	Copper, metal	7440-50-8		1.1178	g	1000000	100	203350	20.335
Die Encapsulant, Halogen-free	1.8139						g				
Die Encapsulant, Halogen-free		Plastics/polymers	Other Epoxy resins	-		0.108834	g	60000	6	19799	1.9799
Die Encapsulant, Halogen-free		Solvents, additives, and other materials	Carbon Black	1333-86-4		0.018139	g	10000	1	3299	0.3299
Die Encapsulant, Halogen-free		Solvents, additives, and other materials	Other inorganic compounds	-		0.036278	g	20000	2	6599	0.6599
Die Encapsulant, Halogen-free		Plastics/polymers	Other phenolic resins	-		0.006065	g	50000	5	16499	1.6499
Die Encapsulant, Halogen-free		Glass	Silica, vitreous	60676-86-0		1.559954	g	860000	86	283807	28.3807
Silicon Semiconductor Die	0.04						g				
Silicon Semiconductor Die		Solvents, additives, and other materials	Other miscellaneous substances (less than 5%)	-		0.0008	g	20000	2	145	0.0145
Silicon Semiconductor Die		Glass	Silicon, doped	-		0.0392	g	980000	98	7131	0.7131
Bonding Wire, Copper	0.025						g				
Bonding Wire, Copper		Metals	Copper, metal	7440-50-8		0.02425	g	970000	97	4411	0.4411
Bonding Wire, Copper		Solvents, additives, and other materials	Other miscellaneous substances (less than 5%)	-		0.00075	g	30000	3	136	0.0136
Organic Substrate	2.0583						g				
Organic Substrate		Metals	Barium sulfate	7727-43-7		0.02253427	g	10948	1.0948	4099	0.4099
Organic Substrate		Metals	Copper, metal	7440-50-8		1.23505822	g	600038	60.0038	224682	22.4682
Organic Substrate		Plastics/polymers	2,2'-(1-methylethylene)bis[4,1-phenyleneoxymethylene]bisoxirane	1675-54-3		0.00433649	g	2204	0.2204	825	0.0825
Organic Substrate		Metals	Gold, metal	7440-57-5		0.00252229	g	1240	0.124	464	0.0464
Organic Substrate		Metals	Talc	14807-96-6		0.00356703	g	1733	0.1733	648	0.0648
Organic Substrate		Nickel (external applications only)	Nickel	7440-02-0		0.01763963	g	8570	0.857	3209	0.3209
Organic Substrate		Solvents, additives, and other materials	Other organic compounds	-		0.00913885	g	4440	0.444	1662	0.1662
Organic Substrate		Glass	Fibrous-glass-wool	65997-17-3		0.30380302	g	147599	14.7599	55268	5.5268
Organic Substrate		Glass	Silicon dioxide	7631-86-9		0.0371729	g	18060	1.806	6762	0.6762
Organic Substrate		Plastics/polymers	Proprietary Material-Other acrylic/epoxy resin mixture	-		0.41459514	g	201426	20.1426	75423	7.5423
Organic Substrate		Plastics/polymers	Proprietary Material-Urethane Polymers	-		0.00751074	g	3649	0.3649	1366	0.1366
Organic Substrate		Metals	Copper phthalocyanine	147-14-8		0.00019142	g	93	0.0093	34	0.0034

## 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/KCU8313VRAFFC\\_IPC1752\\_v11.xml](http://www.freescale.com/mcdfs/KCU8313VRAFFC_IPC1752_v11.xml)

[http://www.freescale.com/mcdfs/KCU8313VRAFFC\\_IPC1752A.xml](http://www.freescale.com/mcdfs/KCU8313VRAFFC_IPC1752A.xml)