

**PART INFORMATION**

Mfg Item Number	MMA6853KW
Mfg Item Name	QFN 16 6*6*1.98 P1

**SUPPLIER**

Company Name	Freescale Semiconductor Inc
Company Unique ID	14-141-7928
Response Date	2015-06-24
Response Document ID	004TK50008S233A1.10
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	No
HalogenFree	No
Plating Indicator	e3
EU RoHS Exemption(s)	7c-l

**MANUFACTURING**

Mfg Item Number	MMA6853KW
Mfg Item Name	QFN 16 6*6*1.98 P1
Version	ALL
Weight	0.179300
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	4 - Item(s) does not contain RoHS restricted substances per the definition above except for selected exemptions
Supplier Acceptance	Accepted
Signature	Daniel Binyon
Exemption List Version	2012/51/EU
Exemptions in this part	7c-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
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%
Lead Frame Plating	0.0024						g				
Lead Frame Plating		Lead/Lead Compounds	Lead	7439-92-1		0.0000048	g	200	0.02	2	0.0002
Lead Frame Plating		Metals	Tin, metal	7440-31-5		0.0023952	g	999800	99.98	13382	1.3382
Bonding Wire, Other	0.0004						g				
Bonding Wire, Other		Metals	Gold, metal	7440-57-5		0.000396	g	990000	99	2208	0.2208
Bonding Wire, Other		Metals	Palladium, metal	7440-05-3		0.000004	g	10000	1	22	0.0022
Epoxy Die Attach	0.0002						g				
Epoxy Die Attach		Plastics/polymers	Phenolic Polymer Resin, Epikote 155	9003-36-5		0.00003261	g	163044	16.3044	181	0.0181
Epoxy Die Attach		Solvents, additives, and other materials	1-cyanoguanidine	461-58-5		0.00000217	g	10870	1.087	12	0.0012
Epoxy Die Attach		Solvents, additives, and other materials	Proprietary Material-Other organic compounds.	-		0.00000217	g	10870	1.087	12	0.0012
Epoxy Die Attach		Metals	Silver, metal	7440-22-4		0.00016305	g	815216	81.5216	909	0.0909
Non-Conductive Epoxy/Adhesive	0.0022						g				
Non-Conductive Epoxy/Adhesive		Plastics/polymers	Polytetrafluoroethylene	9002-84-0		0.00099	g	450000	45	5521	0.5521
Non-Conductive Epoxy/Adhesive		Glass	Silicon dioxide	7631-86-9		0.000066	g	30000	3	368	0.0368
Non-Conductive Epoxy/Adhesive		Metals	Titanium (IV) Oxide	13463-67-7		0.000154	g	70000	7	858	0.0858
Non-Conductive Epoxy/Adhesive		Solvents, additives, and other materials	Other miscellaneous substances (less than 5%)	-		0.00011	g	50000	5	613	0.0613
Non-Conductive Epoxy/Adhesive		Solvents, additives, and other materials	Proprietary Material-Other Bismaleimides	-		0.00044	g	200000	20	2453	0.2453
Non-Conductive Epoxy/Adhesive		Plastics/polymers	Proprietary Material-Other non-halogenated polymers	-		0.00044	g	200000	20	2453	0.2453
Die Encapsulant	0.0969						g				
Die Encapsulant		Solvents, additives, and other materials	Carbon Black	1333-86-4		0.000969	g	10000	1	5404	0.5404
Die Encapsulant		Plastics/polymers	Other phenolic resins	-		0.004845	g	50000	5	27021	2.7021
Die Encapsulant		Glass	Silica, vitreous	80676-86-0		0.084303	g	870000	87	470194	47.0194
Die Encapsulant		Plastics/polymers	Other Non-halogenated Epoxy resins	-		0.006783	g	70000	7	37830	3.783
Copper Lead Frame	0.0572						g				
Copper Lead Frame		Metals	Copper, metal	7440-50-8		0.05513823	g	963955	96.3955	307519	30.7519
Copper Lead Frame		Solvents, additives, and other materials	Phosphorus, elemental (not containing red allotrope)	7723-14-0		0.00004719	g	825	0.0825	263	0.0263
Copper Lead Frame		Metals	Iron, metal	7439-89-6		0.0013442	g	23500	2.35	7496	0.7496
Copper Lead Frame		Lead/Lead Compounds	Lead	7439-92-1		0.00000972	g	170	0.017	54	0.0054
Copper Lead Frame		Metals	Silver, metal	7440-22-4		0.000572	g	10000	1	3190	0.319
Copper Lead Frame		Metals	Tin, metal	7440-31-5		0.00001716	g	300	0.03	95	0.0095
Copper Lead Frame		Metals	Zinc, metal	7440-66-6		0.0000715	g	1250	0.125	398	0.0398
Silicon Semiconductor Die	0.008						g				
Silicon Semiconductor Die		Solvents, additives, and other materials	Other miscellaneous substances (less than 5%)	-		0.00016	g	20000	2	892	0.0892
Silicon Semiconductor Die		Glass	Silicon, doped	-		0.00784	g	980000	98	43725	4.3725
Pb Glass Frit Semiconductor Di	0.012				7c-1		g				
Pb Glass Frit Semiconductor Di		Lead/Lead Compounds	Lead (II) titanate	12060-00-3		0.00012457	g	10381	1.0381	694	0.0694
Pb Glass Frit Semiconductor Di		Glass	Fibrous-glass-wool	65997-17-3		0.00011932	g	9943	0.9943	665	0.0665
Pb Glass Frit Semiconductor Di		Solvents, additives, and other materials	2,2,4-trimethyl-1,3-pentanediol-1-monoisobutyrate	25265-77-4		0.00011932	g	9943	0.9943	665	0.0665
Pb Glass Frit Semiconductor Di		Glass	Silicon, doped	-		0.01163679	g	969733	96.9733	64901	6.4901

## LINKS

### MCD LINK

Freescale website <http://www.freescale.com>

### GENERAL ENVIRONMENTAL COMPLIANCE LINKS

RoHS signed letter [http://www.freescale.com/files/abstract/corporate/ehs\\_epp/ENV\\_ROHS\\_Freescale\\_Response.pdf](http://www.freescale.com/files/abstract/corporate/ehs_epp/ENV_ROHS_Freescale_Response.pdf)

China RoHS <http://www.freescale.com/chinarohs>

REACH signed letter [http://www.freescale.com/files/abstract/corporate/ehs\\_epp/ENV\\_REACH\\_Freescale\\_Response.pdf](http://www.freescale.com/files/abstract/corporate/ehs_epp/ENV_REACH_Freescale_Response.pdf)

ELV signed letter [http://www.freescale.com/files/abstract/corporate/ehs\\_epp/ENV\\_ELV\\_Freescale\\_Reponse.pdf](http://www.freescale.com/files/abstract/corporate/ehs_epp/ENV_ELV_Freescale_Reponse.pdf)

Conflict Minerals statement [http://www.freescale.com/files/abstract/corporate/ehs\\_epp/ENV\\_CONFLICT\\_METAL\\_Freescale\\_Response.pdf](http://www.freescale.com/files/abstract/corporate/ehs_epp/ENV_CONFLICT_METAL_Freescale_Response.pdf)

### FREESCALE ENVIRONMENTAL INFORMATION

EPP website <http://www.freescale.com/epp>

FAQ [http://www.freescale.com/webapp/sps/site/overview.jsp?code=ENVIRON\\_FAQ](http://www.freescale.com/webapp/sps/site/overview.jsp?code=ENVIRON_FAQ)

Technical Service Request [https://www.freescale.com/webapp/servicerequest.create\\_SR.framework?defaultCategory=Hardware Product Support&defaultTopic=Environmentally Preferred Prod](https://www.freescale.com/webapp/servicerequest.create_SR.framework?defaultCategory=Hardware+Product+Support&defaultTopic=Environmentally+Preferred+Prod)

### LINKS TO BLANK IPC1752 FORMS

Blank IPC1752 v1.1 Form [http://www.freescale.com/files/abstract/corporate/ehs\\_epp/IPC-1752-2\\_v1.1\\_MCD\\_Template.pdf](http://www.freescale.com/files/abstract/corporate/ehs_epp/IPC-1752-2_v1.1_MCD_Template.pdf)

IPC1752 XML LINKS

[http://www.freescale.com/mcdfs/MMA6853KW\\_IPC1752\\_v11.xml](http://www.freescale.com/mcdfs/MMA6853KW_IPC1752_v11.xml)

[http://www.freescale.com/mcdfs/MMA6853KW\\_IPC1752A.xml](http://www.freescale.com/mcdfs/MMA6853KW_IPC1752A.xml)