60-FBGA (8x20x1.2 mm)
Pb-Free Package

PACKAGE MATERIAL DECLARATION DATASHEET (PMDD)

Cypress Package Code	BK	**Body Size (mil/mm)**	8 x 20 mm
Package Weight – Site 1	293 mg	**Package Weight – Site 2**	B1: 348 mg B2: 347.3363 mg

SUMMARY

The 60-BGA Pb-Free package is compliant to RoHS. Cypress Ordering Part Numbers containing an "X" (e.g. CY7C1328G-133A**X**I, CY2308S**X**C-1HT) meet the Directive 2002/95/EC (RoHS) requirement.

ASSEMBLY Site 1 – Package Qualification Report #s 073603 (Note 1)

I. DECLARATION OF PACKAGED UNITS

A. BANNED SUBSTANCES

Materials from Level A of the EIA/JIG/JGPSSI/EICTA Material Composition Declaration Guide and EU RoHS. Listed in the table below are materials that are neither contained nor intentionally added to this product.

Substances / Compounds	Weight by mg	PPM	Analysis Report (Note2)
Cadmium and Cadmium Compounds	0	< 5.0	CoA-BK60A-AT
Hexavalent Chromium and its Compounds	0	< 5.0	
Lead and Lead Compounds	0	< 5.0	
Mercury and Mercury Compounds	0	< 5.0	
Polybrominated Biphenyls (PBB)	0	< 5.0	
Polybrominated Diphenylethers (PBDE)	0	< 5.0	
Asbestos	0	0	As per MSDS
Azo colorants	0	0	
Ozone Depleting Substances	0	0	
Polychlorinated Biphenyls (PCBs)	0	0	
Polychlorinated Napthalenes	0	0	
Radioactive Substances	0	0	
Shortchain Chlorinated Paraffins	0	0	
Tributyl Tin (TBT) and Triphenyl Tin (TPT)	0	0	
Tributyl Tin Oxide (TBTO)	0	0	
Formaldehyde	0	0	

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Note 4: Actual testing performed on package family basis. Engineering calculations were applied to derive individual package data.

B. MATERIAL COMPOSITION (Note 3)

Material	Purpose of Use	Substance Composition	CAS Number	Weight by mg	% weight of substance per Homogenous material	PPM	% weight of substance per package
Substrate	Base Material	Core	105391-13-1 25722-66-1	23.24	26.86%	79,256	7.93%
		Glass Fiber	65997-17-3	12.73	14.71%	43,405	4.34%
		Cu	7440-50-8	35.24	40.72%	120,154	12.02%
		Ni	7440-02-0	2.09	2.41%	7,111	0.71%
		Au	7440-57-5	3.40	3.93%	11,596	1.16%
		Solder Mask	----------	8.13	9.40%	27,737	2.77%
		Pugging Ink	----------	1.70	1.97%	5,813	0.58%
Solder Ball	External Plating	Sn	7440-31-5	28.77	98.50%	98,114	9.81%
		Ag	7440-22-4	0.29	1.00%	996	0.10%
		Cu	7440-50-8	0.15	0.50%	498	0.05%
Die Attach	Adhesive	Bismaleimide	Trade Secret	7.24	60.00%	24,696	2.47%
		Silicon Resin	Trade Secret	3.02	25.00%	10,290	1.03%
		Epoxy Resin	9003-36-5	1.21	10.00%	4,116	0.41%
		Diluent	Trade Secret	0.48	4.00%	1,646	0.17%
		Carbon Black	1333-86-4	0.06	0.50%	206	0.02%
		Dicyandiamide	461-58-5	0.06	0.50%	206	0.02%
Die	Circuit	Si	7440-21-3	42.61	100.00%	145,303	14.53%
Wire	Interconnect	Au	7440-57-5	5.53	99.99%	18,856	1.89%
Mold Compound	Encapsulation	Fused Silica	60676-86-0	111.44	95.00%	380,000	38.00%
		Solid Epoxy Resin	----------	2.35	2.00%	8,000	0.80%
		Phenol Resin	----------	0.59	0.50%	2,000	0.20%
		Carbon Black	1333-86-4	1.17	1.00%	4,000	0.40%
		Crystalline Silica	14808-60-7	1.17	1.00%	4,000	0.40%
		Metal Hydro Oxide	----------	0.59	0.50%	2,000	0.20%
			Package Weight (mg):	**293**		**% Total:**	**100**

II. DECLARATION OF PACKAGING / INDIRECT MATERIALS

Type	Material	Lead PPM	Cadmium PPM	Cr VI PPM	Mercury PPM	PBB PPM	PBDE PPM	Analysis Report (Note2)
Tape & Reel	Cover tape	< 2.0	< 2.0	< 2.0	< 2.0	< 50.00	< 45.00	CoA-COVT-R
	Carrier tape	< 2.0	< 2.0	< 2.0	< 2.0	< 50.00	< 45.00	CoA-CART-R
	Plastic Reel	< 5.0	< 5.0	< 5.0	< 10.0	<50.0	<45.0	CoA-PLRL-R
Tray	Tray	< 2.0	< 2.0	< 2.0	< 2.0	< 0.0005	< 0.0005	CoA-TRAY-R
Tube	Plastic Tube	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	End Plug	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	End Pin	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Others	Moisture Barrier Bag	<2.0	<2.0	<2.0	<2.0	<5.0	<5.0	CoA-MBBG –R

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Note 4: Actual testing performed on package family basis. Engineering calculations were applied to derive individual package data.

ASSEMBLY Site 2 – Package Qualification Report #s 065003, 120612 (Note 1)

I. DECLARATION OF PACKAGED UNITS

B. BANNED SUBSTANCES

Materials from Level A of the EIA/JIG/JGPSSI/EICTA Material Composition Declaration Guide and EU RoHS. Listed in the table below are materials that are neither contained nor intentionally added to this product.

Substances / Compounds	Weight by mg	PPM	Analysis Report (Note2)
Cadmium and Cadmium Compounds	0	< 5.0	CoA-BK60A-G
Hexavalent Chromium and its Compounds	0	< 5.0	
Lead and Lead Compounds	0	< 5.0	
Mercury and Mercury Compounds	0	< 5.0	
Polybrominated Biphenyls (PBB)	0	< 5.0	
Polybrominated Diphenylethers (PBDE)	0	< 5.0	
Asbestos	0	0	As per MSDS
Azo colorants	0	0	
Ozone Depleting Substances	0	0	
Polychlorinated Biphenyls (PCBs)	0	0	
Polychlorinated Napthalenes	0	0	
Radioactive Substances	0	0	
Shortchain Chlorinated Paraffins	0	0	
Tributyl Tin (TBT) and Triphenyl Tin (TPT)	0	0	
Tributyl Tin Oxide (TBTO)	0	0	
Formaldehyde	0	0	

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Note 3: Materials/substances not declared in Section I-A and I-B of this document are considered "non-existent in the product" or a natural impurity. In order to report exactly 100% material composition, some numbers were rounded to the nearest 0.01 percent. Cypress Semiconductor PMDD's are calculated using MSDS, Material Analysis Reports and Cypress Assembly site information.
Note 4: Actual testing performed on package family basis. Engineering calculations were applied to derive individual package data.

B1. MATERIAL COMPOSITION (Note 3)
Using Gold wire material

Material	Purpose of Use	Substance Composition	CAS Number	Weight by mg	% weight of substance per Homogenous material	PPM	% weight of substance per package
Substrate	Base Material	SiO2	60676-86-0	13.74	10.49%	39,492	3.95%
		Acrylic	Trade Secret	12.05	9.20%	34,635	3.46%
		Epoxy	29690-82-2, 68541-56-0, 25068-38-6	8.04	6.14%	23,115	2.31%
		Bisphenol	13676-54-5	19.62	14.98%	56,395	5.64%
		Triazol	25722-66-1	23.55	17.98%	67,690	6.77%
		Copper (Cu)	7440-50-8	51.45	39.28%	147,859	14.79%
		Nickel (Ni)	7440-02-0	1.82	1.39%	5,233	0.52%
		Gold (Au)	7440-57-5	0.64	0.49%	1,845	0.18%
		Br	7726-95-6	0.07	0.06%	207	0.02%
Solder Ball	External Plating	Sn	7440-31-5	6.69	95.50%	19,212	1.92%
		Ag	7440-22-4	0.28	4.00%	805	0.08%
		Cu	7440-50-8	0.04	0.50%	101	0.01%
Die Attach	Adhesive	Epoxy Resin	Trade Secret	0.73	7.00%	2,092	0.21%
		Diester	Trade Secret	2.86	27.50%	8,219	0.82%
		Functionalized Ester	Trade Secret	1.04	10.00%	2,989	0.30%
		Polymeric	Trade Secret	0.31	3.00%	891	0.09%
		Silica fused	60676-86-0	5.46	52.50%	15,691	1.57%
Die	Circuit	Si	7440-21-3	39.00	100.00%	112,079	11.21%
Wire	Interconnect	Au	7440-57-5	1.15	100.00%	3,305	0.33%
Mold Compound	Encapsulation	Silica fused	60676-86-0	141.88	89.00%	407,750	40.77%
		Epoxy Resin□1□	93705-66-9	7.17	4.50%	20,617	2.06%
		Epoxy Resin□2□	Undisclosed	3.19	2.00%	9,163	0.92%
		Phenol resin	106466-55-1	7.17	4.50%	20,617	2.06%
			Package Weight (mg):	**348**		**% Total:**	**100**

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Note 4: Actual testing performed on package family basis. Engineering calculations were applied to derive individual package data.

B2. MATERIAL COMPOSITION (Note 3)
Using Copper-Palladium wire material

Material	Purpose of Use	Substance Composition	CAS Number	Weight by mg	% weight of substance per Homogenous material	PPM	% weight of substance per package
Substrate	Base Material	SiO2	60676-86-0	13.7400	10.4800%	39,558	3.9558%
		Acrylic	Trade Secret	12.0500	9.2000%	34,693	3.4693%
		Epoxy	29690-82-2, 68541-56-0, 25068-38-6	8.0400	6.1400%	23,148	2.3148%
		Bisphenol	13676-54-5	19.6200	14.9800%	56,487	5.6487%
		Triazol	25722-66-1	23.5500	17.9800%	67,802	6.7802%
		Copper (Cu)	7440-50-8	51.4500	39.2800%	148,127	14.8127%
		Nickel (Ni)	7440-02-0	1.8200	1.3900%	5,240	0.5240%
		Gold (Au)	7440-57-5	0.6400	0.4900%	1,843	0.1843%
		Br	7726-95-6	0.0700	0.0600%	202	0.0202%
Solder Ball	External Plating	Sn	7440-31-5	6.6900	95.5000%	19,261	1.9261%
		Ag	7440-22-4	0.2800	4.0000%	806	0.0806%
		Cu	7440-50-8	0.0400	0.5000%	115	0.0115%
Die Attach	Adhesive	Epoxy Resin	Trade Secret	0.7280	7.0000%	2,096	0.2096%
		Bismaleimide monomer	Trade Secret	3.1720	30.5000%	9,132	0.9132%
		Acrylate monomer	Trade Secret	1.0400	10.0000%	2,994	0.2994%
		Acrylic resin	Trade Secret	0.3120	3.0000%	898	0.0898%
		Silica fused	60676-86-0	5.1480	49.5000%	14,821	1.4821%
Die	Circuit	Si	7440-21-3	39.0000	100.0000%	112,283	11.2283%
Wire	Interconnect	Copper	7440-50-8	0.5222	97.3626%	1,503	0.1503%
		Palladium	7440-05-3	0.0141	2.6374%	41	0.0041%
Mold Compound	Encapsulation	Silica (fused)	60676-86-0	138.5592	86.9200%	398,919	39.8919%
		Epoxy resin	----------	10.3457	6.4900%	29,786	2.9786%
		Phenolic resin	----------	10.3457	6.4900%	29,786	2.9786%
		Carbon black pigment	1333-86-4	0.1594	0.1000%	459	0.0459%
			Package Weight (mg):	**347.3363**		**% Total:**	**100.000**

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Note 4: Actual testing performed on package family basis. Engineering calculations were applied to derive individual package data.

II. DECLARATION OF PACKAGING / INDIRECT MATERIALS

Type	Material	Lead PPM	Cadmium PPM	Cr VI PPM	Mercury PPM	PBB PPM	PBDE PPM	Analysis Report (Note2)
Tape & Reel	Cover tape	< 2.0	< 2.0	< 2.0	< 2.0	< 50.00	< 45.00	CoA-COVT-R
	Carrier tape	< 2.0	< 2.0	< 2.0	< 2.0	< 50.00	< 45.00	CoA-CART-R
	Plastic Reel	< 5.0	< 5.0	< 5.0	< 10.0	<50.0	<45.0	CoA-PLRL-R
Tray	Tray	< 2.0	< 2.0	< 2.0	< 2.0	< 0.0005	< 0.0005	CoA-TRAY-R
Tube	Plastic Tube	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	End Plug	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	End Pin	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Others	Moisture Barrier Bag	<2.0	<2.0	<2.0	<2.0	<5.0	<5.0	CoA-MBBG –R

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Note 4: Actual testing performed on package family basis. Engineering calculations were applied to derive individual package data.

Document History Page

Document Title: 60-FBGA (8x20x1.2mm) Pb-Free Package Material Declaration Datasheet (PMDD)
Document Number: 001-12592

Rev.	ECN No.	Orig. of Change	Description of Change
**	1652683	VFR	New document
*A	2506327	HLR	Remove the material name on Substrate Material. Change the CAS number of Nickel and Gold. DCon: Removed CML in distribution list and change to WEB
*B	2774939	MAHA	Added data for assembly site 2.
*C	3278144	HLR	Sunset Due – No Change.
*D	3612534	UDR	Added B2 on Site 2 with reference QTP # 120612.

Distribution: WEB

Posting: None

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