



196 – FBGA (15 x 15 x 1.5 mm) Non Pb-Free Package

PACKAGE MATERIAL DECLARATION DATASHEET (PMDD)

Cypress Package Code	BB	Body Size (mil/mm)	15 x 15 x 1.5 mm
Package Weight – Site 1	B1: 640.8300 mg B2: 632.4795 mg	Package Weight – Site 2	N/A

SUMMARY

The 196-FBGA is a Non Pb-Free package. Standard components (Non Pb-Free) currently in production are RoHS 5 compliant. Standard components may contain Pb, but do not contain the other 5 substances (above allowable levels).

ASSEMBLY Site 1 – Package Qualification Report # 011707, # 021113, # 120612 (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 are listed in section 1A. Materials from this list may be contained or intentionally added to this product, as it is not considered Pb-Free or RoHS compliant.

Substances / Compounds	Weight by mg	PPM	Analysis Report (Note 2)
Cadmium and Cadmium Compounds	0	< 5.0	As per MSDS
Hexavalent Chromium and its Compounds	0	< 5.0	
Lead and Lead Compounds	29.1375	45,468	
Mercury and Mercury Compounds	0	< 5.0	
Polybrominated Biphenyls (PBB)	0	< 5.0	
Polybrominated Diphenylethers (PBDE)	0	< 5.0	
Asbestos	0	0	
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	

Note 1: Qualification reports are available at www.cypress.com. Access them by doing a Search on the Report #.

Note 2: Report available from Cypress Sales Offices or Distributors.

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 Goldwire

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	SiO ₂	60676-86-0	20.4853	11.0000%	31,967	3.1967%
		Acrylic	Proprietary, 29690-82-2	18.6230	10.0000%	29,061	2.9061%
		Epoxy	68541-56-0, 25068-38-6	14.8984	8.0000%	23,249	2.3249%
		Bisphenol	13676-54-5	27.9345	15.0000%	43,591	4.3591%
		Triazol	25722-66-1	32.5902	17.5000%	50,856	5.0856%
		Cu	7440-50-8	67.7691	36.3900%	105,752	10.5752%
		Ni	7440-02-0	2.7934	1.5000%	4,359	0.4359%
		Au	7440-57-5	1.0429	0.5600%	1,627	0.1627%
Solder Ball	External Plating	Br	7726-95-6	0.0931	0.0500%	145	0.0145%
		Sn	7440-31-5	49.6125	63.0000%	77,419	7.7419%
Die Attach	Adhesive	Pb	7439-92-1	29.1375	37.0000%	45,468	4.5468%
		Silver	7440-22-4	29.7432	76.5000%	46,414	4.6414%
		Epoxy Resin	Proprietary	2.1384	5.5000%	3,337	0.3337%
		Functionalized Ester	Proprietary	2.1384	5.5000%	3,337	0.3337%
Die	Circuit	Diester	Proprietary	4.8600	12.5000%	7,584	0.7584%
Wire	Interconnect	Si	7440-21-3	34.4600	100.0000%	53,774	5.3774%
Mold Compound	Encapsulation	Au	7440-57-5	6.3900	100.0000%	9,971	0.9971%
		Silica (fused)	60676-86-0	219.4249	74.1000%	342,407	34.2407%
		Epoxy resin	Proprietary	29.6120	10.0000%	46,209	4.6209%
		Phenolic resin	Proprietary	14.8060	5.0000%	23,104	2.3104%
		Mixed Siloxanes	Proprietary	14.8060	5.0000%	23,104	2.3104%
		Antimony Pentoxide	1314-60-9	2.3690	0.8000%	3,697	0.3697%
		Brominated epoxy resin	Proprietary	5.9224	2.0000%	9,242	0.9242%
		Silica (quartz)	14808-60-7	2.9612	1.0000%	4,621	0.4621%
		Carbon black pigment	1333-86-4	1.6287	0.5500%	2,542	0.2542%
		Silica (Cristobalite)	14464-46-1	2.9612	1.0000%	4,621	0.4621%
		Antimony Trioxide	1309-64-4	1.6287	0.5500%	2,542	0.2542%

Package Weight (mg): 640.8300

% Total: 100.0000

Note 1: Qualification reports are available at www.cypress.com. Access them by doing a Search on the Report #.

Note 2: Report available from Cypress Sales Offices or Distributors.

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.

B2. MATERIAL COMPOSITION (Note 3)
Using Copper Palladium Wire

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	SiO ₂	60676-86-0	20.4853	11.0000%	32,389	3.2389%
		Acrylic	Proprietary, 29690-82-2	18.6230	10.0000%	29,444	2.9444%
		Epoxy	68541-56-0, 25068-38-6	14.8984	8.0000%	23,556	2.3556%
		Bisphenol	13676-54-5	27.9345	15.0000%	44,167	4.4167%
		Triazol	25722-66-1	32.5902	17.5000%	51,528	5.1528%
		Cu	7440-50-8	67.7691	36.3900%	107,148	10.7148%
		Ni	7440-02-0	2.7934	1.5000%	4,417	0.4417%
		Au	7440-57-5	1.0429	0.5600%	1,649	0.1649%
		Br	7726-95-6	0.0931	0.0500%	147	0.0147%
Solder Ball	External Plating	Sn	7440-31-5	49.6125	63.0000%	78,441	7.8441%
		Pb	7439-92-1	29.1375	37.0000%	46,069	4.6069%
Die Attach	Adhesive	Silica, amorphous, fused	60676-86-0	20.0132	50.2159%	31,642	3.1642%
		Bismaleimide monomer	Trade Secret	12.8812	32.3208%	20,366	2.0366%
		Acrylate monomer	Trade Secret	2.7854	6.9891%	4,404	0.4404%
		Epoxy resin	Trade Secret	2.7854	6.9891%	4,404	0.4404%
		Acrylic resin	Trade Secret	1.3890	3.4851%	2,196	0.2196%
Die	Circuit	Si	7440-21-3	34.4600	100.0000%	54,484	5.4484%
Wire	Interconnect	Copper (Cu)	7440-57-5	2.9798	97.4998%	4,711	0.4711%
		Palladium (Pd)	7440-50-3	0.0764	2.5002%	121	0.0121%
Mold Compound	Encapsulation	Silica	60676-86-0	258.6164	89.1384%	408,892	40.8892%
		Epoxy Resin	Undisclosed	17.4146	6.0024%	27,534	2.7534%
		Phenol Resin	Undisclosed	13.2483	4.5663%	20,947	2.0947%
		Carbon Black	1333-86-4	0.8499	0.2929%	1,344	0.1344%

Package Weight (mg): **632.4795**

% Total: **100.0000**

Note 1: Qualification reports are available at www.cypress.com. Access them by doing a Search on the Report #.

Note 2: Report available from Cypress Sales Offices or Distributors.

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.

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

Note 1: Qualification reports are available at www.cypress.com. Access them by doing a Search on the Report #.

Note 2: Report available from Cypress Sales Offices or Distributors.

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.

Document History Page

Document Title: 196-FBGA (15X15X1.5MM) NON PB-FREE Package Material Declaration Datasheet
Document Number: 001-05553

Rev.	ECN No.	Orig. of Change	Description of Change
**	405290	YXP	New specification
*A	2581994	JARG	Added column for %weight of substance per homogeneous material in material composition. Updated and added Lead, Cr+VI, PBB and PBDE on the Declaration of Packaging/Indirect Materials table Change CAS Number for Au in material composition table Add CAS Number for Br in material composition table Updated Cypress Logo.
*B	3412074	JARG	Updated Material Composition Tables for Assembly Site 1 to reflect 4 decimal places on values.
*C	3607358	EBZ	Added package weight B2 for Site 1. Added material composition table B2 copper palladium wire material for Site 1.
*D	3818165	JARG	Assembly Site 1-B1: Corrected % weight of substance per package to meet the total of 100.0000% Assembly Site 1- B2: Corrected % weight of substance per package to meet the total of 100.0000%. Added comma on PPM values Changed document title from 196 - FBGA 15X15X1.5MM NON PB-FREE Package Material Declaration Datasheet DATASHEET to 196-FBGA (15X15X1.5MM) NON PB-FREE Package Material Declaration Datasheet

Distribution: WEB

Posting: None

Note 1: Qualification reports are available at www.cypress.com. Access them by doing a Search on the Report #.

Note 2: Report available from Cypress Sales Offices or Distributors.

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.