



100- BGA (11x 11 mm) Pb-Free Package

PACKAGE MATERIAL DECLARATION DATASHEET

Cypress Package Code	BW	Body Size (mil/mm)	11 x 11 mm
Package Weight – Site 1	B1: 335.0001 mg B2: 235.9227 mg B3: 235.9869 mg	Package Weight – Site 2	265.5380 mg
Package Weight – Site 3	260.5481 mg		

SUMMARY

The 100- BGA Pb-Free package is compliant to RoHS. Cypress Ordering Part Numbers containing an “X” (e.g. CY7C1328G-133AXI, CY2308SXC-1HT) meet the Directive 2002/95/EC (RoHS) requirement.

ASSEMBLY Site 1 – Package Qualification Report #s 043301, 120301, 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. 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 (Note 2)
Cadmium and Cadmium Compounds	0	< 5.0	CoA-BW100-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	As per MSDS
Ozone Depleting Substances	0	0	As per MSDS
Polychlorinated Biphenyls (PCBs)	0	0	As per MSDS
Polychlorinated Naphthalenes	0	0	As per MSDS
Radioactive Substances	0	0	As per MSDS
Shortchain Chlorinated Paraffins	0	0	As per MSDS
Tributyl Tin (TBT) and Triphenyl Tin (TPT)	0	0	As per MSDS
Tributyl Tin Oxide (TBTO)	0	0	As per MSDS
Formaldehyde	0	0	As per MSDS

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”. In order to report exactly 100% material composition, some numbers were rounded to the nearest 0.01 percent. Cypress Semiconductor material information are calculated using MSDS, Material Analysis Reports and Cypress Assembly sites information

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

B1. 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	Silica Oxide	60676-86-0	10.9043	11.0000%	32550	3.2550
		Acrylic	29690-82-2	9.9130	10.0000%	29591	2.9591
		Epoxy	68541-56-0	7.9304	8.0000%	23673	2.3673
		Bisphenol	13676-54-5	14.8695	15.0000%	44387	4.4387
		Triazol	25722-66-1	16.8521	17.0000%	50305	5.0305
		Cu	7440-50-8	35.6868	36.0000%	106528	10.6528
		Ni	7440-02-0	0.9913	1.0000%	2959	0.2959
		Au	7440-57-5	0.9913	1.0000%	2959	0.2959
Solder Ball	External Plating	Br	7726-95-6	0.9913	1.0000%	2959	0.2959
		Sn	7440-31-5	33.7593	95.5000%	100774	10.0774
		Ag	744-22-4	1.4140	4.0000%	4221	0.4221
Die Attach	Adhesive	Cu	7440-50-8	0.1768	0.5000%	528	0.0528
		Silica Fused	60676860	20.9689	53.9600%	62594	6.2594
		Diester	-----	10.6904	27.5100%	31912	3.1912
		Epoxy Resin	-----	2.1412	5.5100%	6392	0.6392
		Functionalized Esters	-----	3.8899	10.0100%	11612	1.1612
Die	Circuit	Polymeric Resin	-----	1.1697	3.0100%	3492	0.3492
		Si	7440-21-3	35.4400	100.0000%	105791	10.5791
Wire	Interconnect	Au	7440-57-5	5.8600	100.0000%	17493	1.7493
Mold Compound	Encapsulation	Silica Fused	60676860	107.0963	88.9800%	319691	31.9691
		Epoxy Resin	-----	6.6318	5.5100%	19797	1.9797
		Phenolic Resin	-----	6.6318	5.5100%	19797	1.9797

Package Weight (mg): **335.0001**

% Total: **100.0000**

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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 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	SiO2	60676-86-0	10.9278	11.0000%	46320	4.6320%
		Acrylic	Trade Secret	9.9344	10.0000%	42109	4.2109%
		Epoxy	29690-82-2, 68541-56-0, 25068-38-6	7.9475	8.0000%	33687	3.3687%
		Bisphenol	13676-54-5	14.9016	15.0000%	63163	6.3163%
		Triazol	25722-66-1	17.3852	17.5000%	73690	7.3690%
		Copper (Cu)	7440-50-8	36.1562	36.3950%	153254	15.3254%
		Nickel (Ni)	7440-02-0	1.4902	1.5000%	6316	0.6316%
		Gold (Au)	7440-57-5	0.5464	0.5500%	2316	0.2316%
Solder Ball	External Plating	Br	Trade Secret	0.0546	0.0550%	232	0.0232%
		Sn	7440-31-5	33.6616	95.5000%	142681	14.2681%
		Ag	744-22-4	1.4099	4.0000%	5976	0.5976%
Die Attach	Adhesive	Cu	7440-50-8	0.1762	0.5000%	747	0.0747%
		Silica, amorphous, fused	60676-86-0	2.1102	48.5000%	8945	0.8945%
		Bismaleimide monomer	Trade Secret	1.4576	33.5000%	6178	0.6178%
		Acrylate monomer	Trade Secret	0.3263	7.5000%	1383	0.1383%
		Epoxy resin	Trade Secret	0.3263	7.5000%	1383	0.1383%
		Acrylic resin	Trade Secret	0.1305	3.0000%	553	0.0553%
Die	Circuit	Si	7440-21-3	35.5072	100.0000%	150504	15.0504%
Wire	Interconnect	Copper (Cu)	7440-50-8	2.3228	99.9900%	9846	0.9846%
		Ion Impurities	Trade Secret	0.0002	0.0100%	1	0.0001%
Mold Compound	Encapsulation	Silica	60676-86-0	53.0577	89.7000%	224893	22.4893%
		Epoxy resin	Trade Secret	3.2532	5.5000%	13789	1.3789%
		Phenol resin	Trade Secret	2.6617	4.5000%	11282	1.1282%
		Carbon Black	1333-86-4	0.1774	0.3000%	752	0.0752%

Package Weight (mg): **235.9227**

% Total: **100.0000**

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

B3. MATERIAL COMPOSITION (Note 3)

Using Copper-Pd 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	SiO2	60676-86-0	10.9278	11.0000%	46307	4.6307%
		Acrylic	Trade Secret	9.9344	10.0000%	42097	4.2097%
		Epoxy	29690-82-2, 68541-56-0, 25068-38-6	7.9475	8.0000%	33678	3.3678%
		Bisphenol	13676-54-5	14.9016	15.0000%	63146	6.3146%
		Triazol	25722-66-1	17.3852	17.5000%	73670	7.3670%
		Copper (Cu)	7440-50-8	36.1562	36.3950%	153213	15.3213%
		Nickel (Ni)	7440-02-0	1.4902	1.5000%	6315	0.6315%
		Gold (Au)	7440-57-5	0.5464	0.5500%	2315	0.2315%
Solder Ball	External Plating	Br	Trade Secret	0.0546	0.0550%	232	0.0232%
		Sn	7440-31-5	33.6616	95.5000%	142642	14.2642%
		Ag	744-22-4	1.4099	4.0000%	5975	0.5975%
Die Attach	Adhesive	Cu	7440-50-8	0.1762	0.5000%	747	0.0747%
		Silica, amorphous, fused	60676-86-0	2.1102	48.5000%	8942	0.8942%
		Bismaleimide monomer	Trade Secret	1.4576	33.5000%	6177	0.6177%
		Acrylate monomer	Trade Secret	0.3263	7.5000%	1383	0.1383%
		Epoxy resin	Trade Secret	0.3263	7.5000%	1383	0.1383%
Die	Circuit	Acrylic resin	Trade Secret	0.1305	3.0000%	553	0.0553%
		Si	7440-21-3	35.5072	100.0000%	150463	15.0463%
Wire	Interconnect	Copper (Cu)	7440-50-8	2.3228	97.3010%	9843	0.9843%
		Palladium (Pd)	7440-05-3	0.0644	2.6990%	273	0.0273%
Mold Compound	Encapsulation	Silica	60676-86-0	53.0577	89.7000%	224832	22.4832%
		Epoxy resin	Trade Secret	3.2532	5.5000%	13786	1.3786%
		Phenol resin	Trade Secret	2.6617	4.5000%	11279	1.1279%
		Carbon Black	1333-86-4	0.1774	0.3000%	752	0.0752%

Package Weight (mg): **235.9869**

% Total: **100.0000**

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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
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,



100– BGA (11x 11 mm) Pb-Free Package

ASSEMBLY Site 2 – Package Qualification Report # 073507 (Note 1)

II. DECLARATION OF PACKAGED UNITS

II. 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 (Note 2)
Cadmium and Cadmium Compounds	0	< 5.0	CoA-BW100-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	As per MSDS
Ozone Depleting Substances	0	0	As per MSDS
Polychlorinated Biphenyls (PCBs)	0	0	As per MSDS
Polychlorinated Napthalenes	0	0	As per MSDS
Radioactive Substances	0	0	As per MSDS
Shortchain Chlorinated Paraffins	0	0	As per MSDS
Tributyl Tin (TBT) and Triphenyl Tin (TPT)	0	0	As per MSDS
Tributyl Tin Oxide (TBTO)	0	0	As per MSDS
Formaldehyde	0	0	As per MSDS

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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”. In order to report exactly 100% material composition, some numbers were rounded to the nearest 0.01 percent. Cypress Semiconductor material information are calculated using MSDS, Material Analysis Reports and Cypress Assembly sites information

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 / 25722-66-1	6.3819	26.8600%	24,034	2.4034
		Pre peg	65997-17-3	3.4951	14.7100%	13,162	1.3162
		Cu	7440-50-8	9.6751	40.7200%	36,436	3.6436
		Ni	7440-02-0	0.5726	2.4100%	2,156	0.2156
		Au	7440-57-5	0.9338	3.9300%	3,517	0.3517
		Solder Mask	-----	2.2334	9.4000%	8,411	0.8411
		Pugging Ink taiyo	-----	0.4681	1.9700%	1,763	0.1763
Solder Ball	External Plating	Tin (Sn)	7440-31-5	59.1000	98.5000%	222,567	22.2567
		Silver (Ag)	7440-22-4	0.6000	1.0000%	2,260	0.2260
		Copper (Cu)	7440-50-8	0.3000	0.5000%	1,130	0.1130
Die Attach	Adhesive	Bismaleimide	-----	18.0000	60.0000%	67,787	6.7787
		Silicon Resin	-----	7.5000	25.0000%	28,245	2.8245
		Epoxy Resin	9003-36-5	3.0000	10.0000%	11,298	1.1298
		Diluent	-----	1.2000	4.0000%	4,519	0.4519
		Carbon black	1333-86-4	0.1500	0.5000%	565	0.0565
		Dicyandiamide	461-58-5	0.1500	0.5000%	565	0.0565
Die	Circuit	Silicon (Si)	7440-21-3	25.0000	100.0000%	94,148	9.4148
Wire	Interconnect	Gold (Au)	7440-57-5	20.0780	99.9900%	75,613	7.5613
Mold Compound	Encapsulation	Fused Silica	60676-86-0	101.3650	95.0000%	381,734	38.1734
		Epoxy Resin	-----	2.1340	2.0000%	8,037	0.8037
		Phenol Resin	-----	0.5335	0.5000%	2,009	0.2009
		Phenol Novolac	9003-35-4	1.0670	1.0000%	4,018	0.4018
		Metal Hydroxide	-----	1.0670	1.0000%	4,018	0.4018
		Carbon black	1333-86-4	0.5335	0.5000%	2,009	0.2009

Package Weight (mg): 265.5380

% Total: 100.0000

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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
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 3 – Package Qualification Report # 093701 (Note 1)

II. DECLARATION OF PACKAGED UNITS

II. 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 (Note 2)
Cadmium and Cadmium Compounds	0	< 5.0	CoA-BW100-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	As per MSDS
Ozone Depleting Substances	0	0	As per MSDS
Polychlorinated Biphenyls (PCBs)	0	0	As per MSDS
Polychlorinated Napthalenes	0	0	As per MSDS
Radioactive Substances	0	0	As per MSDS
Shortchain Chlorinated Paraffins	0	0	As per MSDS
Tributyl Tin (TBT) and Triphenyl Tin (TPT)	0	0	As per MSDS
Tributyl Tin Oxide (TBTO)	0	0	As per MSDS
Formaldehyde	0	0	As per MSDS

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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 / 25722-66-1	6.3819	26.8600%	24,494	2.4494
		Pre peg	65997-17-3	3.4951	14.7100%	13,414	1.3414
		Cu	7440-50-8	9.6751	40.7200%	37,134	3.7134
		Ni	7440-02-0	0.5726	2.4100%	2,198	0.2198
		Au	7440-57-5	0.9338	3.9300%	3,584	0.3584
		Solder Mask	-----	2.2334	9.4000%	8,572	0.8572
		Pugging Ink taiyo	-----	0.4681	1.9700%	1,796	0.1796
Solder Ball	External Plating	Tin (Sn)	7440-31-5	52.5346	95.5000%	201,631	20.1631
		Silver (Ag)	7440-22-4	2.2004	4.0000%	8,445	0.8445
		Copper (Cu)	7440-50-8	0.2751	0.5000%	1,056	0.1056
Die Attach	Adhesive	Bismaleimide	-----	18.0000	60.0000%	69,085	6.9085
		Silicon Resin	-----	7.5000	25.0000%	28,785	2.8785
		Epoxy Resin	9003-36-5	3.0000	10.0000%	11,514	1.1514
		Diluent	-----	1.2000	4.0000%	4,606	0.4606
		Carbon black	1333-86-4	0.1500	0.5000%	576	0.0576
		Dicyandiamide	461-58-5	0.1500	0.5000%	576	0.0576
Die	Circuit	Silicon (Si)	7440-21-3	25.0000	100.0000%	95,952	9.5952
Wire	Interconnect	Gold (Au)	7440-57-5	20.0780	99.9900%	77,061	7.7061
Mold Compound	Encapsulation	Fused Silica	60676-86-0	101.3650	95.0000%	389,045	38.9045
		Epoxy Resin	-----	2.1340	2.0000%	8,190	0.8190
		Phenol Resin	-----	0.5335	0.5000%	2,048	0.2048
		Phenol Novolac	9003-35-4	1.0670	1.0000%	4,095	0.4095
		Metal Hydroxide	-----	1.0670	1.0000%	4,095	0.4095
		Carbon black	1333-86-4	0.5335	0.5000%	2,048	0.2048

Package Weight (mg): **260.5481**

% Total: **100.0000**

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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
Others	Moisture Barrier Bag	<2.0	<2.0	<2.0	<2.0	<5.0	<5.0	CoA-MBBG –R

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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”. In order to report exactly 100% material composition, some numbers were rounded to the nearest 0.01 percent. Cypress Semiconductor material information are calculated using MSDS, Material Analysis Reports and Cypress Assembly sites information

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

Document History Page

Document Title: 100-BGA 11X11mm PB-FREE Package Material Declaration Datasheet
Document Number: 001-04906

Rev.	ECN No.	Orig. of Change	Description of Change
**	398232	GFJ	New document
*A	1732864	DPT	Added Assembly Site 2 – Package Qualification Report # 073507 Changed cypress Logo Added % weight of substance per Homogenous Material and % weight of substance per package on the Material Composition for Assembly Site 1. Completed the RoHS Substances namely; Lead Cadmium, Mercury, Chromium VI, PBB and PBDE on Declaration of Packaging Indirect Materials table for Assembly Site 1.
*B	2597930	HLR	Changed the CAS number of Gold and Added the CAS number of Bromine on Assembly Site 1. Changed the CAS Number of Gold and Nickel on Assembly Site 2. Change Polymetric Resin to Polymeric resin. Removed the material name on Substrate. Change FROM E-CML TO WEB in the distribution list.
*C	2768585	VFR	Removed % sign on Table B for Site 2 under % weight of substance per homogenous material and % weight of substance per package column title. Added Material Declaration for Assembly Site 3
*D	2791464	HLR	Deleted QTP No. 044005 on Assembly Site 1.
*E	3455023	HLR	Updated the material composition table on Assembly Sites 1 to 3 to reflect 4 decimal places on values. Removed tube material on declaration of packaging table
*F	3549354	EBZ	Added package weight B2 and reference QTP #120301 for Site 1. Added B2, MATERIAL COMPOSITION table using Copper for Site 1.
*G	3593452	EBZ	Added package weight B3 for Site 1. Added B3, MATERIAL COMPOSITION table using Copper- Palladium for Site 1.

Distribution: WEB

Posting: None

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