PACKAGE MATERIAL DECLARATION DATASHEET

Cypress Package Code	BB	Body Size (mil/mm)	13 x 15
Package Weight – Site 1	B1 :490.0100 mg B2: 525.0100 mg B3: 516.8767 mg B4: 478.0000 mg	Package Weight – Site 2	B1: 474.1600 mg B2: 476.1300 mg
Package Weight – Site 3	B1: 568.7100 mg B2: 539.2500 mg B3: 459.6873 mg B4: 459.6791 mg	Package Weight – Site 4	B1: 480.6967 mg

SUMMARY

The 165-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: Cypress Manufacturing Limited (CML)
Package Qualification Report # 055103, 062504, 120610, 133105, 144604 (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	33.58	68,529	
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 Non Halogen-free Substrate

Material	Purpose of Use	Substance Composition	CAS Number	Weight by mg	% weight of substance per Homogeneous material	PPM	% weight of substance per package
Substrate	Base Material	SiO_2	60676-86-0	19.6300	10.9997%	40,060	4.0060%
		Acrylic	Proprietary, 29690-82-2	17.8500	10.0022%	36,428	3.6428%
		Epoxy	68541-56-0, 25068-38-6	14.2700	7.9962%	29,122	2.9122%
		Bisphenol	13676-54-5	26.7700	15.0006%	54,632	5.4632%
		Triazol	25722-66-1	31.2300	17.4997%	63,733	6.3733%
		Cu	7440-50-8	64.9500	36.3947%	132,548	13.2548%
		Ni	7440-02-0	2.6800	1.5017%	5,469	0.5469%
		Au	7440-57-5	0.9800	0.5491%	2,000	0.2000%
		Br	Proprietary	0.1000	0.0560%	204	0.0204%
Solder Ball	External Plating	Sn	7440-31-5	57.1700	62.9972%	116,671	11.6671%
		Pb	7439-92-1	33.5800	37.0028%	68,529	6.8529%
Die Attach	Adhesive	Fused silica	60676-86-0	41.8100	53.9972%	85,325	8.5325%
		Diester	Proprietary	21.2900	27.4958%	43,448	4.3448%
		Epoxy Resin	Proprietary	4.2600	5.5017%	8,694	0.8694%
		Functionalized esters	Proprietary	7.7400	9.9961%	15,796	1.5796%
		Polymeric resin	Proprietary	2.3300	3.0092%	4,755	0.4755%
Die	Circuit	Si	7440-21-3	54.2000	100.0000%	110,610	11.0610%
Wire	Interconnect	Au	7440-57-5	5.1100	100.0000%	10,428	1.0428%
Mold Compound	Encapsulation	Silica (fused)	60676-86-0	68.6900	81.7154%	140,181	14.0181%
		Epoxy resin	Proprietary	4.9800	5.9243%	10,163	1.0163%
		Phenolic resin	Proprietary	3.9600	4.7109%	8,081	0.8081%
		Silica	7631-86-9	0.6400	0.7614%	1,306	0.1306%
		Mixed siloxanes	Proprietary	0.4300	0.5115%	878	0.0878%
		Non Brominated flame retardant	Proprietary	5.1500	6.1266%	10,510	1.0510%
		Carbon black pigment	1333-86-4	0.2100	0.2498%	429	0.0429%
			Package Weight (mg):	**490.0100**		**% 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 Halogen-free Substrate

Material	Purpose of Use	Substance Composition	CAS Number	Weight by mg	% weight of substance per Homogeneous material	PPM	% weight of substance per package
Substrate	Base Material	Cured Resin	Proprietary	73.4000	27.9971%	139,807	13.9807%
		Glass Fabrics	Proprietary	57.6800	22.0010%	109,865	10.9865%
		Copper Foil	Proprietary	78.6500	29.9996%	149,807	14.9807%
		Diethylene Glycol Monoethyl Ether Acetate	Proprietary	13.1100	5.0006%	24,971	2.4971%
		Acetophenone Derirative	Proprietary	13.1100	5.0006%	24,971	2.4971%
		Silica Crystalline	Proprietary	13.1100	5.0006%	24,971	2.4971%
		Solvent naptha	Proprietary	13.1100	5.0006%	24,971	2.4971%
Solder Ball	External Plating	Sn	7440-31-5	57.1800	62.0039%	108,912	10.8912%
		Pb	7439-92-1	33.2000	36.0009%	63,237	6.3237%
		Ag	7440-22-4	1.8400	1.9952%	3,505	0.3505%
Die Attach	Adhesive	Ag	7440-22-4	3.2400	79.8030%	6,171	0.6171%
		Bismaleimide	Proprietary	0.4100	10.0985%	781	0.0781%
		Polymer	Proprietary	0.4100	10.0985%	781	0.0781%
Die	Circuit	Silicon	7440-21-3	21.4000	100.0000%	40,761	4.0761%
Wire	Interconnect	Au	7440-57-5	15.2400	100.0000%	29,028	2.9028%
Mold Compound	Encapsulation	Silica	60676-86-0	112.3700	86.4917%	214,034	21.4034%
		Non-Brominated Flame Retardant	Proprietary	6.5000	5.0031%	12,381	1.2381%
		Epoxy Resin	Proprietary	6.5000	5.0031%	12,381	1.2381%
		Phenol Resin	Proprietary	3.2500	2.5015%	6,190	0.6190%
		Mixed Siloxanes	Proprietary	0.6500	0.5003%	1,238	0.1238%
		Carbon Black Pigment	1333-86-4	0.6500	0.5003%	1,238	0.1238%
			Package Weight (mg):	**525.0100**		**% 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 Homogeneous material	PPM	% weight of substance per package
Substrate	Base Material	Cured Resin	Proprietary	73.4000	27.9971%	142,007	14.2007%
		Glass Fabrics	Proprietary	57.6800	22.0010%	111,593	11.1593%
		Copper Foil	Proprietary	78.6500	29.9995%	152,164	15.2164%
		Diethylene Glycol Monoethyl Ether Acetate	Proprietary	13.1100	5.0006%	25,364	2.5364%
		Acetophenone Deririative	Proprietary	13.1100	5.0006%	25,364	2.5364%
		Silica Crystalline	Proprietary	13.1100	5.0006%	25,364	2.5364%
		Solvent naptha	Proprietary	13.1100	5.0006%	25,364	2.5364%
Solder Ball	External Plating	Sn	7440-31-5	57.1800	62.0039%	110,626	11.0626%
		Pb	7439-92-1	33.2000	36.0009%	64,232	6.4232%
		Ag	7440-22-4	1.8400	1.9952%	3,560	0.3560%
Die Attach	Adhesive	Ag	7440-22-4	3.0450	75.0000%	5,891	0.5891%
		Bismaleimide	Proprietary	0.7105	17.5000%	1,375	0.1375%
		Polymer/Synthetic Resin	Proprietary	0.2030	5.0000%	393	0.0393%
		Additive	Proprietary	0.1015	2.5000%	196	0.0196%
Die	Circuit	Silicon	7440-21-3	21.4000	100.0000%	41,403	4.1403%
Wire	Interconnect	Copper	7440-50-8	7.0357	99.0000%	13,612	1.3612%
		Palladium	7440-05-3	0.0710	1.0000%	137	0.0137%
Mold Compound	Encapsulation	Silica	60676-86-0	115.6292	89.0004%	223,707	22.3707%
		Epoxy Resin	Proprietary	9.0941	6.9997%	17,594	1.7594%
		Phenol Resin	Proprietary	3.8975	2.9999%	7,540	0.7540%
		Melamine Cyanurate	Proprietary	0.6496	0.5000%	1,257	0.1257%
		Carbon Black Pigment	Proprietary	0.6496	0.5000%	1,257	0.1257%
			Package Weight (mg):	**516.8767**		**% 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.

B4. MATERIAL COMPOSITION (Note 3)
Using Copper-Palladium Wire material, GR9810 Mold Compound and ATB120 Film

Material	Purpose of Use	Substance Composition	CAS Number	Weight by mg	% weight of substance per Homogeneous material	PPM	% weight of substance per package
Substrate	Base Material	Cured Resin	Proprietary	73.4048	28.0000	153,567	15.3567%
		Glass Fabrics	Proprietary	57.6752	22.0000	120,659	12.0659%
		Copper Foil	Proprietary	78.6480	30.0000	164,536	16.4536%
		Diethylene Glycol Monoethyl Ether Acetate	Proprietary	13.1080	5.0000	27,423	2.7423%
		Acetophenone Derirative	Proprietary	13.1080	5.0000	27,423	2.7423%
		Silica Crystalline	Proprietary	13.1080	5.0000	27,423	2.7423%
		Solvent naptha	Proprietary	13.1080	5.0000	27,423	2.7423%
Solder Ball	External Plating	Sn	7440-31-5	56.8129	64.0000	118,855	11.8855%
		Pb	7439-92-1	30.1818	34.0000	63,142	6.3142%
		Ag	7440-22-4	1.7754	2.0000	3,714	0.3714%
Die Attach	Adhesive	Epoxy Resin adduct	Proprietary	2.8303	77.0000	5,921	0.5921%
		Epoxy Resin	Proprietary	0.5514	15.0000	1,153	0.1153%
		Dapsone	80-08-0	0.1470	4.0000	307	0.0307%
		Fumed Silica	67762-90-7	0.0735	2.0000	154	0.0154%
		Silane	Proprietary	0.0735	2.0000	154	0.0154%
Die	Circuit	Si	7440-21-3	33.100	100.0000	69,247	6.9247%
Wire	Interconnect	Copper	7440-50-8	4.4883	99.0000	9,390	0.9390%
		Palladium	7440-05-3	0.0453	1.0000	95	0.0095%
Mold Compound	Encapsulation	Silica	60676-86-0	74.6117	87.0000	156,091	15.6091%
		Epoxy Resin	Proprietary	7.2897	8.5000	15,250	1.5250%
		Phenol Resin	Proprietary	3.0016	3.5000	6,279	0.6279%
		Melamine Cyanurate	Proprietary	0.4288	0.5000	897	0.0897%
		Carbond Black Pigment	1333-86-4	0.4288	0.5000	897	0.0897%

Package Weight (mg): 478.0000 **% 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	Advantek						
	Carrier tape	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 5.0	CoA-CART-R
Tray	Tray	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 5.0	CoA-TRAY-G CoA-TRAY-R
Others	Moisture Barrier bag	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 5.0	CoA-MBAG-G
	Shielding bag	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 5.0	CoA-SBAG-G
	Desiccant	< 1000 PPM	< 100 PPM	2.5	< 1000 PPM	< 1000 PPM	< 1000 PPM	CoA-DESS-G

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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: PT UNISEM Batam
Package Qualification Report # 072004, 073703 (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	29.6400	62,252	
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	

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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 Ablebond 2000B Adhesive

Material	Purpose of Use	Substance Composition		CAS Number	Weight by mg	% weight of substance per Homogeneous material	PPM	% weight of substance per package
Substrate	Base Material	Plating 1	Au, metal & alloy	7440-57-5	1.0700	0.7368%	2,247	0.2247%
			Ni, metal & alloy	7440-02-0	4.9400	3.4017%	10,375	1.0375%
		Plating 2	Cu, metal & alloy	7440-50-8	37.1000	25.5474%	77,920	7.7920%
		AUS308	Acrylic Resin	------------------	1.1100	0.7644%	2,331	0.2331%
			Phthalcyanine Blue, Organic Pigment	------------------	0.0100	0.0069%	21	0.0021%
			Fillers (Barium Sulfate, Silica, Talc)	------------------	0.8600	0.5922%	1,806	0.1806%
			Aromatic Carbonyl Compound	------------------	0.1100	0.0757%	231	0.0231%
			Amine Compound	------------------	0.1800	0.1239%	378	0.0378%
			Levelling Agents & Others	------------------	0.0400	0.0275%	84	0.0084%
			Acrylic Monomer	------------------	0.1400	0.0964%	294	0.0294%
			Epoxy Resin	29690-82-2 68541-56-0 25068-38-6	0.4900	0.3374%	1,029	0.1029%
			Barium Sulfate	------------------	0.2200	0.1515%	462	0.0462%
			Organic Fillers	------------------	0.0500	0.0344%	105	0.0105%
		HL832 NX	BT Resin	13676-54-5 25722-66-1	43.5700	30.0028%	91,509	9.1509%
			Fibrous-glass-wool	65997-17-3	55.3300	38.1008%	116,208	11.6208%
Solder Ball	External Plating	Sn		7440-31-5	50.4600	62.9963%	105,979	10.5979%
		Pb		7439-92-1	29.6400	37.0037%	62,252	6.2252%
Die Attach	Adhesive	Ag		7440-22-4	5.0300	69.9583%	10,564	1.0564%
		Epoxy Resin		Trade Secret	0.3600	5.0070%	756	0.0756%
		Diester		Trade Secret	0.7200	10.0139%	1,512	0.1512%
		Polymeric Resin		Trade Secret	0.3600	5.0070%	756	0.0756%
		Functionalized Ester		Trade Secret	0.7200	10.0139%	1,512	0.1512%
Die	Circuit	Si		7440-21-3	25.4000	100.0000%	53,347	5.3347%
Wire	Interconnect	Au		7440-57-5	18.1800	100.0000%	38,183	3.8183%
Mold Compound	Encapsulation	Fused Silica		60676-86-0	190.0400	95.0010%	399,135	39.9135%
		Epoxy Resin		Trade Secret	4.0000	1.9996%	8,401	0.8401%
		Phenol Resin		Trade Secret	1.0000	0.4999%	2,100	0.2100%
		Phenol Novolac		9003-35-4	2.0000	0.9998%	4,201	0.4201%
		Metal Hydroxide		Trade Secret	2.0000	0.9998%	4,201	0.4201%
		Carbon Black		1333-86-4	1.0000	0.4999%	2,100	0.2100%
				Package Weight (mg):	**476.1300**		**% 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 CRM 1577A Adhesive

Material	Purpose of Use	Substance Composition		CAS Number	Weight by mg	% weight of substance per Homogeneous material	PPM	% weight of substance per package
Substrate	Base Material	Plating 1	Au, metal & alloy	7440-57-5	1.0700	0.7368%	2,257	0.2257%
			Ni, metal & alloy	7440-02-0	4.9400	3.4017%	10,418	1.0418%
		Plating 2	Cu, metal & alloy	7440-50-8	37.1000	25.5474%	78,244	7.8244%
		AUS308	Acrylic Resin	-----------------	1.1100	0.7644%	2,341	0.2341%
			Phthalcyanine Blue, Organic Pigment	-----------------	0.0100	0.0069%	21	0.0021%
			Fillers (Barium Sulfate, Silica, Talc)	-----------------	0.8600	0.5922%	1,814	0.1814%
			Aromatic Carbonyl Compound	-----------------	0.1100	0.0757%	232	0.0232%
			Amine Compound	-----------------	0.1800	0.1239%	380	0.0380%
			Levelling Agents & Others	-----------------	0.0400	0.0275%	84	0.0084%
			Acrylic Monomer	-----------------	0.1400	0.0964%	295	0.0295%
			Epoxy Resin	29690-82-2 68541-56-0 25068-38-6	0.4900	0.3374%	1,033	0.1033%
			Barium Sulfate	-----------------	0.2200	0.1515%	464	0.0464%
			Organic Fillers	-----------------	0.0500	0.0344%	105	0.0105%
		HL832 NX	BT Resin	13676-54-5 25722-66-1	43.5700	30.0028%	91,889	9.1889%
			Fibrous-glass-wool	65997-17-3	55.3300	38.1008%	116,691	11.6691%
Solder Ball	External Plating	Sn		7440-31-5	50.4600	62.9963%	106,420	10.6420%
		Pb		7439-92-1	29.6400	37.0037%	62,511	6.2511%
Die Attach	Adhesive	Bismaleimide		Trade Secret	4.3500	59.9174%	9,174	0.9174%
		Silicon Resin		Trade Secret	1.8100	24.9311%	3,817	0.3817%
		Epoxy Resin		9003-36-5	0.7300	10.0551%	1,540	0.1540%
		Diluent		Trade Secret	0.2900	3.9945%	612	0.0612%
		Carbon Black		1333-86-4	0.0400	0.5510%	84	0.0084%
		Dicyandiamide		461-58-5	0.0400	0.5510%	84	0.0084%
Die	Circuit	Si		7440-21-3	25.4000	100.0000%	53,568	5.3568%
Wire	Interconnect	Au		7440-57-5	18.1800	99.9999%	38,341	3.8341%
Mold Compound	Encapsulation	Fused Silica		60676-86-0	118.8000	60.0000%	250,548	25.0548%
		Solid Epoxy Resin		-----------------	19.8000	10.0000%	41,758	4.1758%
		Phenol Resin		-----------------	19.8000	10.0000%	41,758	4.1758%
		Carbon Black		1333-86-4	1.9800	1.0000%	4,176	0.4176%
		Crystallin eSilica		14808-60-7	9.9000	5.0000%	20,879	2.0879%
		Metal Hydro Oxide		-----------------	27.7200	14.0000%	58,461	5.8461%
				Package Weight (mg):	**474.1600**		**% 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	Advantek						
	Carrier tape	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 5.0	CoA-CART-R
Tray	Tray	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 5.0	CoA-TRAY-G CoA-TRAY-R
Others	Moisture Barrier bag	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 5.0	CoA-MBAG-G
	Shielding bag	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 5.0	CoA-SBAG-G
	Desiccant	< 1000 PPM	< 100 PPM	2.5	< 1000 PPM	< 1000 PPM	< 1000 PPM	CoA-DESS-G

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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: Advanced Semiconductor Engineering Taiwan (ASET)
Package Qualification Report #s 052208, 113007, 120107, 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	29.3300	51,573	
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	

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Note 2: Report available from Cypress Sales Offices or Distributors.
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Note 4: Actual testing performed on package family basis. Engineering calculations were applied to derive individual package data.

B1. MATERIAL COMPOSITION (Note 3)
Adhesive Using Epoxy

Material	Purpose of Use	Substance Composition	CAS Number	Weight by mg	% weight of substance per Homogeneous material	PPM	% weight of substance per package
Substrate	Base Material	SiO2	60676-86-0	16.9100	10.4901%	29,734	2.9734%
		Acrylic	Trade Secret	14.8300	9.1998%	26,077	2.6077%
		Epoxy	29690-82-2, 68541-56-0, 25068-38-6	9.9000	6.1414%	17,408	1.7408%
		Bisphenol	13676-54-5	24.1500	14.9814%	42,465	4.2465%
		Triazol	25722-66-1	28.9800	17.9777%	50,957	5.0957%
		Copper (Cu)	7440-50-8	63.4000	39.3300%	111,480	11.1480%
		Nickel (Ni)	7440-02-0	2.2400	1.3896%	3,939	0.3939%
		Gold (Au)	7440-57-5	0.7900	0.4901%	1,389	0.1389%
Solder Ball	External Plating	Tin (Sn)	7440-31-5	49.9300	62.9952%	87,795	8.7795%
		Lead (Pb)	7439-92-1	29.3300	37.0048%	51,573	5.1573%
Die Attach	Adhesive	Silver	7440-22-4	32.9700	76.9967%	57,973	5.7973%
		Epoxy Resin	Trade Secret	2.2500	5.2546%	3,956	0.3956%
		Functionalized Ester	Trade Secret	2.2500	5.2546%	3,956	0.3956%
		Diester	Trade Secret	5.3500	12.4942%	9,407	0.9407%
Die	Circuit	Silicon	7440-21-3	25.2500	100.0000%	44,399	4.4399%
Wire	Interconnect	Gold (Au)	7440-57-5	3.5600	100.0000%	6,260	0.6260%
Mold Compound	Encapsulation	Silica fused	60676-86-0	228.3900	88.9993%	401,593	40.1593%
		Epoxy Resin 1	93705-66-9	11.5500	4.5008%	20,309	2.0309%
		Epoxy Resin 2	Undisclosed	5.1300	1.9991%	9,020	0.9020%
		Phenol resin	106466-55-1	11.5500	4.5008%	20,309	2.0309%
			Package Weight (mg):	**568.7100**		**% 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)
Adhesive using film

Material	Purpose of Use	Substance Composition	CAS Number	Weight by mg	% weight of substance per Homogeneous material	PPM	% weight of substance per package
Substrate	Base Material	SiO_2	60676-86-0	16.9088	10.4900%	31356	3.1356%
		Acrylic	Trade Secret	14.8295	9.2000%	27500	2.7500%
		Epoxy	68541-56-0	9.8971	6.1400%	18353	1.8353%
		Bisphenol	13676-54-5	24.1463	14.9800%	44777	4.4777%
		Triazol	25722-66-1	28.9820	17.9800%	53745	5.3745%
		Cu	7440-50-8	63.3960	39.3300%	117563	11.7563%
		Ni	7440-02-0	2.2405	1.3900%	4155	0.4155%
		Au	7440-57-5	0.7898	0.4900%	1465	0.1465%
Solder Ball	External Plating	Sn	7440-31-5	57.2900	62.9976%	106240	10.6240%
		Pb	7439-92-1	33.6500	37.0024%	62401	6.2401%
Die Attach	Adhesive	Cresol-epichlorohydrin-formaldehyde polymer	37382-79-9	33.5580	60.0000%	62231	6.2231%
		Rubber modified epoxy	Trade Secret	16.7790	30.0000%	31115	3.1115%
		Aromatic amine	Trade Secret	2.7965	5.0000%	5186	0.5186%
		Silicon-based glycidyl ether	2530-83-8	2.2372	4.0000%	4149	0.4149%
		Isopropylidenediphenol	80-05-7	0.5593	1.0000%	1037	0.1037%
Die	Circuit	Si	7440-21-3	32.9900	100.0000%	61178	6.1178%
Wire	Interconnect	Au	7440-57-5	3.8996	99.9900%	7232	0.7232%
		Ion Impurities	Trade Secret	0.0004	0.0100%	1	0.0001%
Mold Compound	Encapsulation	Silica fused	60676-86-0	172.9270	89.0000%	320681	32.0681%
		Epoxy Resin(1)	93705-66-9	8.7435	4.5000%	16214	1.6214%
		Epoxy Resin(2)	Undisclosed	3.8860	2.0000%	7206	0.7206%
		Phenol resin	106466-55-1	8.7435	4.5000%	16214	1.6214%
			Package Weight (mg):	**539.2500**		**% Total:**	**100.0000**

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

Material	Purpose of Use	Substance Composition	CAS Number	Weight by mg	% weight of substance per Homogeneous material	PPM	% weight of substance per package
Substrate	Base Material	SiO_2	60676-86-0	16.9088	10.4900%	36783	3.6783%
		Acrylic	Trade Secret	14.8295	9.2000%	32260	3.2260%
		Epoxy	68541-56-0	9.8971	6.1400%	21530	2.1530%
		Bisphenol	13676-54-5	24.1463	14.9800%	52528	5.2528%
		Triazol	25722-66-1	28.9820	17.9800%	63047	6.3047%
		Cu	7440-50-8	63.3960	39.3300%	137911	13.7911%
		Ni	7440-02-0	2.2405	1.3900%	4874	0.4874%
		Au	7440-57-5	0.7898	0.4900%	1718	0.1718%
Solder Ball	External Plating	Sn	7440-31-5	57.2900	62.9976%	124628	12.4628%
		Pb	7439-92-1	33.6500	37.0024%	73202	7.3202%
Die Attach (FILM)	Adhesive	Modified Epoxy resin	Trade Secret	34.4229	61.5463%	74883	7.4883%
		Epoxy resin	Trade Secret	13.6975	24.4905%	29797	2.9797%
		Dapsone	80-08-0	4.3418	7.7629%	9445	0.9445%
		Treated fume silica	67762-90-7	1.1705	2.0928%	2546	0.2546%
		Substituted silane	Trade Secret	0.8476	1.5155%	1844	0.1844%
		Elastomeric polymer	Trade Secret	0.7420	1.3267%	1614	0.1614%
		Epoxy resin	Trade Secret	0.7077	1.2653%	1540	0.1540%
Die	Circuit	Si	7440-21-3	32.9900	100.0000%	71766	7.1766%
Wire	Interconnect	Copper (Cu)	7440-50-8	2.0080	99.9900%	4368	0.4368%
		Ion Impurities	Trade Secret	0.0002	0.0100%	1	0.0001%
Mold Compound	Encapsulation	Silica	60676-86-0	104.6163	89.0000%	227582	22.7582%
		Epoxy Resin	Undisclosed	6.4146	4.5000%	13955	1.3955%
		Phenol resin	Undisclosed	5.2483	2.0000%	11417	1.1417%
		Carbon Black	1333-86-4	0.3499	4.5000%	761	0.0761%
			Package Weight (mg):	**459.6873**		**% 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.
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Note 4: Actual testing performed on package family basis. Engineering calculations were applied to derive individual package data.

B4. MATERIAL COMPOSITION (Note 3)

Using Copper-Pd Wire

Material	Purpose of Use	Substance Composition	CAS Number	Weight by mg	% weight of substance per Homogeneous material	PPM	% weight of substance per package
Substrate	Base Material	SiO_2	60676-86-0	16.9088	10.4900%	36784	3.6784%
		Acrylic	Trade Secret	14.8295	9.2000%	32261	3.2261%
		Epoxy	68541-56-0	9.8971	6.1400%	21530	2.1530%
		Bisphenol	13676-54-5	24.1463	14.9800%	52529	5.2529%
		Triazol	25722-66-1	28.9820	17.9800%	63048	6.3048%
		Cu	7440-50-8	63.3960	39.3300%	137914	13.7914%
		Ni	7440-02-0	2.2405	1.3900%	4874	0.4874%
		Au	7440-57-5	0.7898	0.4900%	1718	0.1718%
Solder Ball	External Plating	Sn	7440-31-5	57.2900	62.9976%	124630	12.4630%
		Pb	7439-92-1	33.6500	37.0024%	73203	7.3203%
Die Attach	Adhesive	Modified Epoxy resin	Trade Secret	34.4229	61.5463%	74885	7.4885%
		Epoxy resin	Trade Secret	13.6975	24.4905%	29798	2.9798%
		Dapsone	80-08-0	4.3418	7.7629%	9445	0.9445%
		Treated fume silica	67762-90-7	1.1705	2.0928%	2546	0.2546%
		Substituted silane	Trade Secret	0.8476	1.5155%	1844	0.1844%
		Elastomeric polymer	Trade Secret	0.7420	1.3267%	1614	0.1614%
		Epoxy resin	Trade Secret	0.7077	1.2653%	1540	0.1540%
Die	Circuit	Si	7440-21-3	32.9900	100.0000%	71767	7.1767%
Wire	Interconnect	Copper (Cu)	7440-50-8	1.9500	97.5000%	4242	0.4242%
		Palladium (Pd)	7440-05-3	0.0500	2.5000%	109	0.0109%
Mold Compound	Encapsulation	Silica	60676-86-0	104.6163	89.0000%	227586	22.7586%
		Epoxy Resin	Undisclosed	6.4146	4.5000%	13955	1.3955%
		Phenol resin	Undisclosed	5.2483	2.0000%	11417	1.1417%
		Carbon Black	1333-86-4	0.3499	4.5000%	761	0.0761%
			Package Weight (mg):	**459.6791**		**% Total:**	**100.0000**

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Note 2: Report available from Cypress Sales Offices or Distributors.
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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	Advantek						
	Carrier tape	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 5.0	CoA-CART-R
Tray	Tray	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 5.0	CoA-TRAY-G CoA-TRAY-R
Others	Moisture Barrier bag	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 5.0	CoA-MBAG-G
	Shielding bag	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 5.0	CoA-SBAG-G
	Desiccant	< 1000 PPM	< 100 PPM	2.5	< 1000 PPM	< 1000 PPM	< 1000 PPM	CoA-DESS-G

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.

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ASSEMBLY Site 4: Cypress Bangkok
Package Qualification Report # 153602, 153605 (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
Cadmium and Cadmium Compounds	0	< 5.0	As per MSDS
Hexavalent Chromium and its Compounds	0	< 5.0	
Lead and Lead Compounds	29.5564	61,489	
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 Copper-Palladium Wire material, KMC-3580LVA Mold Compound and HR9050G Film

Material	Purpose of Use	Substance Composition	CAS Number	Weight by mg	% weight of substance per Homogeneous material	PPM	% weight of substance per package
Substrate	Base Material	Aluminum Hydroxide	21645-51-2	29.8496	16.2300%	62,099	6.2099%
		Copper	7440-50-8	53.1149	28.8798%	110,500	11.0500%
		Gold	7440-57-5	0.2145	0.1166%	446	0.0446%
		Nickel	7440-02-0	4.9462	2.6894%	10,290	1.0290%
		Epoxy resin	Trade secret	37.2404	20.2485%	77,475	7.7475%
		SiO2 Glass Cloth	65997-17-3	58.5512	31.8357%	121,810	12.1810%
Solder Ball	External Plating	Sn	7440-31-5	50.3257	63.0000%	104,697	10.4697%
		Pb	7439-92-1	29.5564	37.0000%	61,489	6.1489%
Die Attach	Adhesive	Epoxy resign	Trade secret	0.3839	80.0000%	799	0.0799%
		Silica (fused)	60676-86-0	0.0960	20.0000%	200	0.0200%
Die	Circuit	Silicon	7440-21-3	25.6060	100.0000%	53,271	5.3271%
Wire	Interconnect	Cu	7440-50-8	1.0918	98.3000%	2,271	0.2271%
		Pd	7440-05-3	0.0189	1.7000%	39	0.0039%
Mold Compound	Encapsulation	Silica (fused)	60676-86-0	161.2460	85.0000%	335,455	33.5455%
		Carbon Black	1333-86-4	0.4743	0.2500%	987	0.0987%
		Epoxy resin	Trade secret	26.2736	13.8500%	54,659	5.4659%
		Phosphoric organic catalyst	Trade secret	0.5691	0.3000%	1,184	0.1184%
		Metal Oxides	Trade secret	1.1382	0.6000%	2,368	0.2368%

Package Weight (mg): 480.6967 **% 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	Advantek						
	Carrier tape	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 5.0	CoA-CART-R
Tray	Tray	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 5.0	CoA-TRAY-G CoA-TRAY-R
Others	Moisture Barrier bag	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 5.0	CoA-MBAG-G
	Shielding bag	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 5.0	CoA-SBAG-G
	Desiccant	< 1000 PPM	< 100 PPM	2.5	< 1000 PPM	< 1000 PPM	< 1000 PPM	CoA-DESS-G

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

Document History Page

Document Title: 165 - FBGA 13X15 NON PB-FREE PACKAGE MATERIAL DECLARATION DATASHEET
Document Number: 001-05596

Rev.	ECN No.	Orig. of Change	Description of Change
**	405951	YXP	New specification
*A	459354	XBQ	Change Title – Remove package thickness as non significant for PMDD Added Assembly Site 2 – Package Qualification Report # 055103
*B	1090043	VFR/HLR	Changed Cypress Logo. Changed the value of Lead on Section 1 of Assembly Site 2. Completed the RoHS 6 substances (Lead, Mercury, Hexavalent Chromium, PBB and PBDE) for Declaration of Indirect Packaging Materials for Assembly Site 1 and 2. Deleted Platic Reel, Tube, Protective Band, Shipping and Inner Pizza Box, Bubble pack on Table II – Declaration of Packaging Indirect Materials. Added % weight of substance per Homogeneous material on Assembly Site 1 and 2. Added PMDD for Site 3 – AIT, Batam, Indonesia
*C	1639867	VFR	Added new PMDD for AIT, Batam, Indonesia under Assembly site 4 – there is a change in mold compound and epoxy used. It uses low-alpha mold compound and non-conductive epoxy.
*D	2770308	MAHA Dcon	Added data for assembly site 5. Corrected the CAS number of gold for assembly sites 1 and 2. Added the CAS number of Lead for assembly sites 3 and 4. Change CML to WEB in distribution list.
*E	2779733	MAHA	Added material declaration for assembly site 6.
*F	3050768	MAHA	Added the weight of Lead on Table A of assembly sites 1, 2, 3, and 4.
*G	3198391	MAHA	Corrected the solder ball composition of Assembly site 6.
*H	3403328	EBZ	Added package weight B2 for Site 5. Added QTP #113007 for Site 5. Added “adhesive using epoxy “for Material Composition table B1 for Site-5. Added Material Composition table B2 using adhesive film for Site-5.
*I	3422912	MAHA	Deleted assembly site 1. Deleted Ion Impurities from the material composition of assembly site 1. Recalculated the % weight of substance per Homogeneous material and PPM values of assembly site 1. Recalculated the PPM values of

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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” 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: 165 - FBGA 13X15 NON PB-FREE PACKAGE MATERIAL DECLARATION DATASHEET
Document Number: 001-05596

Rev.	ECN No.	Orig. of Change	Description of Change
			assembly sites 2 and 3. Expressed the weight by mg, package weight, % weight of substance per Homogeneous material, and % weight of substance per package in four decimal places for assembly sites 1, 2, 3, 4-B1, and 5.
*J	3593086	EBZ	Added package weight B3 and B4 for Site 4. Added Material Composition table B3 using copper and table B4 using copper pd wire material for Site 4. Added package weight B2 for Site 5. Added Material Composition table B2 using copper pd wire material for Site 5.
*K	3807638	HLR	Sunset Due – No Change
*L	4031247	YUM	Consolidate material composition in assembly site 1 and 5 in one assembly site (CML). Removed assembly site 5. Consolidate material composition in one assembly site (PT UNISEM). Added assembly site name in the Assembly heading in site 1, 2 and 3.
“M	4212758	JARG	Added Material Composition for Assembly Site 1:B4 in reference with QTP 133105.
*N	4573742	HLR	Sunset Due – No Change
*O	4675460	CS	Added reference QTP No. 144604 to Assembly Site 1
*P	4906426	CS DCON	Added assembly Site 4, Cypress Bangkok, QTP153602. Removed Distribution and Posting from the document history page.
*Q	4934325	CS	Sunset Review and added reference QTP No. 153605 to Assembly Site 4.

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