



PACKAGE MATERIAL DECLARATION DATASHEET

Cypress Package Code	LY / LT	Body Size (mil/mm)	7x7 mm
Package Weight – Site 1	143.0000 mg	Package Weight – Site 2	140.2700 mg
Package Weight – Site 3	175.1700 mg	Package Weight – Site 4	B1: 144.7900 mg B2: 143.5145 mg
Package Weight – Site 5	134.9900 mg	Package Weight – Site 6	134.9650 mg

SUMMARY

The 48L-QFN 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: Amkor Technology Seoul Korea
Package Qualification Report # 031803 (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-LY48- Amkor Seoul
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

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



B. MATERIAL COMPOSITION (Note 3)

Material	Purpose of Use	Substance Composition	CAS Number	Weight by mg	%weight of substance per Homogeneous material	PPM	% weight of substance per package
Leadframe	Base Material	Cu	7440-50-8	75.9500	96.4567	531,119	53.1119%
		Fe	7439-89-6	1.8300	2.3241	12,797	1.2797%
		P	7723-14-0	0.0200	0.0254	140	0.0140%
		Zn	7440-66-6	0.0900	0.1143	629	0.0629%
		Ag	7440-22-4	0.8500	1.0795	5,944	0.5944%
Lead Finish	External Plating	Sn	7440-31-5	2.9000	100.0000	20,280	2.0280%
Die Attach	Adhesive	Resin	-----	0.3400	21.1180	2,378	0.2378%
		Ag	7440-22-4	1.1200	69.5652	7,832	0.7832%
		Metal oxide	-----	0.0500	3.1056	350	0.0350%
		Amine	-----	0.0500	3.1056	350	0.0350%
		Gamma Butyrolactone	96-48-0	0.0500	3.1056	350	0.0350%
Die	Circuit	Si	7440-21-3	8.6700	100.0000	60,629	6.0629%
Wire	Interconnect	Au	7440-57-5	2.2200	100.0000	15,524	1.5524%
Mold Compound	Encapsulation	Phenol Resin	(Trade secret)	3.2200	6.5903	22,517	2.2517%
		Epoxy Resin	(Trade secret)	4.4000	9.0053	30,769	3.0769%
		Carbon Black	(1333-86-4)	0.2000	0.4093	1,399	0.1399%
		Silica Fused	60676-86-0	41.0400	83.9951	286,993	28.6993%

Package Weight (mg): **143.0000**

% Total: **100.0000**

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	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	CoA-COVT-R
	Carrier tape	<5.0	<5.0	<5.0	<10.0	<50.0	<45.0	CoA-CART-R
	Plastic Reel	< 5.0	< 5.0	< 5.0	< 10.0	<50.0	<45.0	CoA-PLRL-R
Tray	Tray	< 5.0	< 5.0	< 5.0	< 10.0	<50.0	<45.0	CoA-TRAY-R CoA-TRAY-M
Others	Shielding bag	<2.0	<2.0	<2.0	<2.0	<5.0	<5.0	CoA-SBAG -R CoA-SBAG -M

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

**ASSEMBLY Site 2: Amkor Technology Philippines
Package Qualification Report # 090603 (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-LT48A- Amkor Philippines
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

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

B. MATERIAL COMPOSITION (Note 3)

Material	Purpose of Use	Substance Composition	CAS Number	Weight by mg	%weight of substance per Homogeneous material	PPM	% weight of substance per package
Leadframe	Base Material	Cu	7440-50-8	75.9623	97.5000	541,543	54.1543%
		Fe	7439-89-6	1.8309	2.3500	13,053	1.3053%
		P	7723-14-0	0.0234	0.0300	167	0.0167%
		Zn	7440-66-6	0.0935	0.1200	667	0.0667%
Lead Finish	External Plating	Ni	7440-02-0	1.1022	97.5400	7,858	0.7858%
		Pd	7440-05-3	0.0238	2.1100	170	0.0170%
		Au	7440-57-5	0.0040	0.3500	28	0.0028%
		Ag	7440-22-4				
Die Attach	Adhesive	Ag	7440-22-4	1.3366	82.0000	9,529	0.9529%
		Bismaleimide	Proprietary	0.0489	3.0000	349	0.0349%
		Methacrylate Ester	proprietary	0.0489	3.0000	349	0.0349%
		Polymer	proprietary	0.0163	1.0000	116	0.0116%
		Acrylate	proprietary	0.1793	11.0000	1,278	0.1278%
Die	Circuit	Si	7440-21-3	8.7700	100.0000	62,522	6.2522%
Wire	Interconnect	Au	7440-57-5	0.8000	100.0000	5,703	0.5703%
Mold Compound	Encapsulation	Phenol Resin	Proprietary	4.5026	9.0000	32,100	3.2100%
		Epoxy Resin	Proprietary	4.5026	9.0000	32,100	3.2100%
		Carbon Black	1333-86-4	0.2502	0.5000	1,783	0.1783%
		Silica Fused	60676-86-0	32.5195	65.0000	231,835	23.1835%
		Crystalline silica	14808-60-7	1.0006	2.0000	7,133	0.7133%
		Metal hydroxide	proprietary	7.2544	14.5000	51,717	5.1717%

Package Weight (mg): 140.2700

% Total: 100.0000

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	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	CoA-COVT-R
	Carrier tape	<5.0	<5.0	<5.0	<10.0	<50.0	<45.0	CoA-CART-R
	Plastic Reel	< 5.0	< 5.0	< 5.0	< 10.0	<50.0	<45.0	CoA-PLRL-R
Tray	Tray	< 5.0	< 5.0	< 5.0	< 10.0	<50.0	<45.0	CoA-TRAY-R CoA-TRAY-M
Others	Shielding bag	<2.0	<2.0	<2.0	<2.0	<5.0	<5.0	CoA-SBAG -R CoA-SBAG -M

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

**ASSEMBLY Site 3: CARSEM Malaysia
Package Qualification Report # 083701 (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-LT48- CARSEM
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

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



B. MATERIAL COMPOSITION (Note 3)

Material	Purpose of Use	Substance Composition	CAS Number	Weight by mg	%weight of substance per Homogeneous material	PPM	% weight of substance per package
Leadframe	Base Material	Cu	7440-50-8	98.7300	97.5689	563,625	56.3625%
		Fe	7439-89-6	2.3100	2.2828	13,187	1.3187%
		P	7723-14-0	0.0200	0.0198	114	0.0114%
		Zn	7440-66-6	0.1300	0.1285	742	0.0742%
Lead Finish	External Plating	Ni	7440-02-0	1.1800	90.7692	6,736	0.6736%
		Pd	7440-05-3	0.1000	7.6923	571	0.0571%
		Au	7440-57-5	0.0200	1.5385	114	0.0114%
Die Attach	Adhesive	Silver	7440-22-4	0.5300	71.6216	3,026	0.3026%
		Carbocyclic Acrylate	-----	0.1500	20.2703	856	0.0856%
		Bismaleimide resin	-----	0.0200	2.7027	114	0.0114%
		Acrylate	-----	0.0200	2.7027	114	0.0114%
		Additive	96-48-0	0.0200	2.7027	114	0.0114%
Die	Circuit	Si	7440-21-3	2.1000	100.0000	11,988	1.1988%
Wire	Interconnect	Au	7440-57-5	1.1000	100.0000	6,280	0.6280%
Mold Compound	Encapsulation	Silica Fused	60676-86-0	64.4100	93.7009	367,700	36.7700%
		Epoxy Resin	(Trade secret)	2.0600	2.9968	11,760	1.1760%
		Phenol Resin	(Trade secret)	2.0600	2.9968	11,760	1.1760%
		Carbon Black	(1333-86-4)	0.2100	0.3055	1,199	0.1199%

Package Weight (mg): 175.1700

% Total 100.0000

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	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	CoA-COVT-R
	Carrier tape	<5.0	<5.0	<5.0	<10.0	<50.0	<45.0	CoA-CART-R
	Plastic Reel	< 5.0	< 5.0	< 5.0	< 10.0	<50.0	<45.0	CoA-PLRL-R
Tray	Tray	< 5.0	< 5.0	< 5.0	< 10.0	<50.0	<45.0	CoA-TRAY-R CoA-TRAY-M
Others	Shielding bag	<2.0	<2.0	<2.0	<2.0	<5.0	<5.0	CoA-SBAG -R CoA-SBAG -M

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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

**ASSEMBLY Site 4: Cypress Manufacturing Limited (CML)
Package Qualification Report # 102610, 120206 (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-LT48-CML
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

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)
USING GOLD WIRE**

Material	Purpose of Use	Substance Composition	CAS Number	Weight by (mg)	% weight of substance per Homogeneous material	PPM	% weight of substance per package
Leadframe	Base Material	Cu	7440-50-8	68.6800	97.4100	474,284	47.4284%
		Fe	7439-89-6	1.6900	2.4000	11,685	1.1685%
		P	7723-14-0	0.0500	0.0700	341	0.0341%
		Zn	7440-66-6	0.0800	0.1200	584	0.0584%
Lead Finish	External Plating	Ni	7440-02-0	1.0600	96.5200	7,317	0.7317%
		Pd	7440-05-3	0.0200	1.737	132	0.0132%
		Au	7440-57-5	0.0200	1.743	132	0.0132%
Die Attach	Adhesive	Silver	7440-22-4	0.5200	74.0000	3,595	0.3595%
		Carbocyclic Acrylate	-----	0.1400	20.0000	972	0.0972%
		Bismaleimide resin	-----	0.0100	2.0000	97	0.0097%
		Acrylate	-----	0.0100	2.0000	97	0.0097%
		Additive	96-48-0	0.0100	2.0000	97	0.0097%
Die	Circuit	Si	7440-21-3	9.8500	100.0000	68,007	6.8007%
Wire	Interconnect	Au	7440-57-5	2.3700	99.0000	16,369	1.6369%
		Pd	7440-05-3	0.0200	1.0000	165	0.0165%
Mold Compound	Encapsulation	Silica Fused	60676-86-0	51.8200	86.0000	357,868	35.7868%
		Crystalline Silica	14808-60-7	1.5100	2.5000	10,403	1.0403%
		Metal OH	-----	1.8100	3.0000	12,484	1.2484%
		Epoxy Resin	(Trade secret)	2.4100	4.0000	16,645	1.6645%
		Phenol Resin	(Trade secret)	2.4100	4.0000	16,645	1.6645%
		Carbon Black	(1333-86-4)	0.3000	0.5000	2,081	0.2081%

Package Weight (mg): **144.7900**

% 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". 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



**B2. 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
Leadframe	Base Material	Cu	7440-50-8	68.6800	97.4100%	478,558	47.8558%
		Fe	7439-89-6	1.6900	2.4000%	11,776	1.1776%
		P	7723-14-0	0.0500	0.0700%	348	0.0348%
		Zn	7440-66-6	0.0800	0.1200%	557	0.0557%
Lead Finish	External Plating	Ni	7440-02-0	1.0600	96.5200%	7,386	0.7386%
		Pd	7440-05-3	0.0200	1.7370%	139	0.0139%
		Au	7440-57-5	0.0200	1.7430%	139	0.0139%
Die Attach	Adhesive	Silver	7440-22-4	0.5200	74.0000%	3,623	0.3623%
		Carbocyclic Acrylate	-----	0.1400	20.0000%	976	0.0976%
		Bismaleimide resin	-----	0.0100	2.0000%	70	0.0070%
		Acrylate	-----	0.0100	2.0000%	70	0.0070%
		Additive	96-48-0	0.0100	2.0000%	70	0.0070%
Die	Circuit	Si	7440-21-3	9.8500	100.0000%	68,634	6.8634%
Wire	Interconnect	Cu	7440-50-8	1.1145	100.0000%	7,766	0.7766%
Mold Compound	Encapsulation	Silica Fused	60676-86-0	51.8200	86.0000%	361,078	36.1078%
		Crystalline Silica	14808-60-7	1.5100	2.5000%	10,522	1.0522%
		Metal OH	-----	1.8100	3.0000%	12,612	1.2612%
		Epoxy Resin	(Trade secret)	2.4100	4.0000%	16,793	1.6793%
		Phenol Resin	(Trade secret)	2.4100	4.0000%	16,793	1.6793%
		Carbon Black	1333-86-4	0.3000	0.5000%	2,090	0.2090%

Package Weight (mg): 143.5145

% Total: 100.0000

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	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	CoA-COVT-R
	Carrier tape	<5.0	<5.0	<5.0	<10.0	<50.0	<45.0	CoA-CART-R
	Plastic Reel	< 5.0	< 5.0	< 5.0	< 10.0	<50.0	<45.0	CoA-PLRL-R
Tray	Tray	< 5.0	< 5.0	< 5.0	< 10.0	<50.0	<45.0	CoA-TRAY-R CoA-TRAY-M
Others	Shielding bag	<2.0	<2.0	<2.0	<2.0	<5.0	<5.0	CoA-SBAG -R CoA-SBAG -M

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

**ASSEMBLY Site 5: Advanced Semiconductor Engineering Taiwan (ASET)
Package Qualification Report # 112107 (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-LT48- ASET
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

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



B. MATERIAL COMPOSITION (Note 3)

Material	Purpose of Use	Substance Composition	CAS Number	Weight by mg	% weight of substance per Homogeneous material	PPM	% weight of substance per package
Lead Frame	Base material	Copper	7440-50-8	47.9900	97.3000	355,508	35.5508%
		Iron	7439-89-6	1.2100	2.4500	8,964	0.8964%
		Phosphorous	7723-14-0	0.0400	0.0900	296	0.0296%
		Zinc	7440-66-6	0.0800	0.1600	593	0.0593%
Lead Finish	External Plating	Nickel	7440-02-0	0.6400	94.3900	4,741	0.4741%
		Palladium	7440-05-3	0.0300	4.4100	222	0.0222%
		Gold	7440-57-5	0.0100	1.2000	74	0.0074%
Die Attach	Adhesive	Silver	7440-22-4	1.8900	70.0000	14,001	1.4001%
		Acrylic Resin	-----	0.2000	7.5000	1,482	0.1482%
		Polybutadiene derivative	-----	0.2500	9.2500	1,852	0.1852%
		Butadiene copolymer	-----	0.0900	3.5000	667	0.0667%
		Acrylate	-----	0.2000	7.5000	1,482	0.1482%
		Peroxide	-----	0.0300	1.0000	222	0.0222%
		Additive	-----	0.0300	1.2500	222	0.0222%
Die	Circuit	Silicon	7440-21-3	9.8000	100.0000	72,598	7.2598%
Wire	Interconnect	Gold	7440-57-5	0.4999	99.9900	3,703	0.3703%
		Ion Impurities	-----	0.0001	0.0100	1	0.0001%
		Epoxy Resin A	-----	3.2400	4.5000	24,002	2.4002%
Mold Compound	Encapsulation	Epoxy Resin B	-----	2.1600	3.0000	16,001	1.6001%
		Phenol Resin	-----	4.7500	6.6000	35,188	3.5188%
		Carbon Black	1333-86-4	0.3600	0.5000	2,667	0.2667%
		Silica Fused	60676-86-0	61.4900	85.4000	455,514	45.5514%

Package Weight (mg): **134.9900**

% Total: **100.0000**

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	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	CoA-COVT-R
	Carrier tape	<5.0	<5.0	<5.0	<10.0	<50.0	<45.0	CoA-CART-R
	Plastic Reel	< 5.0	< 5.0	< 5.0	< 10.0	<50.0	<45.0	CoA-PLRL-R
Tray	Tray	< 5.0	< 5.0	< 5.0	< 10.0	<50.0	<45.0	CoA-TRAY-R CoA-TRAY-M
Others	Shielding bag	<2.0	<2.0	<2.0	<2.0	<5.0	<5.0	CoA-SBAG -R CoA-SBAG -M

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

**ASSEMBLY Site 6 – Advanced Semiconductor Engineering Taiwan (ASET)
Package Qualification Report # 114905 (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-LT48- ASET
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

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



B. MATERIAL COMPOSITION (Note 3)

Material	Purpose of Use	Substance Composition	CAS Number	Weight by mg	% weight of substance per Homogeneous material	PPM	% weight of substance per package
Lead Frame	Base material	Copper	7440-50-8	73.0723	97.3000	541,417	54.1417%
		Iron	7439-89-6	1.8400	2.4500	13,633	1.3633%
		Phosphorous	7723-14-0	0.0676	0.0900	501	0.0501%
		Zinc	7440-66-6	0.1202	0.1600	890	0.0890%
Lead Finish	External Plating	Nickel	7440-02-0	0.9703	94.3880	7,189	0.7189%
		Palladium	7440-05-3	0.0454	4.4120	336	0.0336%
		Gold	7440-57-5	0.0123	1.2000	91	0.0091%
Die Attach	Adhesive	Silver	7440-22-4	0.5600	70.0000	4,149	0.4149%
		Acrylic Resin	-----	0.0600	7.5000	445	0.0445%
		Polybutadiene derivative	-----	0.0740	9.2500	548	0.0548%
		Butadiene copolymer	-----	0.0280	3.5000	207	0.0207%
		Acrylate	-----	0.0600	7.5000	445	0.0445%
		Peroxide	-----	0.0080	1.0000	59	0.0059%
		Additive	-----	0.0100	1.2500	74	0.0074%
Die	Circuit	Silicon	7440-21-3	6.9990	100.0000	51,858	5.1858%
Wire	Interconnect	Copper	7440-50-8	0.2800	100.0000	2,076	0.2076%
Mold Compound	Encapsulation	Epoxy Resin A	-----	2.2841	4.5000	16,924	1.6924%
		Epoxy Resin B	-----	1.5227	3.0000	11,282	1.1282%
		Phenol Resin	-----	3.3500	6.6000	24,821	2.4821%
		Carbon Black	1333-86-4	0.2538	0.5000	1,880	0.1880%
		Silica Fused	60676-86-0	43.3473	85.4000	321,175	32.1175%

Package Weight (mg): **134.9650**

% Total: **100.0000**

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	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	CoA-COVT-R
	Carrier tape	<5.0	<5.0	<5.0	<10.0	<50.0	<45.0	CoA-CART-R
	Plastic Reel	< 5.0	< 5.0	< 5.0	< 10.0	<50.0	<45.0	CoA-PLRL-R
Tray	Tray	< 5.0	< 5.0	< 5.0	< 10.0	<50.0	<45.0	CoA-TRAY-R CoA-TRAY-M
Others	Shielding bag	<2.0	<2.0	<2.0	<2.0	<5.0	<5.0	CoA-SBAG -R CoA-SBAG -M

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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: 48L - QFN Pb-Free Package Material Declaration Datasheet
Document Number: 001-04326

Rev.	ECN No.	Orig. of Change	Description of Change
**	390888	YXP	New Specification
*A	596677	YRB	Added column for %weight of substance per homogeneous material in material composition. Added column for Lead, Cr VI, PBB, PBDE in declaration of packaging indirect materials. Removed the following indirect materials such as moisture barrier bag, protective band, shipping and inner/pizza box. Updated Cypress Logo Change assembly location from M to L on analysis report column under Banned Substances.
*B	2679173	DPT	Add Amkor Phil (P3) for 48QFN (LT48A). Change distribution from CML to WEB.
*C	2683314	EBZ/ HLR	Added Carsem Malaysia (CA) as additional site for 48QFN (LT48A). Added Note 4 on footer section.
*D	3078566	TSV	Add Cypress Mfg Ltd. (RA) as additional site for the 48QFN (LT48A)
*E	3264898	VFR	Added Assembly Site 5, ASE-G. Reference QTP # 112107.
*F	3465207	VFR	Added Assembly Site 6 – ASE Taiwan (G) Copper wire qualification. Reference QTP # 114905.
*G	3578203	UDR	Added B2 for Assembly Site 4 – Autoline (CML-RA) Copper wire qualification. Reference QTP # 120206.
*H	3855071	JARG	Corrected Material Composition Tables for Assembly Sites 1, 2, 3, 4:B1 and 5 to meet 4 decimal places on values.
*I	4033441	YUM	Added assembly site name in the Assembly heading. Changed Assembly Code to Assembly Site Name. Removed entire Tube row in the Indirect Materials Section.

Distribution: WEB

Posting: None

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