

PACKAGE MATERIAL DECLARATION DATASHEET

Cypress Package Code	ZT	Body Size (mil/mm)	8x13.4 mm
Package Weight – Site 1	B1: 229.9890 mg B2: 229.9900 mg	Package Weight – Site 2	229.3601 mg
Package Weight – Site 3	229.9900 mg		

SUMMARY

The 28L-TSOP I package is qualified at two assembly sites. Packages from different assembly sites are likely to have different materials composition. However, Cypress guarantees that as long as products are being ordered with a Cypress Part Number containing an “X” (e.g. CY7C1328G-133AXI, CY2308SXC-1HT) they meet the requirement of RoHS.

ASSEMBLY Site 1: Cypress Manufacturing Limited (CML)
Package Qualification Report # 021903 / 060904/064507 (See 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-ZT28-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 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

B. MATERIAL COMPOSITION (Note 3)

B1. NiPdAu with Standard Molding Compound

Material	Purpose of Use	Substance Composition	CAS Number	Weight by mg	% weight of substance per Homogeneous	PPM	%Weight of Substance per package
Leadframe	Base Material	Cu	7440-50-8	107.4514	93.2900%	467,203	46.7203%
		Si	7440-21-3	1.3822	1.2000%	6,010	0.6010%
		Mg	7439-95-4	0.3455	0.3000%	1,502	0.1502%
		Ni	7440-02-0	4.6072	4.0000%	20,032	2.0032%
		Fe	7439-89-6	0.2304	0.2000%	1,002	0.1002%
		Zn	7440-66-6	1.1518	1.0000%	5,008	0.5008%
Lead Finish	External Plating	Ni	7440-02-0	0.1930	96.5200%	839	0.0839%
		Pd	7440-05-3	0.0035	1.7400%	15	0.0015%
		Au	7440-57-5	0.0035	1.7400%	15	0.0015%
Die Attach	Adhesive	Ag	7440-22-4	0.5000	80.6400%	2,174	0.2174%
		Proprietary bismaleimide	-----	0.0600	9.6800%	261	0.0261%
		Proprietary polymer	-----	0.0300	4.8400%	130	0.0130%
		Methacrylate	-----	0.0100	1.6100%	43	0.0043%
		Acrylate ester	-----	0.0100	1.6100%	43	0.0043%
		Organic peroxide	-----	0.0100	1.6100%	43	0.0043%
Die	Circuit	Si	7440-21-3	8.7800	100.0000%	38,176	3.8176%
Wire	Interconnect	Au	7440-57-5	0.9600	100.0000%	4,174	0.4174%
Mold Compound	Encapsulation	Epoxy resin	129915-35-1	5.2125	5.0000%	22,664	2.2664%
		Phenol resin	26834-02-6	5.2125	5.0000%	22,664	2.2664%
		Brominated epoxy resin	-----	1.0425	1.0000%	4,533	0.4533%
		Antimony trioxide	1309-64-4	0.5213	0.5000%	2,266	0.2266%
		Silica	7631-86-9	91.2292	87.5100%	396,668	39.6668%
		Others	-----	1.0425	1.0000%	4,533	0.4533%

Package Weight (mg): **229.9890**

% 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. NiPdAu with Green Molding Compound

Material	Purpose of Use	Substance Composition	CAS Number	Weight by mg	% weight of substance per Homogeneous	PPM	%Weight of Substance per package
Lead frame	Base Material	Cu	7440-50-8	62.2029	96.2000%	207,350	20.7350%
		Si	7440-21-3	0.4203	0.6500%	1,401	0.1401%
		Mg	7439-95-4	0.0970	0.1500%	323	0.0323%
		Ni	7440-02-0	1.9398	3.0000%	6,466	0.6466%
Lead Finish	External Plating	Ni	7440-02-0	1.2934	96.5200%	4,311	0.4311%
		Pd	7440-05-3	0.0233	1.7400%	78	0.0078%
		Au	7440-57-5	0.0233	1.7400%	78	0.0078%
Die Attach	Adhesive	Ag	7440-22-4	0.1760	80.0000%	587	0.0587%
		Proprietary bismaleimide	-----	0.0198	9.0000%	66	0.0066%
		Proprietary polymer	-----	0.0110	5.0000%	37	0.0037%
		Methacrylate	-----	0.0044	2.0000%	15	0.0015%
		Acrylate ester	-----	0.0044	2.0000%	15	0.0015%
		Organic peroxide	-----	0.0044	2.0000%	15	0.0015%
Die	Circuit	Si	7440-21-3	3.2600	100.0000%	10,867	1.0867%
Wire	Interconnect	Au	7440-57-5	1.3300	100.0000%	4,433	0.4433%
Mold Compound	Encapsulation	SiO2	60676-86-0	203.9702	89.0000%	679,923	67.9923%
		Phenol Resin	-----	11.4590	5.0000%	38,198	3.8198%
		Epoxy Resin	-----	13.7508	6.0000%	45,838	4.5838%

Package Weight (mg): 299.9900

% 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	Plastic Reel	<5.0	<5.0	<5.0	<10.0	<5.0	<5.0	CoA-PLRL-R
	Cover Tape	<2.0	<2.0	<2.0	<2.0	<5.0	<5.0	CoA-COVT-R
	Carrier Tape	<2.0	<2.0	<2.0	<2.0	<5.0	<5.0	CoA-CART-R
Others	Shielding Bag	<2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 5.0	CoA-SBAG-R

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

ASSEMBLY Site 2: Orient Semiconductor Electronics Taiwan (OSET) Package Qualification Report # 033104 (See 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-ZT28-OSET
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 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	PPM	%%Weight of Substance per package
Leadframe	Base Material	Ni	7440-02-0	28.5430	41.0100%	124,446	12.4446%
		Mg	7439-95-4	0.3480	0.5000%	1,517	0.1517%
		Si	7440-21-3	1.3920	2.0000%	6,069	0.6069%
		C	7440-44-0	0.0070	0.0100%	30	0.0030%
		Fe	7439-89-6	39.3101	56.4800%	171,390	17.1390%
Lead Finish	External Plating	Sn	7440-31-5	2.1300	100.0000%	9,287	0.9287%
Die Attach	Adhesive	Epoxy Resin	Proprietary	0.0069	13.8900%	30	0.0030%
		Metal	Proprietary	0.0028	5.5600%	12	0.0012%
		Ag	7440-22-4	0.0403	80.5600%	176	0.0176%
Die	Circuit	Si	7440-21-3	2.1300	100.0000%	9,287	0.9287%
Wire	Interconnect	Au	7440-57-5	0.4800	100.0000%	2,093	0.2093%
Mold Compound	Encapsulation	Epoxy resin	129915-35-1	6.9737	4.5000%	30,405	3.0405%
		Phenol resin	26834-02-6	6.1988	4.0000%	27,027	2.7027%
		Aromatic Phosphate	-----	2.0146	1.3000%	8,784	0.8784%
		Carbon Black	-----	0.3099	0.2000%	1,351	0.1351%
		Silica	7631-86-9	139.4730	90.0000%	608,096	60.8096%

Package Weight (mg): **229.3601**

% 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	Plastic Reel	<5.0	<5.0	<5.0	<10.0	<5.0	<5.0	CoA-PLRL-R
	Cover Tape	<2.0	<2.0	<2.0	<2.0	<5.0	<5.0	CoA-COVT-R
	Carrier Tape	<2.0	<2.0	<2.0	<2.0	<5.0	<5.0	CoA-CART-R
Others	Shielding Bag	<2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 5.0	CoA-SBAG-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: Jiangsu Changjiang Electronics Technology (JCET) Package Qualification Report # 104815/ 104816 (See 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-ZT28-JCET
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 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	PPM	%Weight of Substance per package
Lead frame	Base Material	Cu	7440-50-8	62.2029	96.2000%	207,350	20.7350%
		Si	7440-21-3	0.4203	0.6500%	1,401	0.1401%
		Mg	7439-95-4	0.0970	0.1500%	323	0.0323%
		Ni	7440-02-0	1.9398	3.0000%	6,466	0.6466%
Lead Finish	External Plating	Ni	7440-02-0	1.2934	96.5200%	4,311	0.4311%
		Pd	7440-05-3	0.0233	1.7400%	78	0.0078%
		Au	7440-57-5	0.0233	1.7400%	78	0.0078%
Die Attach	Adhesive	Ag	7440-22-4	0.1760	80.0000%	587	0.0587%
		Proprietary bismaleimide	-----	0.0198	9.0000%	66	0.0066%
		Proprietary polymer	-----	0.0110	5.0000%	37	0.0037%
		Methacrylate	-----	0.0044	2.0000%	15	0.0015%
		Acrylate ester	-----	0.0044	2.0000%	15	0.0015%
		Organic peroxide	-----	0.0044	2.0000%	15	0.0015%
Die	Circuit	Si	7440-21-3	3.2600	100.0000%	10,867	1.0867%
Wire	Interconnect	Au	7440-57-5	1.3300	100.0000%	4,433	0.4433%
Mold Compound	Encapsulation	SiO ₂	60676-86-0	203.9702	89.0000%	679,923	67.9923%
		Phenol Resin	-----	11.4590	5.0000%	38,198	3.8198%
		Epoxy Resin	-----	13.7508	6.0000%	45,838	4.5838%

Package Weight (mg):

229.9900

% 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	Plastic Reel	<5.0	<5.0	<5.0	<10.0	<5.0	<5.0	CoA-PLRL-R
	Cover Tape	<2.0	<2.0	<2.0	<2.0	<5.0	<5.0	CoA-COVT-R
	Carrier Tape	<2.0	<2.0	<2.0	<2.0	<5.0	<5.0	CoA-CART-R
Others	Shielding Bag	<2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 5.0	CoA-SBAG-R

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

Document History Page

Document Title: 28L-TSOP I PB-FREE PACKAGE MATERIAL DECLARATION DATASHEET
Document Number: 001-03056

Rev.	ECN No.	Orig. of Change	Description of Change
**	385640	YXP	New document
*A	399136	GFJ	Additional Assembly Site with different materials used.
*B	728536	MRB	<ol style="list-style-type: none"> Updated Cypress Logo Added package qualification report (060904) on assembly site 1 Added on the material composition the percent weight per homogeneous material and weight of substance Updated and added Lead, Cr+VI, PBB and PBDE on the Declaration of Packaging/Indirect Materials. <p>Added note 4: Engineering Calculations were applied to derive individual package data.</p>
*C	2564411	MAHA	<p>Added the following for Assembly Site 1:</p> <ol style="list-style-type: none"> B2 : 300 mg QTP Reference 064507 CoA-ZT28-R1 Table B2 : NiPdAu with Green Molding Compound <p>Dcon: Change from CML to WEB in the distribution list.</p>
*D	2822815	HLR	Added "Proprietary" on CAS number section for Epoxy Resin and Metal on Assembly Site 2.
*E	3176666	REYD	Added Assembly Site 3 – JCET
*F	3219898	HLR	Corrected the total package weight for Assembly Site 2.
*G	3527063	HLR	Updated the material composition table for Assembly Sites 1 to 3 to reflect 4 decimal places on values.
*H	4032244	YUM	<p>Added assembly site name in the Assembly heading in site 1, 2 and 3.</p> <p>Changed Assembly Code to Assembly Site Name in site 1, 2 and 3.</p>

Distribution: WEB

Posting: None

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