



PACKAGE MATERIAL DECLARATION DATASHEET

Cypress Package Code	ZW	Body Size (mil/mm)	400 mil
Package Weight – Site 1	B1: 458.0000 mg B2: 449.7200 mg B3: 448.8100 mg	Package Weight – Site 2	B1: 470.9200 mg B2: 441.7089 mg
Package Weight – Site 3	449.7200 mg	Package Weight – Site 4	470.2318 mg

SUMMARY

The 44L-TSOP II Pb-Free package is qualified at two assembly sites. Packages from different assembly sites may have different material composition. Cypress Ordering Part Numbers containing an “X” (e.g. CY7C1328G-133AXI, CY2308SXC-1HT) meet the Directive 2002/95/EC (RoHS) requirement.

ASSEMBLY Site 1: Cypress Manufacturing Limited (CML)
Package Qualification Report #s 024302 / 053102 / 043003 / 063202, 110703 / 104907 / 121406 (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-ZW44-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” 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.



44L – TSOP II Pb-Free Package

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	158.2742	95.3000%	345,577	34.5577%
		Si	7440-21-3	1.6774	1.0100%	3,662	0.3662%
		Mg	7439-95-4	1.0961	0.6600%	2,393	0.2393%
		Ni	7440-02-0	5.0322	3.0300%	10,987	1.0987%
Lead Finish	External Plating	Ni	7440-02-0	0.1883	94.1300%	411	0.0411%
		Pd	7440-05-3	0.0099	4.9500%	22	0.0022%
		Au	7440-57-5	0.0018	0.9200%	4	0.0004%
Die Attach	Adhesive	Ag	7440-22-4	0.2400	77.4100%	524	0.0524%
		Bismaleimide	-----	0.0200	6.4500%	44	0.0044%
		Polymer	-----	0.0200	6.4500%	44	0.0044%
		Methacrylate	-----	0.0100	3.2300%	22	0.0022%
		Acrylate ester	-----	0.0100	3.2300%	22	0.0022%
		Organic peroxide	-----	0.0100	3.2300%	22	0.0022%
Die	Circuit	Si	7440-21-3	3.9000	100.0000%	8,515	0.8515%
Wire	Interconnect	Au	7440-57-5	3.2100	100.0000%	7,009	0.7009%
Mold Compound	Encapsulation	Epoxy Resin	85954-11-6	12.7935	4.5000%	27,933	2.7933%
		Phenol Resin	26834-02-6	14.2150	5.0000%	31,037	3.1037%
		Brominated Epoxy Resin	68541-56-0	2.8430	1.0000%	6,207	0.6207%
		Antimony Trioxide	1309-64-4	1.4215	0.5000%	3,104	0.3104%
		Silica	60676-86-0	243.9294	85.8000%	532,597	53.2597%
		Carbon black	1333-86-4	0.5686	0.2000%	1,241	0.1241%
		Others	-----	8.5290	3.0000%	18,622	1.8622%

Package Weight (mg): 458.0000

% 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
Leadframe	Based Material	Cu	7440-50-8	112.4500	96.2000%	250,044	25.0044%
		Si	7440-21-3	0.7600	0.6500%	1,690	0.1690%
		Mg	7439-95-4	0.1800	0.1500%	400	0.0400%
		Ni	7440-02-0	3.5100	3.0000%	7,805	0.7805%
Lead Finish	External Plating	Ni	7440-02-0	1.1700	96.5200%	2,602	0.2602%
		Pd	7440-05-3	0.0200	1.7400%	45	0.0045%
		Au	7440-57-5	0.0200	1.7400%	45	0.0045%
Die Attach	Adhesive	Ag	7440-22-4	1.6500	80.0000%	3,669	0.3669%
		Bismaleimide	-----	0.1900	9.0000%	422	0.0422%
		Polymer	-----	0.1000	5.0000%	222	0.0222%
		Methacrylate	-----	0.0400	2.0000%	89	0.0089%
		Acylate ester	-----	0.0400	2.0000%	89	0.0089%
		Organic Peroxide	-----	0.0400	2.0000%	89	0.0089%
Die	Circuit	Si	7440-21-3	28.8800	100.0000%	64,218	6.4218%
Wire	Interconnect	Au	7440-57-5	1.7100	100.0000%	3,802	0.3802%
Mold Compound	Encapsulation	Silica	60676-86-0	266.0700	89.0000%	591,635	59.1635%
		Epoxy Resin	-----	17.9400	6.0000%	39,891	3.9891%
		Phenol Resin	-----	14.9500	5.0000%	33,243	3.3243%

Package Weight (mg): **449.7200**

% 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.



**44L – TSOP II
Pb-Free Package**

B3: NiPdAu with Green Molding Compound Using Copper Wire

Material	Purpose of Use	Substance Composition	CAS Number	Weight by mg	% weight of substance per Homogeneous	PPM	% Weight of Substance per package
Leadframe	Based Material	Cu	7440-50-8	112.4500	96.1933%	250,551	25.0551%
		Si	7440-21-3	0.7600	0.6501%	1,693	0.1693%
		Mg	7439-95-4	0.1800	0.1540%	401	0.0401%
		Ni	7440-02-0	3.5100	3.0026%	7,821	0.7821%
Lead Finish	External Plating	Ni	7440-02-0	1.1700	96.6942%	2,607	0.2607%
		Pd	7440-05-3	0.0200	1.6529%	45	0.0045%
		Au	7440-57-5	0.0200	1.6529%	45	0.0045%
Die Attach	Adhesive	Ag	7440-22-4	1.6500	80.0971%	3,676	0.3676%
		Bismaleimide	-----	0.1900	9.2233%	423	0.0423%
		Polymer	-----	0.1000	4.8544%	223	0.0223%
		Methacrylate	-----	0.0400	1.9417%	89	0.0089%
		Acylate ester	-----	0.0400	1.9417%	89	0.0089%
		Organic Peroxide	-----	0.0400	1.9417%	89	0.0089%
Die	Circuit	Si	7440-21-3	28.8800	100.0000%	64,348	6.4348%
Wire	Interconnect	Cu	7440-50-8	0.8000	100.0000%	1,782	0.1782%
Mold Compound	Encapsulation	Silica	60676-86-0	266.0700	88.9985%	592,834	59.2834%
		Epoxy Resin	-----	17.9400	6.0008%	39,972	3.9972%
		Phenol Resin	-----	14.9500	5.0007%	33,310	3.3310%

Package Weight (mg): 448.8100

% 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

Material	Lead PPM	Cadmium PPM	Cr VI PPM	Mercury PPM	PBB PPM	PBDE PPM	Analysis Report (Note2)
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
Plastic Reel	< 2.0	< 2.0	< 2.0	< 2.0	<5.0	<5.0	CoA-PLRL-R
Tray	< 2.0	< 2.0	< 2.0	< 2.0	-----	-----	CoA-TRAY-R
Shielding bag	< 2.0	< 2.0	< 2.0	< 2.0	<5.0	<5.0	CoA-SBAG –R
Moisture Barrier bag	< 2.0	< 2.0	< 2.0	< 2.0	<5.0	<5.0	CoA-MBBG-R
Protective Band	< 2.0	< 2.0	< 2.0	< 2.0	<5.0	<5.0	CoA-PROB-R
Shipping and Inner Box	< 10.0	< 4.0	< 4.0	< 5.0	-----	-----	CoA-ABOX-R
Dessicant	< 10.0	< 2.0	< 2.0	< 1.0	< 3.0	< 3.0	CoA-DESS-R
Bubble Pack	< 2.0	< 2.0	< 2.0	< 2.0	< 100.0	< 90.0	CoA-BUBP-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 # 043102 / 120406 (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-ZW44-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 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.



**44L – TSOP II
Pb-Free Package**

B. MATERIAL COMPOSITION (Note 3)

B1.USING GOLD WIRE

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	Nickel	7440-02-0	3.3802	3.2000%	7,178	0.7178%
		Silicon	7440-21-3	0.7711	0.7300%	1,626	0.1637%
		Magnesium	7439-95-4	0.1796	0.1700%	393	0.0381%
		Copper	7440-50-8	101.2992	95.9000%	215,105	21.5109%
Lead Finish	External Plating	Tin	7440-31-5	4.5900	100.0000%	9,747	0.9747%
Die Attach	Adhesive	Epoxy Resin	-----	0.1400	15.0500%	296	0.0297%
		Metal	-----	0.0500	5.3800%	99	0.0106%
		Silver	7440-22-4	0.7400	79.5700%	1,580	0.1571%
Die	Circuit	Silicon	7440-21-3	1.2300	100.0000%	2,611	0.2612%
Wire	Interconnect	Gold	7440-57-5	1.2900	100.0000%	2,739	0.2739%
Mold Compound	Encapsulation	Epoxy resin	-----	16.0763	4.5000%	34,138	3.4138%
		Phenol resin	-----	14.2900	4.0000%	30,345	3.0345%
		Aromatic Phosphate	-----	4.6443	1.3000%	9,862	0.9862%
		Carbon black	1333-86-4	0.7145	0.2000%	1,517	0.1517%
		Silica	60676-86-0	321.5250	90.0000%	682,764	68.2759%

Package Weight (mg): **470.9200**

% 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.



44L – TSOP II Pb-Free Package

B2: USING COPPER WIRE

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	Copper	7440-50-8	55.5079	93.4000%	125,666	12.5666%
		Nickel	7440-02-0	1.9018	3.2000%	4,306	0.4306%
		Silicon	7440-21-3	0.4309	0.7250%	976	0.0976%
		Magnesium	7439-95-4	0.104	0.1750%	236	0.0236%
		Silver	7440-22-4	1.4858	2.5000%	3,364	0.3364%
Lead Finish	External Plating	Tin	7440-31-5	5.2958	100.0000%	11,989	1.1989%
Die Attach	Adhesive	Silver	7440-22-4	0.2586	74.0000%	585	0.0585%
		Epoxy resin A	9003-36-5	0.014	4.0000%	32	0.0032%
		Epoxy resin B	Trade Secret	0.021	6.0000%	48	0.0048%
		Diluent A	Trade Secret	0.014	4.0000%	32	0.0032%
		Diluent B	Trade Secret	0.021	6.0000%	48	0.0048%
		Phenolic Hardener	Trade Secret	0.0175	5.0000%	40	0.0040%
		Dicyandiamide	461-58-5	0.0017	0.5000%	4	0.0004%
		Organic peroxide	Trade Secret	0.0017	0.5000%	4	0.0004%
Die	Circuit	Silicon	7440-21-3	5.9714	100.0000%	13,519	1.3519%
Wire	Interconnect	Copper	7440-50-8	0.3116	100.0000%	705	0.0705%
Mold Compound	Encapsulation	Epoxy resin A	Trade Secret	18.5175	5.0000%	41,922	4.1922%
		Epoxy, Cresol Novolac	29690-82-2	18.5175	5.0000%	41,922	4.1922%
		Phenol resin	Trade Secret	18.5175	5.0000%	41,922	4.1922%
		Metal Hydroxide	Trade Secret	18.5175	5.0000%	41,922	4.1922%
		Carbon Black	1333-86-4	1.1111	0.3000%	2,515	0.2515%
		Silica Fused A	60676-86-0	257.0230	69.4000%	581,883	58.1883%
		Silica Fused B	76361-86-9	37.035	10.0000%	83,845	8.3845%
		Silica, crystalline	14808-60-7	1.1111	0.3000%	2,515	0.2515%

Package Weight (mg): 441.7089

% 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	<5.0	<5.0	CoA-COVT-R
	Carrier tape	< 2.0	< 2.0	< 2.0	< 2.0	<5.0	<5.0	CoA-CART-R
	Plastic Reel	< 2.0	< 2.0	< 2.0	< 2.0	<5.0	<5.0	CoA-PLRL-R
Tray	Tray	< 2.0	< 2.0	< 2.0	< 2.0	-----	-----	CoA-TRAY-R
Others	Shielding bag	< 2.0	< 2.0	< 2.0	< 2.0	<5.0	<5.0	CoA-SBAG –R
	Moisture Barrier bag	< 2.0	< 2.0	< 2.0	< 2.0	<5.0	<5.0	CoA-MBBG-R
	Protective Band	< 2.0	< 2.0	< 2.0	< 2.0	<5.0	<5.0	CoA-PROB-R
	Shipping and Inner Box	< 10.0	< 4.0	< 4.0	< 5.0	-----	-----	CoA-ABOX-R
	Dessicant	< 10.0	< 2.0	< 2.0	< 1.0	< 3.0	< 3.0	CoA-DESS-R
	Bubble Pack	< 2.0	< 2.0	< 2.0	< 2.0	< 100.0	< 90.0	CoA-BUBP-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 # 104813/ 104814, 111410 (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-ZW44-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.



**44L – TSOP II
Pb-Free Package**

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	Based Material	Cu	7440-50-8	112.4500	96.2000%	250,044	25.0044%
		Si	7440-21-3	0.7600	0.6500%	1,690	0.1690%
		Mg	7439-95-4	0.1800	0.1500%	400	0.0400%
		Ni	7440-02-0	3.5100	3.0000%	7,805	0.7805%
Lead Finish	External Plating	Ni	7440-02-0	1.1700	96.5200%	2,602	0.2602%
		Pd	7440-05-3	0.0200	1.7400%	45	0.0045%
		Au	7440-57-5	0.0200	1.7400%	45	0.0045%
Die Attach	Adhesive	Ag	7440-22-4	1.6500	80.0000%	3,669	0.3669%
		Bismaleimide	-----	0.1900	9.0000%	422	0.0422%
		Polymer	-----	0.1000	5.0000%	222	0.0222%
		Methacrylate	-----	0.0400	2.0000%	89	0.0089%
		Acylate ester	-----	0.0400	2.0000%	89	0.0089%
		Organic Peroxide	-----	0.0400	2.0000%	89	0.0089%
Die	Circuit	Si	7440-21-3	28.8800	100.0000%	64,218	6.4218%
Wire	Interconnect	Au	7440-57-5	1.7100	100.0000%	3,802	0.3802%
Mold Compound	Encapsulation	Silica	60676-86-0	266.0700	89.0000%	591,635	59.1635%
		Epoxy Resin	-----	17.9400	6.0000%	39,891	3.9891%
		Phenol Resin	-----	14.9500	5.0000%	33,243	3.3243%

Package Weight (mg): **449.7200**

% 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	<5.0	<5.0	CoA-COVT-R
	Carrier tape	< 2.0	< 2.0	< 2.0	< 2.0	<5.0	<5.0	CoA-CART-R
	Plastic Reel	< 2.0	< 2.0	< 2.0	< 2.0	<5.0	<5.0	CoA-PLRL-R
Tray	Tray	< 2.0	< 2.0	< 2.0	< 2.0	-----	-----	CoA-TRAY-R
Others	Shielding bag	< 2.0	< 2.0	< 2.0	< 2.0	<5.0	<5.0	CoA-SBAG –R
	Moisture Barrier bag	< 2.0	< 2.0	< 2.0	< 2.0	<5.0	<5.0	CoA-MBBG-R
	Protective Band	< 2.0	< 2.0	< 2.0	< 2.0	<5.0	<5.0	CoA-PROB-R
	Shipping and Inner Box	< 10.0	< 4.0	< 4.0	< 5.0	-----	-----	CoA-ABOX-R
	Dessicant	< 10.0	< 2.0	< 2.0	< 1.0	< 3.0	< 3.0	CoA-DESS-R
	Bubble Pack	< 2.0	< 2.0	< 2.0	< 2.0	< 100.0	< 90.0	CoA-BUBP-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 4: Advanced Semiconductor Engineering Taiwan (ASET)
Package Qualification Report # 120202 (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-ZW44-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

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44L – TSOP II Pb-Free Package

B. MATERIAL COMPOSITION (Note 3)

Using Copper Wire

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	Nickel	7440-02-0	3.3800	3.1998%	7,188	0.7188%
		Silicon	7440-21-3	0.7700	0.7290%	1,637	0.1637%
		Magnesium	7439-95-4	0.1800	0.1704%	383	0.0383%
		Copper	7440-50-8	101.3000	95.9008%	215,426	21.5426%
Lead Finish	External Plating	Sn	7440-31-5	4.5900	100.0000%	9,761	0.9761%
Die Attach	Adhesive	Ag	7440-22-4	0.6882	74.0000%	1,464	0.1464%
		Epoxy resin A	9003-36-5	0.0372	4.0000%	79	0.0079%
		Epoxy resin B	Trade Secret	0.0558	6.0000%	119	0.0119%
		Diluent A	Trade Secret	0.0372	4.0000%	79	0.0079%
		Diluent B	Trade Secret	0.0558	6.0000%	119	0.0119%
		Phenolic Hardener	Trade Secret	0.0465	5.0000%	99	0.0099%
		Dicyandiamide	461-58-5	0.0047	0.5000%	10	0.0010%
		Organic peroxide	Trade Secret	0.0047	0.5000%	10	0.0010%
Die	Circuit	Silicon	7440-21-3	1.2300	100.0000%	2,616	0.2616%
Wire	Interconnect	Copper	7440-50-8	0.6016	100.0000%	1,279	0.1279%
Mold Compound	Encapsulation	Epoxy resin A	Trade Secret	17.8625	5.0000%	37,987	3.7987%
		Epoxy, Cresol Novolac	29690-82-2	17.8625	5.0000%	37,987	3.7987%
		Phenol resin	Trade Secret	17.8625	5.0000%	37,987	3.7987%
		Metal Hydroxide	Trade Secret	17.8625	5.0000%	37,987	3.7987%
		Carbon Black	1333-86-4	1.0718	0.3000%	2,279	0.2279%
		Silica Fused A	60676-86-0	247.9315	69.4000%	527,252	52.7252%
		Silica Fused B	7631-86-9	35.7250	10.0000%	75,973	7.5973%
		Silica, crystalline	14808-60-7	1.0718	0.3000%	2,279	0.2279%

Package Weight (mg): 470.2318

% 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	<5.0	<5.0	CoA-COVT-R
	Carrier tape	< 2.0	< 2.0	< 2.0	< 2.0	<5.0	<5.0	CoA-CART-R
	Plastic Reel	< 2.0	< 2.0	< 2.0	< 2.0	<5.0	<5.0	CoA-PLRL-R
Tray	Tray	< 2.0	< 2.0	< 2.0	< 2.0	-----	-----	CoA-TRAY-R
Others	Shielding bag	< 2.0	< 2.0	< 2.0	< 2.0	<5.0	<5.0	CoA-SBAG -R
	Moisture Barrier bag	< 2.0	< 2.0	< 2.0	< 2.0	<5.0	<5.0	CoA-MBBG-R
	Protective Band	< 2.0	< 2.0	< 2.0	< 2.0	<5.0	<5.0	CoA-PROB-R
	Shipping and Inner Box	< 10.0	< 4.0	< 4.0	< 5.0	-----	-----	CoA-ABOX-R
	Dessicant	< 10.0	< 2.0	< 2.0	< 1.0	< 3.0	< 3.0	CoA-DESS-R
	Bubble Pack	< 2.0	< 2.0	< 2.0	< 2.0	< 100.0	< 90.0	CoA-BUBP-R

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Document History Page

Document Title: 44L - TSOP II PB-FREE PACKAGE MATERIAL DECLARATION DATASHEET
Document Number: 001-03016

Rev.	ECN No.	Orig. of Change	Description of Change
**	385301	EML	New document
*A	399402	YXP	Corrected body size info (435 mil to 400 mil) Edited Summary section and added package weight to reflect assembly site 2. Edited data for section II of assembly site 1 (deleted data for end pin and end plug). Added PMDD data for assembly site 2
*B	403104	YXP	Added "(PMDD)" on title page. Edited section I-B to reflect new mold compound material's composition. Edited Note 3 on footer section.
*C	422256	YXP	Added referencing to the automotive qualification report number 043003 for assembly site 1.
*D	505260	ERI	Added : 1. Add B2 : 450mg 2. Add QTP Reference 063202 3. B1 : NiPdAu with Standard Molding Compound 4. B2 : NiPdAu with Green Molding Compound
*E	1521583	MRB	1. Deleted CoA-SP28-T and change to CoA-ZW44-T on Assembly site 2. 2. Added the percent weight per homogeneous material and weight of substance on the material composition 3. Deleted the declaration of indirect materials on Assembly site 1. 4. Updated and added Lead, Cr+VI, PBB and PBDE on the Declaration of Packaging/Indirect Materials.
*F	2788384	MAHA	Added CAS numbers for Epoxy Resin, Phenol Resin, and Brominated Epoxy Resin on Table B1 for assembly site 1.
*G	2816474	MAHA	Corrected the CAS numbers of Cu and Mg on Table B1 of assembly site 1. Corrected the CAS number of Mg on the material composition table of assembly site 2.
*H	2824455	MAHA	Corrected the PPM values on Table B1 : NiPdAu with Standard Molding Compound of assembly site 1.

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Rev.	ECN No.	Orig. of Change	Description of Change
*I	2886250	MAHA	Revised the following on Table B1 for assembly site 1: 1. % weight per homogeneous material values for NiPdAu lead finish 2. PPM 3. % Weight of Substance per package
*J	3002142	MAHA	Revised the following on Table B1 for assembly site 1: 1. Package weight 2. Deleted Fe and Zn from the lead frame material composition. 3. % weight per homogeneous material 4. PPM values 5. %Weight of Substance per package
*K	3005503	MAHA	Corrected the lead frame composition of table B2 of assembly site 1. Recalculated the following for table B2 of assembly site 1: 1. % weight of substance per Homogeneous Material 2. PPM 3. % Weight of Substance per package
*L	3167780	REYD	Added Assembly Site 3 – JCET
*M	3185618	HLR	Added Reference QTP No. 110703 at Assembly Site 1 for CML Autoline.
*N	3187928	DTOL	Added Reference QTP No. 104907 at Assembly Site 1 for CML-R
*O	3364844	NKZ	Added reference JCET Automotive QTP 111410, and 111409 in Assembly 3.
*P	3606945	COPI	Added PMDD for Assembly Site 2-B2 – OSE Taiwan Copper Qualification under QTP # 120406. Added PMDD for Assembly Site 1-B3 – CML-RA Copper Qualification under QTP # 121406.
*Q	3645918	COPI	Added PMDD for Assembly site 4 – ASE Taiwan Copper wire qualification under QTP # 120202.
*R	3784710	JARG	Updated Material Composition Tables for Assembly Site 1 – B2 and Assembly Site 3 to reflect 4 decimal places on values.

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 Document Number: 001-03016

Rev.	ECN No.	Orig. of Change	Description of Change
*S	4055149	YUM	<p>Added assembly site name in the assembly heading in site 1, 2, 3 and 4.</p> <p>Changed assembly code to assembly site name in site 1, 2, 3 and 4.</p> <p>Updated Material Composition Tables for Assembly Site 1-B1 and Assembly Site 2-B1 to reflect 4 decimal places on values.</p> <p>Removed reference QTP 111409 in Assembly 3.</p> <p>Removed entire Tube row in the Indirect Materials section.</p>

Distribution: WEB

Posting: None

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