



Cypress Semiconductor Corporation, 198 Champion Court, San Jose, CA 95134. Tel: (408) 943-2600

PRODUCT CHANGE NOTIFICATION

PCN: PCN181106

Date: March 19, 2018

Subject: Qualification of ASE Kaohsiung (ASE-KH) as an Additional Assembly Site for Select 44-Lead, 64-Lead and 100-Lead TQFP Pb-Free Products

To: FUTURE ELECTRONICS
FUTURE ELE
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Change Type: Major

Description of Change:

Cypress announces the qualification of Advanced Semiconductor Engineering-Kaohsiung (ASE-KH) as an additional assembly site for select 44-Lead, 64-Lead and 100-Lead TQFP Pb-Free products. These products are RoHS and REACH compliant.

The 44-Lead TQFP Pb-Free packages (10x10 mm) are assembled at ASE-KH using the following Bill of Materials:

Material	ASE-KH Bill of Materials	JCET Bill of Materials
Mold Compound	Sumitomo G631SH	Kyocera KE-G6000
Lead Frame	Matte Sn	NiPdAu
Die Attach Film	Hitachi FH-900	Henkel QMI-509
Bond Wire	0.8mil Au	1.0mil/0.9mil Au

The 64-Lead TQFP Pb-Free packages (14x14 mm) are assembled at ASE-KH using the following Bill of Materials:

Material	ASE-KH Bill of Materials	JCET Bill of Materials
Mold Compound	Sumitomo G631SH	Kyocera KE-G6000
Lead Frame	Matte Sn	NiPdAu
Die Attach Film	Hitachi FH-900	Henkel QMI-509
Bond Wire	0.8mil CuPdAu	0.8mil CuPd

The 100-Lead TQFP Pb-Free packages (14x14 mm) are assembled at ASE-KH using the following Bill of Materials:

Material	ASE-KH Bill of Materials	JCET Bill of Materials
Mold Compound	Sumitomo G631SH	Kyocera KE-G6000
Lead Frame	Matte Sn	NiPdAu
Die Attach Epoxy	Sumitomo CRM-1076WA	Henkel QMI-509
Bond Wire	0.8mil Au	1.0mil Au

The 100-Lead TQFP Pb-Free packages (14x20 mm) are assembled at ASE-KH using the following Bill of Materials:

Material	ASE-KH Bill of Materials	JCET Bill of Materials
Mold Compound	Sumitomo G631SH	Kyocera KE-G6000
Lead Frame	Matte Sn	NiPdAu
Die Attach Epoxy	Sumitomo CRM-1076WA	Henkel QMI-509
Bond Wire	0.8mil Au	0.9 mil Au

The 100-Lead TQFP Pb-Free packages (14x20 mm) are assembled at ASE-KH using the following Bill of Materials:

Material	ASE-KH Bill of Materials	JCET Bill of Materials
Mold Compound	Sumitomo G631SH	Kyocera KE-G6000
Lead Frame	Matte Sn	NiPdAu
Die Attach Epoxy	Sumitomo CRM-1076WA	Henkel QMI-509
Bond Wire	0.8mil CuPdAu	0.8 mil CuPd

Benefit of Change:

Qualification of alternate manufacturing sites is part of the ongoing flexible manufacturing initiative announced by Cypress. The goal of the flexible manufacturing initiative is to provide the means for Cypress to continue to meet delivery commitments through dynamic, changing market conditions.

Part Numbers Affected: 94

See the attached 'Affected Parts List' file for a list of all part numbers affected by this change. Note that any new parts that are introduced after the publication of this PCN will include all changes outlined in this PCN.

Qualification Status:

This package has been qualified through a series of tests documented in the Qualification Test Plans QTP#174402, QTP#174303, QTP#175002 and QTP#174610. These qualification reports can be found as attachments to this PCN or by visiting www.cypress.com and typing the QTP number in the keyword search window.

Sample Status:

Qualification samples may not be built ahead of time for all part numbers affected by this change. Please review the attached 'Affected Parts List' file for a list of affected part numbers with their associated ASE-KH sample ordering part numbers. Samples are available now unless there is an indication that the sample ordering part numbers are subject to lead times. If you require qualification samples, please contact your local Cypress sales representative as soon as possible, preferably within 30 days of the date of this PCN, to place any sample orders.

Approximate Implementation Date:

Effective 90 days from the date of this notification or upon customer approval, whichever comes first, all shipments of the affected part numbers in the attached file will be assembled at ASE-KH or other approved assembly sites.

Anticipated Impact:

Products assembled at the new site are completely compatible with existing products from form, fit, functional, parametric, and quality performance perspectives.

Cypress also recommends that customers take this opportunity to review these changes against current application notes, system design considerations and customer environment conditions to assess impact (if any) to their application.

Method of Identification:

Cypress maintains traceability of product to wafer level, including wafer fabrication location, through the lot number marked on the package.

Response Required:

No response is required.

For additional information regarding this change, contact your local sales representative or contact the PCN Administrator at pcn_adm@cypress.com.

Sincerely,

Cypress PCN Administration

Marketing Part Number	Sample Order Part Number	Wire Type
CY7B993V-2AXC	CY7B993V-2AXCKG subject to lead time	Au
CY7B993V-2AXCT	CY7B993V-2AXCKG subject to lead time	Au
CY7B993V-5AXC	CY7B993V-5AXCKG subject to lead time	Au
CY7B993V-5AXCT	CY7B993V-5AXCKG subject to lead time	Au
CY7B993V-5AXI	CY7B993V-5AXIKG subject to lead time	Au
CY7B993V-5AXIT	CY7B993V-5AXIKG subject to lead time	Au
CY7C1327G-133AXI	CY7C1327G-133AXIKG subject to lead time	CuPdAu
CY7C1327G-133AXIT	CY7C1327G-133AXIKG subject to lead time	CuPdAu
CY7C1327G-166AXC	CY7C1327G-166AXCKG subject to lead time	CuPdAu
CY7C1327G-166AXCT	CY7C1327G-166AXCKG subject to lead time	CuPdAu
CY7C1329H-133AXC	CY7C1329H-133AXCKG subject to lead time	CuPdAu
CY7C1329H-133AXCT	CY7C1329H-133AXCKG subject to lead time	CuPdAu
CY7C1338G-100AXC	CY7C1338G-100AXCKG subject to lead time	CuPdAu
CY7C1338G-100AXCT	CY7C1338G-100AXCKG subject to lead time	CuPdAu
CY7C1347G-166AXC	CY7C1347G-166AXCKG subject to lead time	CuPdAu
CY7C1347G-166AXCT	CY7C1347G-166AXCKG subject to lead time	CuPdAu
CY7C1351G-100AXC	CY7C1351G-100AXCKG subject to lead time	CuPdAu
CY7C1351G-100AXCT	CY7C1351G-100AXCKG subject to lead time	CuPdAu
CY7C1351G-133AXC	CY7C1351G-133AXCKG subject to lead time	CuPdAu
CY7C1353G-100AXC	CY7C1353G-100AXCKG subject to lead time	CuPdAu
CY7C1353G-100AXCT	CY7C1353G-100AXCKG subject to lead time	CuPdAu
CY7C1355C-133AXC	CY7C1355C-133AXCKG subject to lead time	CuPdAu
CY7C1355C-133AXCT	CY7C1355C-133AXCKG subject to lead time	CuPdAu
CY7C1357C-133AXC	CY7C1357C-133AXCKG subject to lead time	CuPdAu
CY7C1357C-133AXCT	CY7C1357C-133AXCKG subject to lead time	CuPdAu
CY7C1360S-166AXC	CY7C1360S-166AXCKG subject to lead time	Au
CY7C1360S-166AXCT	CY7C1360S-166AXCKG subject to lead time	Au
CY7C1361C-100AXC	CY7C1361C-100AXCKG subject to lead time	CuPdAu
CY7C1361C-100AXCT	CY7C1361C-100AXCKG subject to lead time	CuPdAu
CY7C1361C-133AXC	CY7C1361C-133AXCKG subject to lead time	CuPdAu
CY7C1361C-133AXCT	CY7C1361C-133AXCKG subject to lead time	CuPdAu
CY7C1361C-133AXI	CY7C1361C-133AXIKG subject to lead time	CuPdAu
CY7C1361C-133AXIT	CY7C1361C-133AXIKG subject to lead time	CuPdAu
CY7C1363C-133AXC	CY7C1363C-133AXCKG subject to lead time	CuPdAu
CY7C1363C-133AXCT	CY7C1363C-133AXCKG subject to lead time	CuPdAu
CY7C1366C-166AXC	CY7C1366C-166AXCKG subject to lead time	Au
CY7C1366C-166AXCT	CY7C1366C-166AXCKG subject to lead time	Au
CY7C1367C-166AXC	CY7C1367C-166AXCKG subject to lead time	CuPdAu
CY7C1367C-166AXCT	CY7C1367C-166AXCKG subject to lead time	CuPdAu
CY7C1470BV25-167AXC	CY7C1470BV25-167AXCKG subject to lead time	CuPdAu
CY7C1470BV25-167AXCT	CY7C1470BV25-167AXCKG subject to lead time	CuPdAu
CY7C1470BV25-200AXC	CY7C1470BV25-200AXCKG subject to lead time	CuPdAu
CY7C1470BV25-250AXC	CY7C1470BV25-250AXCKG subject to lead time	CuPdAu
CY7C1470BV25-250AXI	CY7C1470BV25-250AXIKG subject to lead time	CuPdAu
CY7C1470BV33-167AXC	CY7C1470BV33-167AXCKG subject to lead time	CuPdAu
CY7C1470BV33-167AXCT	CY7C1470BV33-167AXCKG subject to lead time	CuPdAu

CY7C1470BV33-167AXI	CY7C1470BV33-167AXIKG subject to lead time	CuPdAu
CY7C1470BV33-200AXC	CY7C1470BV33-200AXCKG subject to lead time	CuPdAu
CY7C1470BV33-200AXI	CY7C1470BV33-200AXIKG subject to lead time	CuPdAu
CY7C1470V25-200AXC	CY7C1470V25-200AXCKG subject to lead time	CuPdAu
CY7C1471BV25-133AXI	CY7C1471BV25-133AXIKG subject to lead time	CuPdAu
CY7C1471BV33-133AXC	CY7C1471BV33-133AXCKG subject to lead time	CuPdAu
CY7C1471BV33-133AXCT	CY7C1471BV33-133AXCKG subject to lead time	CuPdAu
CY7C1471V33-133AXC	CY7C1471V33-133AXCKG subject to lead time	CuPdAu
CY7C1472BV25-200AXC	CY7C1472BV25-200AXCKG subject to lead time	CuPdAu
CY7C1472BV25-200AXCT	CY7C1472BV25-200AXCKG subject to lead time	CuPdAu
CY7C1472BV33-167AXI	CY7C1472BV33-167AXIKG subject to lead time	CuPdAu
CY7C1472V25-200AXC	CY7C1472V25-200AXCKG subject to lead time	CuPdAu
CY7C1472V33-200AXC	CY7C1472V33-200AXCKG subject to lead time	CuPdAu
CY7C1473BV33-133AXC	CY7C1473BV33-133AXCKG subject to lead time	Au
CY7C1480BV25-167AXC	CY7C1480BV25-167AXCKG subject to lead time	Au
CY7C1480BV33-167AXI	CY7C1480BV33-167AXIKG subject to lead time	Au
CY7C1480BV33-200AXC	CY7C1480BV33-200AXCKG subject to lead time	Au
CY7C1480V33-167AXC	CY7C1480V33-167AXCKG subject to lead time	CuPdAu
CY7C1481BV33-133AXI	CY7C1481BV33-133AXIKG subject to lead time	Au
CY7C53120E4-40AXI	CY7C53120E4-40AXIKG subject to lead time	Au
CY7C64713-100AXC	CY7C64713-100AXCKG subject to lead time	CuPdAu
CY7C67300-100AXI	CY7C67300-100AXIKGG	Au
CY7C67300-100AXIT	CY7C67300-100AXIKGG	Au
CY7C68013A-100AXC	CY7C68013A-100AXCKGG subject to lead time	CuPdAu
CY7C68014A-100AXC	CY7C68014A-100AXCKGG subject to lead time	CuPdAu
CY8C22545-24AXI	CY8C22545-24AXIKG	Au
CY8C22545-24AXIT	CY8C22545-24AXIKG	Au
CY8C28513-24AXI	CY8C28513-24AXIKG	Au
CY8C28513-24AXIT	CY8C28513-24AXIKG	Au
CY8C28545-24AXI	CY8C28545-24AXIKG subject to lead time	Au
CY8C28545-24AXIT	CY8C28545-24AXIKG subject to lead time	Au
CY8C4125AXI-M445	CY8C4125AXI-M445KG subject to lead time	CuPdAu
CY8C4125AXI-M445T	CY8C4125AXI-M445KG subject to lead time	CuPdAu
CY8C4126AXI-M445	CY8C4126AXI-M445KG subject to lead time	CuPdAu
CY8C4127AXI-M485	CY8C4127AXI-M485KG subject to lead time	CuPdAu
CY8C4245AXI-M445	CY8C4245AXI-M445KG subject to lead time	CuPdAu
CY8C4246AXI-M445	CY8C4246AXI-M445KG subject to lead time	CuPdAu
CY8C4247AXI-M485	CY8C4247AXI-M485KG subject to lead time	CuPdAu
CG7281AM	CG7281XM subject to lead time	Au
CG7281AMT	CG7281XA subject to lead time	Au
CG7937AA	CG7937XA subject to lead time	CuPdAu
CG8438AA	CG8438XA subject to lead time	CuPdAu
CG8438AAT	CG8438XA subject to lead time	CuPdAu
CG8466AA	CG8466XA subject to lead time	CuPdAu
CG8466AAT	CG8466XA subject to lead time	CuPdAu
CG8678AA	CG8678XA subject to lead time	CuPdAu
CP7758AT	CP7758XT subject to lead time	Au

CP7758ATT	CP7758XA subject to lead time	Au
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Cypress Semiconductor Package Qualification Report

**QTP# 174610 VERSION *B
MAR 2018**

**100L TQFP (14x20x1.4mm)
Pure Sn Leadfinish, CuPdAu Wire, Au Wire
MSL3, 260°C Reflow
ASEK-Taiwan (G)**

**FOR ANY QUESTIONS ON THIS REPORT PLEASE CONTACT reliability@cypress.com :
OR VIA LINK A CYLINK CRM CASE**

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PACKAGE QUALIFICATION HISTORY

QTP Number	Description of Qualification Purpose	Date
120201	Qualification of TQFP packages built at ASE(G)-Taiwan using 0.8mil Copper Wire, G631 mold compound, CRM1076 epoxy and Pure Sn Leadfinish.	June 2012
152602	Qualification of 100L TQFP (14x20x1.4mm) at ASEK-Taiwan (G) using G631 Mold Compound, CRM1076 Die Attach Epoxy, Pure Sn Leadfinish, 0.8 mil CuPd Wire at MSL 3, 260°C reflow temperature	Oct. 2015
163803	Qualification of Automotive 100L-TQFP (14x14x1.4mm) Package using Fab25 wafers at ASEK-Taiwan (G) using 0.8mil Au wire with EME-G631 mold compound, CRM-1076 die attach material, Copper with Ag plating leadframe material and Pure Sn leadfinish at MSL3, 260C Reflow Temperature	Feb 2017
174605	Qualification of Automotive 100L-TQFP (14x20x1.4mm) Package at ASEK-Taiwan (G) using 0.8mil Au wire with EME-G631 mold compound, CRM-1076 die attach material, Copper lead frame material and Pure Sn lead finish at MSL3, 260C Reflow Temperature	Mar 2018
174610	Qualification of Automotive 100L-TQFP (14x20x1.4mm) Package at ASEK-Taiwan (G) using 0.8mil CuPdAu wire with EME-G631 mold compound, CRM-1076 die attach material, Copper lead frame material and Pure Sn lead finish at MSL3, 260C Reflow Temperature	Mar 2018

MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION	
Package Designation:	AZ0AA
Package Outline, Type, or Name:	100L-Thin Quad Flat Package (14x20x1.4mm)
Mold Compound Name/Manufacturer:	G631/Sumitomo
Mold Compound Flammability Rating:	UL-94 V-0
Mold Compound Alpha Emission Rate:	N/A
Oxygen Rating Index:	54%
Lead Frame Designation:	Full Metal Pad
Lead Frame Material:	Copper
Lead Finish, Composition / Thickness:	Pure Sn
Die Backside Preparation Method/Metallization:	Backgrind
Die Separation Method:	Wafer saw
Die Attach Supplier:	Sumitomo
Die Attach Material:	CRM1076
Bond Diagram Designation:	002-21462
Wire Bond Method:	Thermosonic
Wire Material/Size:	CuPdAu /0.8 mil (20um)
Thermal Resistance Theta JA °C/W:	33 °C/W
Package Cross Section Yes/No:	No
Assembly Process Flow:	49-41999
Name/Location of Assembly (prime) facility:	ASEK-Taiwan (G)
MSL Level	3
Reflow Profile	260C

ELECTRICAL TEST / FINISH DESCRIPTION	
Test Location:	CML-RA

MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION	
Package Designation:	AZ0AA
Package Outline, Type, or Name:	100L-Thin Quad Flat Package (14x20x1.4mm)
Mold Compound Name/Manufacturer:	G631/Sumitomo
Mold Compound Flammability Rating:	UL-94 V-0
Mold Compound Alpha Emission Rate:	N/A
Oxygen Rating Index:	54%
Lead Frame Designation:	Full Metal Pad
Lead Frame Material:	Copper
Lead Finish, Composition / Thickness:	Pure Sn
Die Backside Preparation Method/Metallization:	Backgrind
Die Separation Method:	Wafer saw
Die Attach Supplier:	Sumitomo
Die Attach Material:	CRM1076
Bond Diagram Designation:	002-21462
Wire Bond Method:	Thermosonic
Wire Material/Size:	Au / 0.8 mil (20um)
Thermal Resistance Theta JA °C/W:	33 °C/W
Package Cross Section Yes/No:	No
Assembly Process Flow:	49-41999
Name/Location of Assembly (prime) facility:	ASEK-Taiwan (G)
MSL Level	3
Reflow Profile	260C

ELECTRICAL TEST / FINISH DESCRIPTION	
Test Location:	CML-RA

RELIABILITY TESTS PERFORMED PER SPECIFICATION REQUIREMENTS

Stress/Test	Test Condition (Temp/Bias)	Result P/F
High Temperature Operating Life Early Failure Rate	AEC-Q100-008 and JESD22-A108, 150°C Dynamic Operating Condition, Vcc Max = 2.07V	P
Endurance /High Temperature Operating Life Latent Failure Rate	JESD22-A108, 150°C Dynamic Operating Condition, Vcc Max = 2.07V	P
High Accelerated Saturation Test (HAST)	JESD22-A110, 130C, 5.5V, 85%RH Precondition: JESD22-A113 Moisture Sensitivity MSL 3 192 Hrs, 30C/60%RH+3IR-Reflow, 260°C+0, -5°C	P
Temperature Cycle	JESD22-A104, -65°C to 150°C Precondition: JESD22-A113 Moisture Sensitivity MSL 3 192 Hrs, 30C/60%RH+3IR-Reflow, 260°C+0, -5°C	P
Pressure Cooker	JESD22-A102, 121C, 100%RH, 15 Psig Precondition: JESD22-A113 Moisture Sensitivity MSL 3 192 Hrs, 30C/60%RH+3IR-Reflow, 260°C+0, -5°C	P
Acoustic	J-STD-020 Precondition: JESD22-A113 Moisture Sensitivity MSL 3 192 Hrs, 30C/60%RH+3IR-Reflow, 260C+0, -5C	P
High Temp Storage	JESD22-A103: 150 C, no bias	P
Wire Bond Pull	Mil-Std 883, Method 2011	P
Post Temperature Cycle Wire Bond Pull	Mil-Std 883, Method 2011	P
Dye Penetrant Test	Criteria: No Package Crack	P
Thermal Shock	MIL-STD-883C, Method 1011, Condition B, -55 C to 125C and JESD22-A106B, Condition C, -55 C to 125C	P
Electrostatic Discharge Charge Device Model (ESD-CDM)	AEC-Q100-011 250V/500V/ 750V (corner pins)	P
Electrostatic Discharge Human Body Model (ESD-HBM)	AEC-Q100-002 500V/1000V/2000V	P
X-Ray	MIL-STD-883 - 2012	P
Static Latch-up	AEC-Q100-004, 125C, 100mA	P
Electrical Distribution	AEC-Q100-009	P
Wire Ball Shear	AEC-Q100-001	P
Internal Visual	MIL-STD-883-2014	P
Final Visual	JESD22-B101B	P
Physical Dimensions	JESD22B100 and B108	P
Constructional Analysis	Criteria: Meet external and internal characteristics of Cypress package	P
Solderability	JESD22-B102	P

Reliability Test Data

QTP #: 120201

<i>Device</i>	<i>Fab Lot #</i>	<i>Assy Lot #</i>	<i>Assy Loc</i>	<i>Duration</i>	<i>Samp</i>	<i>Rej</i>	<i>Failure Mechanism</i>
STRESS: ACOUSTIC, MSL3							
CY7C68013A (7C681000B)	4131065	611157091	G-TAIWAN	COMP	15	0	
CY7C68013A (7C681000B)	4131065	611157737	G-TAIWAN	COMP	15	0	
CY7C68013A (7C681000B)	4131065	611157739	G-TAIWAN	COMP	15	0	
CY29940AXC (7C829940BR)	8052001	611157742	G-TAIWAN	COMP	15	0	
CY7C136 (7C136G)	2831581	611158148	G-TAIWAN	COMP	15	0	
STRESS: BALL SHEAR							
CY7C68013A (7C681000B)	4131065	611157091	G-TAIWAN	COMP	10	0	
CY7C68013A (7C681000B)	4131065	611157737	G-TAIWAN	COMP	10	0	
CY7C68013A (7C681000B)	4131065	611157739	G-TAIWAN	COMP	10	0	
CY29940AXC (7C829940BR)	8052001	611157742	G-TAIWAN	COMP	10	0	
CY7C136 (7C136G)	2831581	611158148	G-TAIWAN	COMP	10	0	
STRESS: BOND PULL							
CY7C68013A (7C681000B)	4131065	611157091	G-TAIWAN	COMP	10	0	
CY7C68013A (7C681000B)	4131065	611157737	G-TAIWAN	COMP	10	0	
CY7C68013A (7C681000B)	4131065	611157739	G-TAIWAN	COMP	10	0	
CY29940AXC (7C829940BR)	8052001	611157742	G-TAIWAN	COMP	10	0	
CY7C136 (7C136G)	2831581	611158148	G-TAIWAN	COMP	10	0	
STRESS: CONSTRUCTIONAL ANALYSIS							
CY7C68013A (7C681000B)	4131065	611157091	G-TAIWAN	COMP	5	0	
CY29940AXC (7C829940BR)	8052001	611157742	G-TAIWAN	COMP	5	0	
CY7C136 (7C136G)	2831581	611158148	G-TAIWAN	COMP	5	0	
STRESS: CROSS SECTION							
CY7C68013A (7C681000B)	4131065	611157091	G-TAIWAN	COMP	5	0	
CY29940AXC (7C829940BR)	8052001	611157742	G-TAIWAN	COMP	5	0	
CY7C136 (7C136G)	2831581	611158148	G-TAIWAN	COMP	5	0	

Reliability Test Data

QTP #: 120201

Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: DYE PENETRATION TEST							
CY7C68013A (7C681000B)	4131065	611157091	G-TAIWAN	COMP	15	0	
CY7C68013A (7C681000B)	4131065	611157737	G-TAIWAN	COMP	15	0	
CY7C68013A (7C681000B)	4131065	611157739	G-TAIWAN	COMP	15	0	
CY29940AXC (7C829940BR)	8052001	611157742	G-TAIWAN	COMP	15	0	
CY7C136 (7C136G)	2831581	611158148	G-TAIWAN	COMP	15	0	
STRESS: FINAL VISUAL							
CY7C68013A (7C681000B)	4131065	611157091	G-TAIWAN	COMP	2466	0	
CY7C68013A (7C681000B)	4131065	611157737	G-TAIWAN	COMP	618	0	
CY7C68013A (7C681000B)	4131065	611157739	G-TAIWAN	COMP	605	0	
CY29940AXC (7C829940BR)	8052001	611157742	G-TAIWAN	COMP	2412	0	
CY7C136 (7C136G)	2831581	611158148	G-TAIWAN	COMP	989	0	
STRESS: ELECTRICAL CHARACTERIZATION							
CY7C68013A (7C681000B)	4131065	611157739	G-TAIWAN	COMP	10	0	
STRESS: HIGH TEMP DYNAMIC OPERATING LIFE-EARLY FAILURE RATE (150C, 2.8V, Vcc Max)							
CY7C136 (7C136G)	2831581	611158148	G-TAIWAN	48	1000	0	
STRESS: HIGH TEMP DYNAMIC OPERATING LIFE-LATENT FAILURE RATE (150C, 2.8V, Vcc Max)							
CY7C136 (7C136G)	2831581	611158148	G-TAIWAN	80	116	0	
CY7C136 (7C136G)	2831581	611158148	G-TAIWAN	500	116	0	
STRESS: HI-ACCEL SATURATION TEST, 130C, 3.63V, 85%RH, PRE COND 192 HR 30C/60%RH, MSL3							
CY7C68013A (7C681000B)	4131065	611157091	G-TAIWAN	128	80	0	
CY7C68013A (7C681000B)	4131065	611157091	G-TAIWAN	192	25	0	
CY7C68013A (7C681000B)	4131065	611157737	G-TAIWAN	128	80	0	
CY7C68013A (7C681000B)	4131065	611157737	G-TAIWAN	192	25	0	
CY7C68013A (7C681000B)	4131065	611157739	G-TAIWAN	128	80	0	
CY7C68013A (7C681000B)	4131065	611157739	G-TAIWAN	192	25	0	
STRESS: HI-ACCEL SATURATION TEST, 130C, 3.3V, 85%RH, PRE COND 192 HR 30C/60%RH, MSL3							
CY29940AXC (7C829940BR)	8052001	611157742	G-TAIWAN	128	80	0	

Reliability Test Data

QTP #: 120201

<i>Device</i>	<i>Fab Lot #</i>	<i>Assy Lot #</i>	<i>Assy Loc</i>	<i>Duration</i>	<i>Samp</i>	<i>Rej</i>	<i>Failure Mechanism</i>
STRESS: INTERNAL VISUAL							
CY7C68013A (7C681000B)	4131065	611157091	G-TAIWAN	COMP	5	0	
CY29940AXC (7C829940BR)	8052001	611157742	G-TAIWAN	COMP	5	0	
CY7C136 (7C136G)	2831581	611158148	G-TAIWAN	COMP	5	0	
STRESS: HIGH TEMP STORAGE, 150C							
CY7C68013A (7C681000B)	4131065	611157091	G-TAIWAN	500	95	0	
CY7C68013A (7C681000B)	4131065	611157091	G-TAIWAN	1000	85	0	
CY7C68013A (7C681000B)	4131065	611157091	G-TAIWAN	1500	75	0	
CY7C68013A (7C681000B)	4131065	611157091	G-TAIWAN	2000	75	0	
CY7C68013A (7C681000B)	4131065	611157737	G-TAIWAN	500	95	0	
CY7C68013A (7C681000B)	4131065	611157737	G-TAIWAN	1000	85	0	
CY7C68013A (7C681000B)	4131065	611157737	G-TAIWAN	1500	75	0	
CY7C68013A (7C681000B)	4131065	611157739	G-TAIWAN	500	95	0	
CY7C68013A (7C681000B)	4131065	611157739	G-TAIWAN	1000	85	0	
CY7C68013A (7C681000B)	4131065	611157739	G-TAIWAN	1500	75	0	
CY7C68013A (7C681000B)	4131065	611157739	G-TAIWAN	2000	75	0	
CY29940AXC (7C829940BR)	8052001	611157742	G-TAIWAN	500	95	0	
CY29940AXC (7C829940BR)	8052001	611157742	G-TAIWAN	1000	85	0	
CY29940AXC (7C829940BR)	8052001	611157742	G-TAIWAN	1500	75	0	
CY7C136 (7C136G)	2831581	611158148	G-TAIWAN	500	95	0	
CY7C136 (7C136G)	2831581	611158148	G-TAIWAN	1000	85	0	
CY7C136 (7C136G)	2831581	611158148	G-TAIWAN	1500	75	0	
CY7C64713(7CC681030BC)	4249029	611316756	G-TAIWAN	500	45	0	
CY7C64713(7CC681030BC)	4249029	611316756	G-TAIWAN	1000	45	0	
CY7C64713(7CC681030BC)	4249029	611316756	G-TAIWAN	3000	45	0	

Reliability Test Data

QTP #: 120201

Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp Rej	Failure Mechanism
STRESS: PRESSURE COOKER TEST (121C, 100%RH), 15 Psig, PRE COND 192 HR 30C/60%RH (MSL3)						
CY7C68013A (7C681000B)	4131065	611157091	G-TAIWAN	168	94	0
CY7C68013A (7C681000B)	4131065	611157091	G-TAIWAN	288	84	0
CY7C68013A (7C681000B)	4131065	611157737	G-TAIWAN	168	95	0
CY7C68013A (7C681000B)	4131065	611157739	G-TAIWAN	168	92	0
CY7C68013A (7C681000B)	4131065	611157739	G-TAIWAN	288	82	0
CY29940AXC (7C829940BR)	8052001	611157742	G-TAIWAN	168	95	0
CY7C136 (7C136G)	2831581	611158148	G-TAIWAN	168	95	0
CY7C64713(7CC681030BC)	4249029	611316756	G-TAIWAN	168	45	0
CY7C64713(7CC681030BC)	4249029	611316756	G-TAIWAN	500	39	0
STRESS: PHYSICAL DIMENSION						
CY7C68013A (7C681000B)	4131065	611157091	G-TAIWAN	COMP	30	0
CY7C68013A (7C681000B)	4131065	611157737	G-TAIWAN	COMP	30	0
CY7C68013A (7C681000B)	4131065	611157739	G-TAIWAN	COMP	30	0
CY29940AXC (7C829940BR)	8052001	611157742	G-TAIWAN	COMP	30	0
CY7C136 (7C136G)	2831581	611158148	G-TAIWAN	COMP	30	0
STRESS: POST MSL3 BALL SHEAR						
CY7C68013A (7C681000B)	4131065	611157091	G-TAIWAN	COMP	4	0
CY29940AXC (7C829940BR)	8052001	611157742	G-TAIWAN	COMP	4	0
CY7C136 (7C136G)	2831581	611158148	G-TAIWAN	COMP	4	0
STRESS: POST MSL3 BOND PULL						
CY7C68013A (7C681000B)	4131065	611157091	G-TAIWAN	COMP	4	0
CY29940AXC (7C829940BR)	8052001	611157742	G-TAIWAN	COMP	4	0
CY7C136 (7C136G)	2831581	611158148	G-TAIWAN	COMP	4	0
STRESS: POST MSL3 CONSTRUCTIONAL ANALYSIS						
CY7C68013A (7C681000B)	4131065	611157091	G-TAIWAN	COMP	3	0
CY29940AXC (7C829940BR)	8052001	611157742	G-TAIWAN	COMP	3	0
CY7C136 (7C136G)	2831581	611158148	G-TAIWAN	COMP	3	0

Reliability Test Data

QTP #: 120201

<i>Device</i>	<i>Fab Lot #</i>	<i>Assy Lot #</i>	<i>Assy Loc</i>	<i>Duration</i>	<i>Samp</i>	<i>Rej</i>	<i>Failure Mechanism</i>
STRESS: POST HI-ACCEL SATURATION TEST BALL SHEAR							
CY7C68013A (7C681000B)	4131065	611157091	G-TAIWAN	128	5	0	
CY29940AXC (7C829940BR)	8052001	611157742	G-TAIWAN	128	5	0	
STRESS: POST HIGH TEMP STORAGE BALL SHEAR							
CY7C68013A (7C681000B)	4131065	611157091	G-TAIWAN	500	5	0	
CY7C68013A (7C681000B)	4131065	611157091	G-TAIWAN	1000	5	0	
CY29940AXC (7C829940BR)	8052001	611157742	G-TAIWAN	500	5	0	
CY29940AXC (7C829940BR)	8052001	611157742	G-TAIWAN	1000	5	0	
CY7C136 (7C136G)	2831581	611158148	G-TAIWAN	500	5	0	
CY7C136 (7C136G)	2831581	611158148	G-TAIWAN	1000	5	0	
STRESS: POST PRESSURE COOKER TEST BALL SHEAR TEST							
CY7C68013A (7C681000B)	4131065	611157091	G-TAIWAN	168	5	0	
CY29940AXC (7C829940BR)	8052001	611157742	G-TAIWAN	168	5	0	
CY7C136 (7C136G)	2831581	611158148	G-TAIWAN	168	5	0	
CY7C64713(7CC681030BC)	4249029	611316756	G-TAIWAN	500	5	0	
STRESS: POST TC BALL SHEAR							
CY7C68013A (7C681000B)	4131065	611157091	G-TAIWAN	500	5	0	
CY29940AXC (7C829940BR)	8052001	611157742	G-TAIWAN	500	5	0	
CY7C136 (7C136G)	2831581	611158148	G-TAIWAN	500	5	0	
STRESS: POST HIGH TEMP STORAGE BOND PULL							
CY7C68013A (7C681000B)	4131065	611157091	G-TAIWAN	500	5	0	
CY7C68013A (7C681000B)	4131065	611157091	G-TAIWAN	1000	5	0	
CY29940AXC (7C829940BR)	8052001	611157742	G-TAIWAN	500	5	0	
CY29940AXC (7C829940BR)	8052001	611157742	G-TAIWAN	1000	5	0	
CY7C136 (7C136G)	2831581	611158148	G-TAIWAN	500	5	0	
CY7C136 (7C136G)	2831581	611158148	G-TAIWAN	1000	5	0	
STRESS: POST HI-ACCEL SATURATION TEST BOND PULL							
CY7C68013A (7C681000B)	4131065	611157091	G-TAIWAN	128	5	0	
CY29940AXC (7C829940BR)	8052001	611157742	G-TAIWAN	128	5	0	

Reliability Test Data

QTP #: 120201

Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: POST PRESSURE COOKER TEST BOND PULL TEST							
CY7C68013A (7C681000B)	4131065	611157091	G-TAIWAN	168	5	0	
CY29940AXC (7C829940BR)	8052001	611157742	G-TAIWAN	168	5	0	
CY7C136 (7C136G)	2831581	611158148	G-TAIWAN	168	5	0	
STRESS: POST TC BOND PULL							
CY7C68013A (7C681000B)	4131065	611157091	G-TAIWAN	500	5	0	
CY29940AXC (7C829940BR)	8052001	611157742	G-TAIWAN	500	5	0	
CY7C136 (7C136G)	2831581	611158148	G-TAIWAN	500	5	0	
SOLDERABILITY TEST							
CY7C68013A (7C681000B)	4131065	611157091	G-TAIWAN	COMP	5	0	
CY29940AXC (7C829940BR)	8052001	611157742	G-TAIWAN	COMP	5	0	
CY7C136 (7C136G)	2831581	611158148	G-TAIWAN	COMP	5	0	
STRESS: TC COND. C -65C TO 150C, PRE COND 192 HR 30C/60%RH, MSL3							
CY7C68013A (7C681000B)	4131065	611157091	G-TAIWAN	500	94	0	
CY7C68013A (7C681000B)	4131065	611157091	G-TAIWAN	1000	84	0	
CY7C68013A (7C681000B)	4131065	611157091	G-TAIWAN	1500	74	0	
CY7C68013A (7C681000B)	4131065	611157091	G-TAIWAN	2000	74	0	
CY7C68013A (7C681000B)	4131065	611157737	G-TAIWAN	500	94	0	
CY7C68013A (7C681000B)	4131065	611157737	G-TAIWAN	1000	84	0	
CY7C68013A (7C681000B)	4131065	611157739	G-TAIWAN	500	95	0	
CY7C68013A (7C681000B)	4131065	611157739	G-TAIWAN	1000	84	0	
CY7C68013A (7C681000B)	4131065	611157739	G-TAIWAN	1500	74	0	
CY7C68013A (7C681000B)	4131065	611157739	G-TAIWAN	2000	74	0	
CY29940AXC (7C829940BR)	8052001	611157742	G-TAIWAN	500	95	0	
CY29940AXC (7C829940BR)	8052001	611157742	G-TAIWAN	1000	85	0	
CY29940AXC (7C829940BR)	8052001	611157742	G-TAIWAN	1500	75	0	
CY7C136 (7C136G)	2831581	611158148	G-TAIWAN	500	95	0	
CY7C136 (7C136G)	2831581	611158148	G-TAIWAN	1000	85	0	
CY7C136 (7C136G)	2831581	611158148	G-TAIWAN	1500	75	0	

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Reliability Test Data

QTP #: 120201

Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: THERMAL SHOCK							
CY29940AXC (7C829940BR)	8052001	611157742	G-TAIWAN	200	100	0	
CY29940AXC (7C829940BR)	8052001	611157742	G-TAIWAN	1000	90	0	
STRESS: X-RAY							
CY7C68013A (7C681000B)	4131065	611157091	G-TAIWAN	COMP	15	0	
CY7C68013A (7C681000B)	4131065	611157737	G-TAIWAN	COMP	15	0	
CY7C68013A (7C681000B)	4131065	611157739	G-TAIWAN	COMP	15	0	
CY29940AXC (7C829940BR)	8052001	611157742	G-TAIWAN	COMP	15	0	
CY7C136 (7C136G)	2831581	611158148	G-TAIWAN	COMP	15	0	

Reliability Test Data

QTP #: 152602

<i>Device</i>	<i>Fab Lot #</i>	<i>Assy Lot #</i>	<i>Assy Loc</i>	<i>Duration</i>	<i>Samp</i>	<i>Rej</i>	<i>Failure Mechanism</i>
STRESS: ACOUSTICS							
CY7C1370KVE33 (7CP1376K)	9527002	611526357	G-TAIWAN	COMP	15	0	
CY7C1383KVE33 (7CP1383K)	9527002	611529845	G-TAIWAN	COMP	15	0	
CY7C1370KV33 (7CP1370K)	9527002	611529844	G-TAIWAN	COMP	15	0	
STRESS: BALL SHEAR							
CY7C1370KVE33 (7CP1376K)	9527002	611526357	G-TAIWAN	COMP	24	0	
CY7C1383KVE33 (7CP1383K)	9527002	611529845	G-TAIWAN	COMP	24	0	
CY7C1370KV33 (7CP1370K)	9527002	611529844	G-TAIWAN	COMP	24	0	
CY7C1370KE33 (7CP1376K)	9527002	611526472	G-TAIWAN	COMP	24	0	
CY7C1372KV33 (7CP1377K)	9527002	611526473	G-TAIWAN	COMP	24	0	
CY7C1381KE33 (7CP1381K)	9527002	611526474	G-TAIWAN	COMP	24	0	
CY7C13709KV25 (7CP13709K)	9527002	611526471	G-TAIWAN	COMP	24	0	
CY7C1383KE33 (7CP1383K)	9527002	611526475	G-TAIWAN	COMP	24	0	
STRESS: BOND PULL							
CY7C1370KVE33 (7CP1376K)	9527002	611526357	G-TAIWAN	COMP	24	0	
CY7C1383KVE33 (7CP1383K)	9527002	611529845	G-TAIWAN	COMP	24	0	
CY7C1370KV33 (7CP1370K)	9527002	611529844	G-TAIWAN	COMP	24	0	
CY7C1370KE33 (7CP1376K)	9527002	611526472	G-TAIWAN	COMP	24	0	
CY7C1372KV33 (7CP1377K)	9527002	611526473	G-TAIWAN	COMP	24	0	
CY7C1381KE33 (7CP1381K)	9527002	611526474	G-TAIWAN	COMP	24	0	
CY7C13709KV25 (7CP13709K)	9527002	611526471	G-TAIWAN	COMP	24	0	
CY7C1383KE33 (7CP1383K)	9527002	611526475	G-TAIWAN	COMP	24	0	
STRESS: CONSTRUCTIONAL ANALYSIS							
CY7C1370KVE33 (7CP1376K)	9527002	611526357	G-TAIWAN	COMP	5	0	
STRESS: DIE SHEAR							
CY7C1370KVE33 (7CP1376K)	9527002	611526357	G-TAIWAN	COMP	4	0	
CY7C1383KVE33 (7CP1383K)	9527002	611529845	G-TAIWAN	COMP	4	0	
CY7C1370KV33 (7CP1370K)	9527002	611529844	G-TAIWAN	COMP	4	0	
CY7C1370KE33 (7CP1376K)	9527002	611526472	G-TAIWAN	COMP	4	0	

Reliability Test Data

QTP #: 152602

Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: DYE PENETRANT							
CY7C1370KVE33 (7CP1376K)	9527002	611526357	G-TAIWAN	COMP	15	0	
CY7C1383KVE33 (7CP1383K)	9527002	611529845	G-TAIWAN	COMP	15	0	
CY7C1370KV33 (7CP1370K)	9527002	611529844	G-TAIWAN	COMP	15	0	
STRESS: HI-ACCEL SATURATION TEST, 130C, 85%RH, 3.63V, PRE COND 192 HR 30C/60%RH, MSL3							
CY7C1370KVE33 (7CP1376K)	9527002	611526357	G-TAIWAN	96	25	0	
CY7C1370KVE33 (7CP1376K)	9527002	611526357	G-TAIWAN	192	25	0	
STRESS: HIGH TEMPERATURE STORAGE							
CY7C1370KVE33 (7CP1376K)	9527002	611526357	G-TAIWAN	500	78	0	
CY7C1370KVE33 (7CP1376K)	9527002	611526357	G-TAIWAN	1000	78	0	
STRESS: INTERNAL VISUAL							
CY7C1370KVE33 (7CP1376K)	9527002	611526357	G-TAIWAN	COMP	5	0	
STRESS: PRESSURE COOKER TEST, 121C, 100%RH, 15 Psig, PRE COND 192 HR 30C/60%RH, MSL3							
CY7C1370KVE33 (7CP1376K)	9527002	611526357	G-TAIWAN	168	80	0	
CY7C1370KVE33 (7CP1376K)	9527002	611526357	G-TAIWAN	288	80	0	
STRESS: TC COND. C -65C TO 150C, PRE COND 192 HRS 30C/60%RH, MSL3							
CY7C1370KVE33 (7CP1376K)	9527002	611526357	G-TAIWAN	500	80	0	
CY7C1370KVE33 (7CP1376K)	9527002	611526357	G-TAIWAN	1000	80	0	
CY7C1383KVE33 (7CP1383K)	9527002	611529845	G-TAIWAN	500	79	0	
CY7C1370KV33 (7CP1370K)	9527002	611529844	G-TAIWAN	500	80	0	
STRESS: X-RAY							
CY7C1370KVE33 (7CP1376K)	9527002	611526357	G-TAIWAN	COMP	15	0	

Reliability Test Data

QTP #: 163803

Device	Package	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: ACOUSTIC, MSL3								
CYAT81688 (8A206802BB)	AZ0A	3629023	611627389	ASEK-G	COMP	22	0	
CYAT81688 (8A206802BB)	AZ0A	3632047	611630353	ASEK-G	COMP	22	0	
CYAT81688 (8A206802BB)	AZ0A	3634008	611631857	ASEK-G	COMP	22	0	
STRESS: BALL SHEAR								
CYAT81688 (8A206802BB)	AZ0A	3629023	611627389	ASEK-G	COMP	5	0	
CYAT81688 (8A206802BB)	AZ0A	3632047	611634182	ASEK-G	COMP	5	0	
CYAT81688 (8A206802BB)	AZ0A	3632047	611630353	ASEK-G	COMP	5	0	
CYAT81688 (8A206802BB)	AZ0A	3634008	611631857	ASEK-G	COMP	5	0	
STRESS: BOND PULL								
CYAT81688 (8A206802BB)	AZ0A	3629023	611627389	ASEK-G	COMP	5	0	
CYAT81688 (8A206802BB)	AZ0A	3632047	611634182	ASEK-G	COMP	5	0	
CYAT81688 (8A206802BB)	AZ0A	3632047	611630353	ASEK-G	COMP	5	0	
CYAT81688 (8A206802BB)	AZ0A	3634008	611631857	ASEK-G	COMP	5	0	
STRESS: CONSTRUCTIONAL ANALYSIS								
CYAT81688 (8A206802BB)	AZ0A	3629023	611627389	ASEK-G	COMP	5	0	
CYAT81688 (8A206802BB)	AZ0A	3632047	611630353	ASEK-G	COMP	5	0	
CYAT81688 (8A206802BB)	AZ0A	3634008	611631857	ASEK-G	COMP	5	0	
STRESS: DIE SHEAR								
CYAT81688 (8A206802BB)	AZ0A	3629023	611627389	ASEK-G	COMP	15	0	
CYAT81688 (8A206802BB)	AZ0A	3632047	611634182	ASEK-G	COMP	15	0	
CYAT81688 (8A206802BB)	AZ0A	3632047	611630353	ASEK-G	COMP	15	0	
CYAT81688 (8A206802BB)	AZ0A	3634008	611631857	ASEK-G	COMP	15	0	
STRESS: DYE PENETRANT								
CYAT81688 (8A206802BB)	AZ0A	3629023	611627389	ASEK-G	COMP	15	0	
CYAT81688 (8A206802BB)	AZ0A	3632047	611630353	ASEK-G	COMP	15	0	
CYAT81688 (8A206802BB)	AZ0A	3634008	611631857	ASEK-G	COMP	15	0	

Reliability Test Data

QTP #: 163803

Device	Package	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
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STRESS: ELECTRICAL DISTRIBUTION

CYAT81688 (8A206802BB)	AZ0A	3629023	611627389	ASEK-G	COMP	80	0	
CYAT81688 (8A206802BB)	AZ0A	3632047	611630353	ASEK-G	COMP	80	0	
CYAT81688 (8A206802BB)	AZ0A	3634008	611631857	ASEK-G	COMP	80	0	

STRESS: HIGH TEMP DYNAMIC OPERATING LIFE-EARLY FAILURE RATE, 150C, 2.07V, Vcc Max

CYAT81688 (8A206802BB)	AZ0A	3629023	611627389	ASEK-G	48	3333	0	
CYAT81688 (8A206802BB)	AZ0A	3632047	611630353	ASEK-G	48	3379	0	
CYAT81688 (8A206802BB)	AZ0A	3634008	611631857	ASEK-G	48	3395	0	

STRESS: ENDURANCE / HIGH TEMP DYNAMIC OPERATING LIFE-LATENT FAILURE RATE, 150C, 2.07V, Vcc Max

CYAT81688 (8A206802BB)	AZ0A	3629023	611627389	ASEK-G	408	80	0	
CYAT81688 (8A206802BB)	AZ0A	3632047	611630353	ASEK-G	408	80	0	
CYAT81688 (8A206802BB)	AZ0A	3634008	611631857	ASEK-G	408	80	0	

STRESS: ESD-CHARGE DEVICE MODEL

CYAT81688 (8A206802BB)	AZ0A	3629023	611627389	ASEK-G	250	3	0	
CYAT81688 (8A206802BB)	AZ0A	3629023	611627389	ASEK-G	500	3	0	
CYAT81688 (8A206802BB)	AZ0A	3629023	611627389	ASEK-G	750	3	0	

STRESS: ESD-HUMAN BODY CIRCUIT PER JESD22-A114-B

CYAT81688 (8A206802BB)	AZ0A	3629023	611627389	ASEK-G	500	3	0	
CYAT81688 (8A206802BB)	AZ0A	3629023	611627389	ASEK-G	1000	3	0	
CYAT81688 (8A206802BB)	AZ0A	3629023	611627389	ASEK-G	2000	3	0	
CYAT81688 (8A206802BB)	AZ0A	3629023	611627389	ASEK-G	4000	3	0	
CYAT81688 (8A206802BB)	AZ0A	3629023	611627389	ASEK-G	6000	3	0	

STRESS: FINAL VISUAL INSPECTION

CYAT81688 (8A206802BB)	AZ0A	3629023	611627389	ASEK-G	COMP	4349	0	
CYAT81688 (8A206802BB)	AZ0A	3632047	611634182	ASEK-G	COMP	3405	0	
CYAT81688 (8A206802BB)	AZ0A	3632047	611630353	ASEK-G	COMP	7046	0	
CYAT81688 (8A206802BB)	AZ0A	3634008	611631857	ASEK-G	COMP	6516	0	

Reliability Test Data

QTP #: 163803

Device	Package	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
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STRESS: HI-ACCEL SATURATION TEST, 130C, 5.5V, 85%RH, PRE COND 192 HR 30C/60%RH, MSL3

CYAT81688 (8A206802BB)	AZ0A	3629023	611627389	ASEK-G	96	77	0	
CYAT81688 (8A206802BB)	AZ0A	3632047	611630353	ASEK-G	96	79	0	
CYAT81688 (8A206802BB)	AZ0A	3634008	611631857	ASEK-G	96	80	0	

STRESS: HIGH TEMPERATURE STORAGE

CYAT81688 (8A206802BB)	AZ0A	3629023	611627389	ASEK-G	1000	45	0	
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STRESS: LEAD INTEGRITY

CYAT81688 (8A206802BB)	AZ0A	3632047	611630353	ASEK-G	COMP	5	0	
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STRESS: PRESSURE COOKER TEST

CYAT81688 (8A206802BB)	AZ0A	3629023	611627389	ASEK-G	96	80	0	
CYAT81688 (8A206802BB)	AZ0A	3629023	611627389	ASEK-G	168	80	0	
CYAT81688 (8A206802BB)	AZ0A	3632047	611630353	ASEK-G	96	80	0	
CYAT81688 (8A206802BB)	AZ0A	3632047	611630353	ASEK-G	168	80	0	
CYAT81688 (8A206802BB)	AZ0A	3634008	611631857	ASEK-G	96	80	0	
CYAT81688 (8A206802BB)	AZ0A	3634008	611631857	ASEK-G	168	80	0	

STRESS: PHYSICAL DIMENSION

CYAT81688 (8A206802BB)	AZ0A	3629023	611627389	ASEK-G	COMP	10	0	
CYAT81688 (8A206802BB)	AZ0A	3632047	611634182	ASEK-G	COMP	10	0	
CYAT81688 (8A206802BB)	AZ0A	3632047	611630353	ASEK-G	COMP	10	0	
CYAT81688 (8A206802BB)	AZ0A	3634008	611631857	ASEK-G	COMP	10	0	

STRESS: POST TCT BOND PULL

CYAT81688 (8A206802BB)	AZ0A	3629023	611627389	ASEK-G	500	5	0	
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STRESS: PRE/POST LFR CRITICAL PARAMETERS

CYAT81688 (8A206802BB)	AZ0A	3629023	611627389	ASEK-G	COMP	82	0	
CYAT81688 (8A206802BB)	AZ0A	3632047	611630353	ASEK-G	COMP	82	0	
CYAT81688 (8A206802BB)	AZ0A	3634008	611631857	ASEK-G	COMP	82	0	

Reliability Test Data

QTP #: 163803

Device	Package	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
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STRESS: SOLDERABILITY

CYAT81688 (8A206802BB)	AZ0A	3629023	611627389	ASEK-G	COMP	15	0	
CYAT81688 (8A206802BB)	AZ0A	3632047	611630353	ASEK-G	COMP	15	0	
CYAT81688 (8A206802BB)	AZ0A	3634008	611631857	ASEK-G	COMP	15	0	

STRESS: TC COND. C -65C TO 150C, PRECONDITION 192 HRS 30C/60%RH

CYAT81688 (8A206802BB)	AZ0A	3629023	611627389	ASEK-G	500	85	0	
CYAT81688 (8A206802BB)	AZ0A	3629023	611627389	ASEK-G	1000	80	0	
CYAT81688 (8A206802BB)	AZ0A	3632047	611630353	ASEK-G	500	95	0	
CYAT81688 (8A206802BB)	AZ0A	3632047	611630353	ASEK-G	1000	95	0	
CYAT81688 (8A206802BB)	AZ0A	3634008	611631857	ASEK-G	500	83	0	
CYAT81688 (8A206802BB)	AZ0A	3634008	611631857	ASEK-G	1000	83	0	

STRESS: X-RAY

CYAT81688 (8A206802BB)	AZ0A	3629023	611627389	ASEK-G	COMP	15	0	
CYAT81688 (8A206802BB)	AZ0A	3632047	611634182	ASEK-G	COMP	15	0	
CYAT81688 (8A206802BB)	AZ0A	3632047	611630353	ASEK-G	COMP	15	0	
CYAT81688 (8A206802BB)	AZ0A	3634008	611631857	ASEK-G	COMP	15	0	

Reliability Test Data

QTP #: 174605

<i>Device</i>	<i>Package</i>	<i>Fab Lot #</i>	<i>Assy Lot #</i>	<i>Assy Loc</i>	<i>Duration</i>	<i>Samp</i>	<i>Rej</i>	<i>Failure Mechanism</i>
<i>STRESS: ACOUSTIC, MSL3</i>								
CY7C1361C (7A13610C)	AZ0AA	4715058	611743003	ASEK-G	COMP	77	0	

Document History Page

Document Title: QTP#174610: 100L TQFP (14X20X1.4MM) PURE SN LEADFINISH, CUPDAU WIRE, AU Wire, MSL3, 260C REFLOW, ASEK-TAIWAN (G)
Document Number: 002-23241

Rev.	ECN No.	Orig. of Change	Description of Change
**	6089485	EKNG	Initial spec release.
*A	6093389	EKNG	Included Full Reliability Stress Summary Table
*B	6098461	EKNG	Update Package Qualification History and Test data

Cypress Semiconductor Package Qualification Report

QTP# 175002 VERSION *A
MAR 2018

100L TQFP (14x14x1.4mm)
Pure Sn, Au Wire
MSL3, 260°C Reflow
ASE (G) - Taiwan

FOR ANY QUESTIONS ON THIS REPORT, PLEASE CONTACT
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Reviewed By:
Francis Classe
Reliability Manager

Approved By:
David Hoffman
Reliability Director

PACKAGE QUALIFICATION HISTORY

QTP Number	Description of Qualification Purpose	Date
034101	ALL TQFP 1.4mm Thick, 100% Sn, MSL3, 260C Reflow, using CEL 9200THF Mold Compound and 8340 Epoxy and Matte Tin Plating assembled @ ASE Kaohsiung Taiwan	Mar 2004
120201	Qualification of TQFP packages built at ASE(G)-Taiwan using 0.8mil Copper Wire, G631 mold compound, CRM1076 epoxy and Pure Sn Lead finish.	June 2012
133306	Qualification of TQFP 100L 14x14x1.4mm assembled in ASEK using 0.8mil CuPd wire, G631H / G631SH mold comp, HITACHI FH-900 die attach FILM with Ag plated Cu Leadframe and Pure Sn leadfinish.	Aug 2013
174303	Qualification of ASEK for 64L-TQFP (14x 14 x 1.4mm) package at MSL3, 260C Reflow Temperature	Jan 2018
175002	Qualification of ASEK for 100L-TQFP (14x 14 x 1.4mm) package at MSL3, 260C Reflow Temperature	Feb 2018

MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION	
Package Designation:	AZ0AB
Package Outline, Type, or Name:	100-Lead Thin Quad Flat Pack (TQFP), 1.4mm
Mold Compound Name/Manufacturer:	G631SH / Sumitomo
Mold Compound Flammability Rating:	V-0 / UL94
Mold Compound Alpha Emission Rate:	N/A
Oxygen Rating Index: >28%	50%
Lead Frame Designation:	FMP
Lead Frame Material:	Copper
Substrate Material:	N/A
Lead Finish, Composition / Thickness:	Pure Sn
Die Backside Preparation Method/Metallization:	Backgrind
Die Separation Method:	SAW Process
Die Attach Supplier:	Sumitomo
Die Attach Material:	CRM-1076WA
Bond Diagram Designation	002-21604
Wire Bond Method:	Thermal Sonic Bonding
Wire Material/Size:	Au / 0.8mil (20um)
Thermal Resistance Theta JA °C/W:	41°C/W
Package Cross Section Yes/No:	Yes
Assembly Process Flow:	49-41001
Name/Location of Assembly (prime) facility:	ASE(G)-Taiwan
MSL LEVEL	3
REFLOW PROFILE	260C

ELECTRICAL TEST / FINISH DESCRIPTION	
Test Location:	CML-R

Note: Please contact a Cypress Representative for other package availability.

RELIABILITY TESTS PERFORMED PER SPECIFICATION REQUIREMENTS

RELIABILITY TESTS PERFORMED PER SPECIFICATION REQUIREMENTS	Test Condition (Temp/Bias)	Result P/F
High Temperature Operating Life Early Failure Rate	Dynamic Operating Condition, Vcc = 2.8, 150 C JESD22-A108	P
High Temperature Operating Life Early Failure Rate	Dynamic Operating Condition, Vcc = 2.8, 150 C JESD22-A108	P
High Accelerated Saturation Test (HAST)	JEDEC STD 22-A110, 130 C, 85%RH, 3.63V/3.3V Precondition: JESD22 Moisture Sensitivity Level (192 Hrs., 30 C°, 60% RH, 260C Reflow)	P
Pressure Cooker Test	JESD22-A102, 121 C, 100%RH, 15 PSIG Precondition: JESD22 Moisture Sensitivity Level (192 Hrs., 30 C°, 60% RH, 260C Reflow)	P
Temperature Cycle	MIL-STD-883C, Method 1010, Condition C, -65 C to 150 C Precondition: JESD22 Moisture Sensitivity Level (192 Hrs., 30 C°, 60% RH, 260C Reflow)	P
High Temp Storage	JESD22-A103, 150 C, no bias Precondition: JESD22 Moisture Sensitivity Level (192 Hrs., 30 C°, 60% RH, 260C Reflow)	P
Acoustic Microscopy	J-STD-020 Precondition: JESD22 Moisture Sensitivity Level (192 Hrs., 30 C°, 60% RH, 260C Reflow)	P
Ball Shear	JESD22-B116A, Cpk : 1.33, Ppk : 1.66	P
Bond Pull	MIL-STD-883 – Method 2011, Cpk : 1.33, Ppk : 1.66	P
Constructional Analysis	Criteria: Meet external and internal characteristics of Cypress package	P
Dye Penetrant Test	Test to determine the existence and extent of cracks, Criteria: No Package Crack	P
Internal Visual	MIL-STD-883-2014	P
Final Visual Inspection	JESD22-B101B	P
Physical Dimension	MIL-STD-1835, JESD22-B100	P
Solderability	J-STD-002, JESD22-B102	P
Thermal Shock	MIL-STD-883C, Method 1011, Condition B, -55 C to 125C and JESD22-A106B, Condition C, -55 C to 125C	P
X-Ray	MIL-STD-883 - 2012	P
Post Stress Ball Shear	JESD22-A116	P
Post Stress Bond Shear	MIL-STD-883 - 2011	P
Electrical Characterization	AEC-Q100-009	P

Reliability Test Data

QTP #: 034101

Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
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STRESS: ACOUSTIC, MSL3

CY7C1372B (7C1372B)	9244935	SWR#19136	ASE TAIWAN (G)		COMP	15	0
CY7B993V (7B993A)	4323867	610351300	ASE TAIWAN (G)		COMP	15	0
CY37128P (7C37637B)	8334828	610347535	ASE TAIWAN (G)		COMP	15	0

STRESS: EXTERNAL VISUAL

CY7C1372B (7C1372B)	9244935	SWR#19136	ASE TAIWAN (G)		COMP	3	0
CY7C0852V (7C08523A)	4328799	610346772	ASE TAIWAN (G)		COMP	3	0

STRESS: HI-ACCEL SATURATION TEST, 130C, 3.63V, 85%RH, PRE COND 192 HR 30C/60%RH, MSL3

CY7C1372B (7C1372B)	9244935	SWR#19136	ASE TAIWAN (G)	128		43	0
CY7B993V (7B993A)	4323867	610351300	ASE TAIWAN (G)	128		44	0

STRESS: INTERNAL VISUAL

CY7C1372B (7C1372B)	9244935	SWR#19136	ASE TAIWAN (G)		COMP	5	0
CY7C0852V (7C08523A)	4328799	610346772	ASE TAIWAN (G)		COMP	5	0

STRESS: PRESSURE COOKER TEST (121C, 100%RH), 15 Psig, PRE COND 192 HR 30C/60%RH (MSL3)

CY7C1372B (7C1372B)	9244935	SWR#19136	ASE TAIWAN (G)	168		47	0
CY37128P (7C37637B)	8334828	610347535	ASE TAIWAN (G)	168		49	0

SOLDERABILITY TEST

CY7C1372B (7C1372B)	9244935	SWR#19136	ASE TAIWAN (G)		COMP	3	0
CY7C0852V (7C08523A)	4328799	610346772	ASE TAIWAN (G)		COMP	3	0

STRESS: TC COND. C -65C TO 150C, PRECONDITION 192 HRS 30C/60%RH (MSL3)

CY7C1372B (7C1372B)	9244935	SWR#19136	ASE TAIWAN (G)	300		48	0
CY7B993V (7B993A)	4323867	610351300	ASE TAIWAN (G)	300		43	0
CY37128P (7C37637B)	8334828	610347535	ASE TAIWAN (G)	300		50	0
CY37128P (7C37637B)	8334828	610347535	ASE TAIWAN (G)	500		50	0
CY37128P (7C37637B)	8334828	610347535	ASE TAIWAN (G)	1000		47	0

STRESS: XRAY

CY7C1372B (7C1372B)	9244935	SWR#19136	ASE TAIWAN (G)		COMP	15	0
CY7B993V (7B993A)	4323867	610351300	ASE TAIWAN (G)		COMP	15	0

Reliability Test Data

QTP #: 120201

<i>Device</i>	<i>Fab Lot #</i>	<i>Assy Lot #</i>	<i>Assy Loc</i>	<i>Duration</i>	<i>Samp</i>	<i>Rej</i>	<i>Failure Mechanism</i>
STRESS: ACOUSTIC, MSL3							
CY7C68013A (7C681000B)	4131065	611157091	G-TAIWAN	COMP	15	0	
CY7C68013A (7C681000B)	4131065	611157737	G-TAIWAN	COMP	15	0	
CY7C68013A (7C681000B)	4131065	611157739	G-TAIWAN	COMP	15	0	
CY29940AXC (7C829940BR)	8052001	611157742	G-TAIWAN	COMP	15	0	
CY7C136 (7C136G)	2831581	611158148	G-TAIWAN	COMP	15	0	
STRESS: BALL SHEAR							
CY7C68013A (7C681000B)	4131065	611157091	G-TAIWAN	COMP	10	0	
CY7C68013A (7C681000B)	4131065	611157737	G-TAIWAN	COMP	10	0	
CY7C68013A (7C681000B)	4131065	611157739	G-TAIWAN	COMP	10	0	
CY29940AXC (7C829940BR)	8052001	611157742	G-TAIWAN	COMP	10	0	
CY7C136 (7C136G)	2831581	611158148	G-TAIWAN	COMP	10	0	
STRESS: BOND PULL							
CY7C68013A (7C681000B)	4131065	611157091	G-TAIWAN	COMP	10	0	
CY7C68013A (7C681000B)	4131065	611157737	G-TAIWAN	COMP	10	0	
CY7C68013A (7C681000B)	4131065	611157739	G-TAIWAN	COMP	10	0	
CY29940AXC (7C829940BR)	8052001	611157742	G-TAIWAN	COMP	10	0	
CY7C136 (7C136G)	2831581	611158148	G-TAIWAN	COMP	10	0	
STRESS: CONSTRUCTIONAL ANALYSIS							
CY7C68013A (7C681000B)	4131065	611157091	G-TAIWAN	COMP	5	0	
CY29940AXC (7C829940BR)	8052001	611157742	G-TAIWAN	COMP	5	0	
CY7C136 (7C136G)	2831581	611158148	G-TAIWAN	COMP	5	0	
STRESS: CROSS SECTION							
CY7C68013A (7C681000B)	4131065	611157091	G-TAIWAN	COMP	5	0	
CY29940AXC (7C829940BR)	8052001	611157742	G-TAIWAN	COMP	5	0	
CY7C136 (7C136G)	2831581	611158148	G-TAIWAN	COMP	5	0	

Reliability Test Data

QTP #: 120201

<i>Device</i>	<i>Fab Lot #</i>	<i>Assy Lot #</i>	<i>Assy Loc</i>	<i>Duration</i>	<i>Samp</i>	<i>Rej</i>	<i>Failure Mechanism</i>
STRESS: DYE PENETRATION TEST							
CY7C68013A (7C681000B)	4131065	611157091	G-TAIWAN	COMP	15	0	
CY7C68013A (7C681000B)	4131065	611157737	G-TAIWAN	COMP	15	0	
CY7C68013A (7C681000B)	4131065	611157739	G-TAIWAN	COMP	15	0	
CY29940AXC (7C829940BR)	8052001	611157742	G-TAIWAN	COMP	15	0	
CY7C136 (7C136G)	2831581	611158148	G-TAIWAN	COMP	15	0	
STRESS: FINAL VISUAL							
CY7C68013A (7C681000B)	4131065	611157091	G-TAIWAN	COMP	2466	0	
CY7C68013A (7C681000B)	4131065	611157737	G-TAIWAN	COMP	618	0	
CY7C68013A (7C681000B)	4131065	611157739	G-TAIWAN	COMP	605	0	
CY29940AXC (7C829940BR)	8052001	611157742	G-TAIWAN	COMP	2412	0	
CY7C136 (7C136G)	2831581	611158148	G-TAIWAN	COMP	989	0	
STRESS: ELECTRICAL CHARACTERIZATION							
CY7C68013A (7C681000B)	4131065	611157739	G-TAIWAN	COMP	10	0	
STRESS: HIGH TEMP DYNAMIC OPERATING LIFE-EARLY FAILURE RATE (150, 2.8V, Vcc Max)							
CY7C136 (7C136G)	2831581	611158148	G-TAIWAN	48	1000	0	
STRESS: HIGH TEMP DYNAMIC OPERATING LIFE-LATENT FAILURE RATE (150C, 2.8V, Vcc Max)							
CY7C136 (7C136G)	2831581	611158148	G-TAIWAN	80	116	0	
CY7C136 (7C136G)	2831581	611158148	G-TAIWAN	500	116	0	
STRESS: HI-ACCEL SATURATION TEST, 130C, 3.63V, 85%RH, PRE COND 192 HR 30C/60%RH, MSL3							
CY7C68013A (7C681000B)	4131065	611157091	G-TAIWAN	128	80	0	
CY7C68013A (7C681000B)	4131065	611157091	G-TAIWAN	192	25	0	
CY7C68013A (7C681000B)	4131065	611157737	G-TAIWAN	128	80	0	
CY7C68013A (7C681000B)	4131065	611157737	G-TAIWAN	192	25	0	
CY7C68013A (7C681000B)	4131065	611157739	G-TAIWAN	128	80	0	
CY7C68013A (7C681000B)	4131065	611157739	G-TAIWAN	192	25	0	
STRESS: HI-ACCEL SATURATION TEST, 130C, 3.3V, 85%RH, PRE COND 192 HR 30C/60%RH, MSL3							
CY29940AXC (7C829940BR)	8052001	611157742	G-TAIWAN	128	80	0	

Reliability Test Data

QTP #: 120201

<i>Device</i>	<i>Fab Lot #</i>	<i>Assy Lot #</i>	<i>Assy Loc</i>	<i>Duration</i>	<i>Samp</i>	<i>Rej</i>	<i>Failure Mechanism</i>
STRESS: INTERNAL VISUAL							
CY7C68013A (7C681000B)	4131065	611157091	G-TAIWAN	COMP	5	0	
CY29940AXC (7C829940BR)	8052001	611157742	G-TAIWAN	COMP	5	0	
CY7C136 (7C136G)	2831581	611158148	G-TAIWAN	COMP	5	0	
STRESS: HIGH TEMP STORAGE, 150C							
CY7C68013A (7C681000B)	4131065	611157091	G-TAIWAN	500	95	0	
CY7C68013A (7C681000B)	4131065	611157091	G-TAIWAN	1000	85	0	
CY7C68013A (7C681000B)	4131065	611157091	G-TAIWAN	1500	75	0	
CY7C68013A (7C681000B)	4131065	611157091	G-TAIWAN	2000	75	0	
CY7C68013A (7C681000B)	4131065	611157737	G-TAIWAN	500	95	0	
CY7C68013A (7C681000B)	4131065	611157737	G-TAIWAN	1000	85	0	
CY7C68013A (7C681000B)	4131065	611157737	G-TAIWAN	1500	75	0	
CY7C68013A (7C681000B)	4131065	611157739	G-TAIWAN	500	95	0	
CY7C68013A (7C681000B)	4131065	611157739	G-TAIWAN	1000	85	0	
CY7C68013A (7C681000B)	4131065	611157739	G-TAIWAN	1500	75	0	
CY7C68013A (7C681000B)	4131065	611157739	G-TAIWAN	2000	75	0	
CY29940AXC (7C829940BR)	8052001	611157742	G-TAIWAN	500	95	0	
CY29940AXC (7C829940BR)	8052001	611157742	G-TAIWAN	1000	85	0	
CY29940AXC (7C829940BR)	8052001	611157742	G-TAIWAN	1500	75	0	
CY7C136 (7C136G)	2831581	611158148	G-TAIWAN	500	95	0	
CY7C136 (7C136G)	2831581	611158148	G-TAIWAN	1000	85	0	
CY7C136 (7C136G)	2831581	611158148	G-TAIWAN	1500	75	0	
CY7C64713(7CC681030BC)	4249029	611316756	G-TAIWAN	500	45	0	
CY7C64713(7CC681030BC)	4249029	611316756	G-TAIWAN	1000	45	0	
CY7C64713(7CC681030BC)	4249029	611316756	G-TAIWAN	3000	45	0	

Reliability Test Data

QTP #: 120201

<i>Device</i>	<i>Fab Lot #</i>	<i>Assy Lot #</i>	<i>Assy Loc</i>	<i>Duration</i>	<i>Samp</i>	<i>Rej</i>	<i>Failure Mechanism</i>
STRESS: PRESSURE COOKER TEST (121C, 100%RH), 15 Psig, PRE COND 192 HR 30C/60%RH (MSL3)							
CY7C68013A (7C681000B)	4131065	611157091	G-TAIWAN	168	94	0	
CY7C68013A (7C681000B)	4131065	611157091	G-TAIWAN	288	84	0	
CY7C68013A (7C681000B)	4131065	611157737	G-TAIWAN	168	95	0	
CY7C68013A (7C681000B)	4131065	611157739	G-TAIWAN	168	92	0	
CY7C68013A (7C681000B)	4131065	611157739	G-TAIWAN	288	82	0	
CY29940AXC (7C829940BR)	8052001	611157742	G-TAIWAN	168	95	0	
CY7C136 (7C136G)	2831581	611158148	G-TAIWAN	168	95	0	
CY7C64713(7CC681030BC)	4249029	611316756	G-TAIWAN	168	45	0	
CY7C64713(7CC681030BC)	4249029	611316756	G-TAIWAN	500	39	0	
STRESS: PHYSICAL DIMENSION							
CY7C68013A (7C681000B)	4131065	611157091	G-TAIWAN	COMP	30	0	
CY7C68013A (7C681000B)	4131065	611157737	G-TAIWAN	COMP	30	0	
CY7C68013A (7C681000B)	4131065	611157739	G-TAIWAN	COMP	30	0	
CY29940AXC (7C829940BR)	8052001	611157742	G-TAIWAN	COMP	30	0	
CY7C136 (7C136G)	2831581	611158148	G-TAIWAN	COMP	30	0	
STRESS: POST MSL3 BALL SHEAR							
CY7C68013A (7C681000B)	4131065	611157091	G-TAIWAN	COMP	4	0	
CY29940AXC (7C829940BR)	8052001	611157742	G-TAIWAN	COMP	4	0	
CY7C136 (7C136G)	2831581	611158148	G-TAIWAN	COMP	4	0	
STRESS: POST MSL3 BOND PULL							
CY7C68013A (7C681000B)	4131065	611157091	G-TAIWAN	COMP	4	0	
CY29940AXC (7C829940BR)	8052001	611157742	G-TAIWAN	COMP	4	0	
CY7C136 (7C136G)	2831581	611158148	G-TAIWAN	COMP	4	0	
STRESS: POST MSL3 CONSTRUCTIONAL ANALYSIS							
CY7C68013A (7C681000B)	4131065	611157091	G-TAIWAN	COMP	3	0	
CY29940AXC (7C829940BR)	8052001	611157742	G-TAIWAN	COMP	3	0	
CY7C136 (7C136G)	2831581	611158148	G-TAIWAN	COMP	3	0	

Reliability Test Data

QTP #: 120201

<i>Device</i>	<i>Fab Lot #</i>	<i>Assy Lot #</i>	<i>Assy Loc</i>	<i>Duration</i>	<i>Samp</i>	<i>Rej</i>	<i>Failure Mechanism</i>
STRESS: POST HI-ACCEL SATURATION TEST BALL SHEAR							
CY7C68013A (7C681000B)	4131065	611157091	G-TAIWAN	128	5	0	
CY29940AXC (7C829940BR)	8052001	611157742	G-TAIWAN	128	5	0	
STRESS: POST HIGH TEMP STORAGE BALL SHEAR							
CY7C68013A (7C681000B)	4131065	611157091	G-TAIWAN	500	5	0	
CY7C68013A (7C681000B)	4131065	611157091	G-TAIWAN	1000	5	0	
CY29940AXC (7C829940BR)	8052001	611157742	G-TAIWAN	500	5	0	
CY29940AXC (7C829940BR)	8052001	611157742	G-TAIWAN	1000	5	0	
CY7C136 (7C136G)	2831581	611158148	G-TAIWAN	500	5	0	
CY7C136 (7C136G)	2831581	611158148	G-TAIWAN	1000	5	0	
STRESS: POST PRESSURE COOKER TEST BALL SHEAR TEST							
CY7C68013A (7C681000B)	4131065	611157091	G-TAIWAN	168	5	0	
CY29940AXC (7C829940BR)	8052001	611157742	G-TAIWAN	168	5	0	
CY7C136 (7C136G)	2831581	611158148	G-TAIWAN	168	5	0	
CY7C64713(7CC681030BC)	4249029	611316756	G-TAIWAN	500	5	0	
STRESS: POST TC BALL SHEAR							
CY7C68013A (7C681000B)	4131065	611157091	G-TAIWAN	500	5	0	
CY29940AXC (7C829940BR)	8052001	611157742	G-TAIWAN	500	5	0	
CY7C136 (7C136G)	2831581	611158148	G-TAIWAN	500	5	0	
STRESS: POST HIGH TEMP STORAGE BOND PULL							
CY7C68013A (7C681000B)	4131065	611157091	G-TAIWAN	500	5	0	
CY7C68013A (7C681000B)	4131065	611157091	G-TAIWAN	1000	5	0	
CY29940AXC (7C829940BR)	8052001	611157742	G-TAIWAN	500	5	0	
CY29940AXC (7C829940BR)	8052001	611157742	G-TAIWAN	1000	5	0	
CY7C136 (7C136G)	2831581	611158148	G-TAIWAN	500	5	0	
CY7C136 (7C136G)	2831581	611158148	G-TAIWAN	1000	5	0	
STRESS: POST HI-ACCEL SATURATION TEST BOND PULL							
CY7C68013A (7C681000B)	4131065	611157091	G-TAIWAN	128	5	0	
CY29940AXC (7C829940BR)	8052001	611157742	G-TAIWAN	128	5	0	

Reliability Test Data

QTP #: 120201

<i>Device</i>	<i>Fab Lot #</i>	<i>Assy Lot #</i>	<i>Assy Loc</i>	<i>Duration</i>	<i>Samp</i>	<i>Rej</i>	<i>Failure Mechanism</i>
STRESS: POST PRESSURE COOKER TEST BOND PULL TEST							
CY7C68013A (7C681000B)	4131065	611157091	G-TAIWAN	168	5	0	
CY29940AXC (7C829940BR)	8052001	611157742	G-TAIWAN	168	5	0	
CY7C136 (7C136G)	2831581	611158148	G-TAIWAN	168	5	0	
STRESS: POST TC BOND PULL							
CY7C68013A (7C681000B)	4131065	611157091	G-TAIWAN	500	5	0	
CY29940AXC (7C829940BR)	8052001	611157742	G-TAIWAN	500	5	0	
CY7C136 (7C136G)	2831581	611158148	G-TAIWAN	500	5	0	
SOLDERABILITY TEST							
CY7C68013A (7C681000B)	4131065	611157091	G-TAIWAN	COMP	5	0	
CY29940AXC (7C829940BR)	8052001	611157742	G-TAIWAN	COMP	5	0	
CY7C136 (7C136G)	2831581	611158148	G-TAIWAN	COMP	5	0	
STRESS: TC COND. C -65C TO 150C, PRE COND 192 HR 30C/60%RH, MSL3							
CY7C68013A (7C681000B)	4131065	611157091	G-TAIWAN	500	94	0	
CY7C68013A (7C681000B)	4131065	611157091	G-TAIWAN	1000	84	0	
CY7C68013A (7C681000B)	4131065	611157091	G-TAIWAN	1500	74	0	
CY7C68013A (7C681000B)	4131065	611157091	G-TAIWAN	2000	74	0	
CY7C68013A (7C681000B)	4131065	611157737	G-TAIWAN	500	94	0	
CY7C68013A (7C681000B)	4131065	611157737	G-TAIWAN	1000	84	0	
CY7C68013A (7C681000B)	4131065	611157739	G-TAIWAN	500	95	0	
CY7C68013A (7C681000B)	4131065	611157739	G-TAIWAN	1000	84	0	
CY7C68013A (7C681000B)	4131065	611157739	G-TAIWAN	1500	74	0	
CY7C68013A (7C681000B)	4131065	611157739	G-TAIWAN	2000	74	0	
CY29940AXC (7C829940BR)	8052001	611157742	G-TAIWAN	500	95	0	
CY29940AXC (7C829940BR)	8052001	611157742	G-TAIWAN	1000	85	0	
CY29940AXC (7C829940BR)	8052001	611157742	G-TAIWAN	1500	75	0	
CY7C136 (7C136G)	2831581	611158148	G-TAIWAN	500	95	0	
CY7C136 (7C136G)	2831581	611158148	G-TAIWAN	1000	85	0	
CY7C136 (7C136G)	2831581	611158148	G-TAIWAN	1500	75	0	

Reliability Test Data

QTP #: 120201

Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: THERMAL SHOCK							
CY29940AXC (7C829940BR)	8052001	611157742	G-TAIWAN	200	100	0	
CY29940AXC (7C829940BR)	8052001	611157742	G-TAIWAN	1000	90	0	
STRESS: X-RAY							
CY7C68013A (7C681000B)	4131065	611157091	G-TAIWAN	COMP	15	0	
CY7C68013A (7C681000B)	4131065	611157737	G-TAIWAN	COMP	15	0	
CY7C68013A (7C681000B)	4131065	611157739	G-TAIWAN	COMP	15	0	
CY29940AXC (7C829940BR)	8052001	611157742	G-TAIWAN	COMP	15	0	
CY7C136 (7C136G)	2831581	611158148	G-TAIWAN	COMP	15	0	

Reliability Test Data

QTP #: 133306

<i>Device</i>	<i>Package</i>	<i>Fab Lot #</i>	<i>Assy Lot #</i>	<i>Assy Loc</i>	<i>Duration</i>	<i>Samp</i>	<i>Rej</i>	<i>Failure Mechanism</i>
STRESS: ACOUSTIC, MSL3								
CY8C5468AXI (8C561001AC)	AZ100	4304019	611314007	ASE TAIWAN (G)	COMP	15	0	
CY8C5468AXI (8C561001AC)	AZ100	4304019	611314008	ASE TAIWAN (G)	COMP	15	0	
CY8C5468AXI (8C561001AC)	AZ100	4304019	611314009	ASE TAIWAN (G)	COMP	15	0	
STRESS: BALL SHEAR								
CY8C5468AXI (8C561001AC)	AZ100	4304019	611314007	ASE TAIWAN (G)	COMP	50	0	
CY8C5468AXI (8C561001AC)	AZ100	4304019	611314008	ASE TAIWAN (G)	COMP	50	0	
CY8C5468AXI (8C561001AC)	AZ100	4304019	611314009	ASE TAIWAN (G)	COMP	50	0	
STRESS: BOND PULL								
CY8C5468AXI (8C561001AC)	AZ100	4304019	611314007	ASE TAIWAN (G)	COMP	50	0	
CY8C5468AXI (8C561001AC)	AZ100	4304019	611314008	ASE TAIWAN (G)	COMP	50	0	
CY8C5468AXI (8C561001AC)	AZ100	4304019	611314009	ASE TAIWAN (G)	COMP	50	0	
STRESS: CONSTRUCTIONAL ANALYSIS								
CY8C5468AXI (8C561001AC)	AZ100	4304019	611314007	ASE TAIWAN (G)	COMP	5	0	
CY8C5468AXI (8C561001AC)	AZ100	4304019	611314008	ASE TAIWAN (G)	COMP	5	0	
CY8C5468AXI (8C561001AC)	AZ100	4304019	611314009	ASE TAIWAN (G)	COMP	5	0	
STRESS: DYE PENETRANT TEST								
CY8C5468AXI (8C561001AC)	AZ100	4304019	611314007	ASE TAIWAN (G)	COMP	15	0	
CY8C5468AXI (8C561001AC)	AZ100	4304019	611314008	ASE TAIWAN (G)	COMP	15	0	
CY8C5468AXI (8C561001AC)	AZ100	4304019	611314009	ASE TAIWAN (G)	COMP	15	0	
STRESS: HI-ACCEL SATURATION TEST, 130C, 5.5V, 85%RH, PRE COND 192 HR 30C/60%RH, MSL3								
CY8C5468AXI (8C561001AC)	AZ100	4304019	611314007	ASE TAIWAN (G)	128	79	0	
CY8C5468AXI (8C561001AC)	AZ100	4304019	611314008	ASE TAIWAN (G)	128	77	0	
CY8C5468AXI (8C561001AC)	AZ100	4304019	611314009	ASE TAIWAN (G)	128	80	0	

Reliability Test Data

QTP #: 133306

Device	Package	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: HIGH TEMPERATURE STORAGE								
CY8C5468AXI (8C561001AC)	AZ100	4304019	611314007	ASE TAIWAN (G)	500	80	0	
CY8C5468AXI (8C561001AC)	AZ100	4304019	611314009	ASE TAIWAN (G)	500	60	0	
CY8CTMA1036BUI (8C20407BC) BU84A	4223445	611226792	ASE TAIWAN (G)	500	83	0		
CY8CTMA1036BUI (8C20407BC) BU84A	4223445	611226792	ASE TAIWAN (G)	1000	78	0		
CY8CTMA1036BUI (8C20407BC) BU84A	4223445	611226790	ASE TAIWAN (G)	500	79	0		
CY8CTMA1036BUI (8C20407BC) BU84A	4223445	611226790	ASE TAIWAN (G)	1000	74	0		
CY8CTMA1036BUI (8C20407BC) BU84A	4223445	611226791	ASE TAIWAN (G)	500	79	0		
CY8CTMA1036BUI (8C20407BC) BU84A	4223445	611226791	ASE TAIWAN (G)	1000	74	0		
STRESS: INTERNAL VISUAL								
CY8C5468AXI (8C561001AC)	AZ100	4304019	611314007	ASE TAIWAN (G)	COMP	5	0	
CY8C5468AXI (8C561001AC)	AZ100	4304019	611314008	ASE TAIWAN (G)	COMP	5	0	
CY8C5468AXI (8C561001AC)	AZ100	4304019	611314009	ASE TAIWAN (G)	COMP	5	0	
STRESS: PRESSURE COOKER TEST (121C, 100%RH), 15 Psig, PRE COND 192 HR 30C/60%RH (MSL3)								
CY8C5468AXI (8C561001AC)	AZ100	4304019	611314007	ASE TAIWAN (G)	168	80	0	
CY8C5468AXI (8C561001AC)	AZ100	4304019	611314007	ASE TAIWAN (G)	288	80	0	
CY8C5468AXI (8C561001AC)	AZ100	4304019	611314008	ASE TAIWAN (G)	168	77	0	
CY8C5468AXI (8C561001AC)	AZ100	4304019	611314008	ASE TAIWAN (G)	288	77	0	
CY8C5468AXI (8C561001AC)	AZ100	4304019	611314009	ASE TAIWAN (G)	168	80	0	
CY8C5468AXI (8C561001AC)	AZ100	4304019	611314009	ASE TAIWAN (G)	288	78	0	
STRESS: TC COND. C -65C TO 150C, PRECONDITION 192 HRS 30C/60%RH								
CY8C5468AXI (8C561001AC)	AZ100	4304019	611314007	ASE TAIWAN (G)	500	80	0	
CY8C5468AXI (8C561001AC)	AZ100	4304019	611314008	ASE TAIWAN (G)	500	76	0	
CY8C5468AXI (8C561001AC)	AZ100	4304019	611314008	ASE TAIWAN (G)	1000	76	0	
CY8C5468AXI (8C561001AC)	AZ100	4304019	611314009	ASE TAIWAN (G)	500	79	0	
CY8C5468AXI (8C561001AC)	AZ100	4304019	611314009	ASE TAIWAN (G)	1000	79	0	
STRESS: XRAY								
CY8C5468AXI (8C561001AC)	AZ100	4304019	611314007	ASE TAIWAN (G)	COMP	15	0	
CY8C5468AXI (8C561001AC)	AZ100	4304019	611314008	ASE TAIWAN (G)	COMP	15	0	
CY8C5468AXI (8C561001AC)	AZ100	4304019	611314009	ASE TAIWAN (G)	COMP	15	0	

Reliability Test Data

QTP #: 174303

<i>Device</i>	<i>Fab Lot #</i>	<i>Assy Lot #</i>	<i>Assy Loc</i>	<i>Duration</i>	<i>Samp</i>	<i>Rej</i>	<i>Failure Mechanism</i>
STRESS: ACOUSTIC, MSL3							
CY8C4125AXI2 (8CP46003B)	3710134	611740357	G-TAIWAN	COMP	77	0	
STRESS: BALL SHEAR							
CY8C4125AXI2 (8CP46003B)	3710134	611740357	G-TAIWAN	COMP	5	0	
STRESS: BOND PULL							
CY8C4125AXI2 (8CP46003B)	3710134	611740357	G-TAIWAN	COMP	5	0	
STRESS: CONSTRUCTIONAL ANALYSIS							
CY8C4125AXI2 (8CP46003B)	3710134	611740357	G-TAIWAN	COMP	5	0	
STRESS: FINAL VISUAL							
CY8C4125AXI2 (8CP46003B)	3710134	611740357	G-TAIWAN	COMP	1705	0	
STRESS: PHYSICAL DIMENSION							
CY8C4125AXI2 (8CP46003B)	3710134	611740357	G-TAIWAN	COMP	30	0	
STRESS: X-RAY							
CY8C4125AXI2 (8CP46003B)	3710134	611740357	G-TAIWAN	COMP	160	0	

Reliability Test Data

QTP #: 175002

<i>Device</i>	<i>Fab Lot #</i>	<i>Assy Lot #</i>	<i>Assy Loc</i>	<i>Duration</i>	<i>Samp</i>	<i>Rej</i>	<i>Failure Mechanism</i>
STRESS: ACOUSTIC, MSL3							
CY7C09289V (7C02893NB)	4728334	611741969	ASE(G)-TAIWAN	COMP	77	0	

Document History Page

Document Title: QTP 175002: 100L-TQFP PACKAGES, PURE SN, AU WIRE MSL3, 260C REFLOW ASE(G) - TAIWAN
Document Number: 002-22977

Rev.	ECN No.	Orig. of Change	Description of Change
**	6055820	EKNG	Initial spec release.
*A	6093432	EKNG	Updated Reliability Summary Table and Test data.

Cypress Semiconductor Package Qualification Report

QTP# 174303 VERSION *B
MAR 2018

64L TQFP (14x14x1.4)
Pure Sn, CuPdAu Wire
MSL3, 260°C Reflow
ASE (G) - Taiwan

FOR ANY QUESTIONS ON THIS REPORT, PLEASE CONTACT
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PACKAGE QUALIFICATION HISTORY

QTP Number	Description of Qualification Purpose	Date
120201	Qualification of TQFP packages built at ASE(G)-Taiwan using 0.8mil Copper Wire, G631 mold compound, CRM1076 epoxy and Pure Sn Lead finish.	June 2012
141404	Qualification PSoC4® 4100 and PSoC4® 4200 in TQFP44 10x10x1.4mm package in ASEK Taiwan assembly using CuPd wire, G631 mold compound, FH900 Die Attach Film and Pure Sn Lead finish at MSL3, 260C Reflow Temperature	June 2014
162301	Qualification of New Lead frame for 128L-TQFP (14x20x1.4mm), 64L-TQFP (14x14x1.4mm) and 32L-TQFP (7x7x1.4mm) package at MSL3, 260C Reflow Temperature	Dec 2016
174303	Qualification of ASEK for 64L-TQFP (14x 14 x 1.4mm) package at MSL3, 260C Reflow Temperature	Jan 2018

MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION	
Package Designation:	AZ64
Package Outline, Type, or Name:	64-Lead Thin Quad Flat Pack (TQFP), 1.4mm
Mold Compound Name/Manufacturer:	G631H / Sumitomo
Mold Compound Flammability Rating:	V-0 / UL94
Mold Compound Alpha Emission Rate:	N/A
Oxygen Rating Index: >28%	50%
Lead Frame Designation:	FMP
Lead Frame Material:	Copper
Substrate Material:	N/A
Lead Finish, Composition / Thickness:	Pure Sn
Die Backside Preparation Method/Metallization:	Backgrind
Die Separation Method:	SAW Process
Die Attach Supplier:	Hitachi
Die Attach Material:	FH-900
Bond Diagram Designation	002-21353
Wire Bond Method:	Thermalsonic Bonding
Wire Material/Size:	CuPdAu/ 0.8mil (20um)
Thermal Resistance Theta JA °C/W:	41°C/W
Package Cross Section Yes/No:	Yes
Assembly Process Flow:	49-41001
Name/Location of Assembly (prime) facility:	ASE(G)-Taiwan
MSL LEVEL	3
REFLOW PROFILE	260C

ELECTRICAL TEST / FINISH DESCRIPTION	
Test Location:	CML-R

Note: Please contact a Cypress Representative for other package availability.

RELIABILITY TESTS PERFORMED PER SPECIFICATION REQUIREMENTS

Stress/Test	Test Condition (Temp/Bias)	Result P/F
High Temperature Operating Life Early Failure Rate	Dynamic Operating Condition, Vcc = 2.8, 150 C JESD22-A108	P
High Temperature Operating Life Early Failure Rate	Dynamic Operating Condition, Vcc = 2.8, 150 C JESD22-A108	P
High Accelerated Saturation Test (HAST)	JEDEC STD 22-A110, 130 C, 85%RH, 3.63V/3.3V Precondition: JESD22 Moisture Sensitivity Level (192 Hrs., 30 C°, 60% RH, 260C Reflow)	P
Pressure Cooker Test	JESD22-A102, 121 C, 100%RH, 15 PSIG Precondition: JESD22 Moisture Sensitivity Level (192 Hrs., 30 C°, 60% RH, 260C Reflow)	P
Temperature Cycle	MIL-STD-883C, Method 1010, Condition C, -65 C to 150 C Precondition: JESD22 Moisture Sensitivity Level (192 Hrs., 30 C°, 60% RH, 260C Reflow)	P
High Temp Storage	JESD22-A103, 150 C, no bias Precondition: JESD22 Moisture Sensitivity Level (192 Hrs., 30 C°, 60% RH, 260C Reflow)	P
Acoustic Microscopy	J-STD-020 Precondition: JESD22 Moisture Sensitivity Level (192 Hrs., 30 C°, 60% RH, 260C Reflow)	P
Ball Shear	JESD22-B116A, Cpk : 1.33, Ppk : 1.66	P
Bond Pull	MIL-STD-883 – Method 2011, Cpk : 1.33, Ppk : 1.66	P
Constructional Analysis	Criteria: Meet external and internal characteristics of Cypress package	P
Dye Penetrant Test	Test to determine the existence and extent of cracks, Criteria: No Package Crack	P
Internal Visual	MIL-STD-883-2014	P
Final Visual Inspection	JESD22-B101B	P
Physical Dimension	MIL-STD-1835, JESD22-B100	P
Solderability	J-STD-002, JESD22-B102	P
Thermal Shock	MIL-STD-883C, Method 1011, Condition B, -55 C to 125C and JESD22-A106B, Condition C, -55 C to 125C	P
X-Ray	MIL-STD-883 - 2012	P
Post Stress Ball Shear	JESD22-A116	P
Post Stress Bond Shear	MIL-STD-883 - 2011	P
Electrical Characterization	AEC-Q100-009	P

Reliability Test Data

QTP #: 120201

Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: ACOUSTIC, MSL3							
CY7C68013A (7C681000B)	4131065	611157091	G-TAIWAN	COMP	15	0	
CY7C68013A (7C681000B)	4131065	611157737	G-TAIWAN	COMP	15	0	
CY7C68013A (7C681000B)	4131065	611157739	G-TAIWAN	COMP	15	0	
CY29940AXC (7C829940BR)	8052001	611157742	G-TAIWAN	COMP	15	0	
CY7C136 (7C136G)	2831581	611158148	G-TAIWAN	COMP	15	0	
STRESS: BALL SHEAR							
CY7C68013A (7C681000B)	4131065	611157091	G-TAIWAN	COMP	10	0	
CY7C68013A (7C681000B)	4131065	611157737	G-TAIWAN	COMP	10	0	
CY7C68013A (7C681000B)	4131065	611157739	G-TAIWAN	COMP	10	0	
CY29940AXC (7C829940BR)	8052001	611157742	G-TAIWAN	COMP	10	0	
CY7C136 (7C136G)	2831581	611158148	G-TAIWAN	COMP	10	0	
STRESS: BOND PULL							
CY7C68013A (7C681000B)	4131065	611157091	G-TAIWAN	COMP	10	0	
CY7C68013A (7C681000B)	4131065	611157737	G-TAIWAN	COMP	10	0	
CY7C68013A (7C681000B)	4131065	611157739	G-TAIWAN	COMP	10	0	
CY29940AXC (7C829940BR)	8052001	611157742	G-TAIWAN	COMP	10	0	
CY7C136 (7C136G)	2831581	611158148	G-TAIWAN	COMP	10	0	
STRESS: CONSTRUCTIONAL ANALYSIS							
CY7C68013A (7C681000B)	4131065	611157091	G-TAIWAN	COMP	5	0	
CY29940AXC (7C829940BR)	8052001	611157742	G-TAIWAN	COMP	5	0	
CY7C136 (7C136G)	2831581	611158148	G-TAIWAN	COMP	5	0	
STRESS: CROSS SECTION							
CY7C68013A (7C681000B)	4131065	611157091	G-TAIWAN	COMP	5	0	
CY29940AXC (7C829940BR)	8052001	611157742	G-TAIWAN	COMP	5	0	
CY7C136 (7C136G)	2831581	611158148	G-TAIWAN	COMP	5	0	

Reliability Test Data

QTP #: 120201

<i>Device</i>	<i>Fab Lot #</i>	<i>Assy Lot #</i>	<i>Assy Loc</i>	<i>Duration</i>	<i>Samp</i>	<i>Rej</i>	<i>Failure Mechanism</i>
STRESS: DYE PENETRATION TEST							
CY7C68013A (7C681000B)	4131065	611157091	G-TAIWAN	COMP	15	0	
CY7C68013A (7C681000B)	4131065	611157737	G-TAIWAN	COMP	15	0	
CY7C68013A (7C681000B)	4131065	611157739	G-TAIWAN	COMP	15	0	
CY29940AXC (7C829940BR)	8052001	611157742	G-TAIWAN	COMP	15	0	
CY7C136 (7C136G)	2831581	611158148	G-TAIWAN	COMP	15	0	
STRESS: FINAL VISUAL							
CY7C68013A (7C681000B)	4131065	611157091	G-TAIWAN	COMP	2466	0	
CY7C68013A (7C681000B)	4131065	611157737	G-TAIWAN	COMP	618	0	
CY7C68013A (7C681000B)	4131065	611157739	G-TAIWAN	COMP	605	0	
CY29940AXC (7C829940BR)	8052001	611157742	G-TAIWAN	COMP	2412	0	
CY7C136 (7C136G)	2831581	611158148	G-TAIWAN	COMP	989	0	
STRESS: ELECTRICAL CHARACTERIZATION							
CY7C68013A (7C681000B)	4131065	611157739	G-TAIWAN	COMP	10	0	
STRESS: HIGH TEMP DYNAMIC OPERATING LIFE-EARLY FAILURE RATE (150, 2.8V, Vcc Max)							
CY7C136 (7C136G)	2831581	611158148	G-TAIWAN	48	1000	0	
STRESS: HIGH TEMP DYNAMIC OPERATING LIFE-LATENT FAILURE RATE (150C, 2.8V, Vcc Max)							
CY7C136 (7C136G)	2831581	611158148	G-TAIWAN	80	116	0	
CY7C136 (7C136G)	2831581	611158148	G-TAIWAN	500	116	0	
STRESS: HI-ACCEL SATURATION TEST, 130C, 3.63V, 85%RH, PRE COND 192 HR 30C/60%RH, MSL3							
CY7C68013A (7C681000B)	4131065	611157091	G-TAIWAN	128	80	0	
CY7C68013A (7C681000B)	4131065	611157091	G-TAIWAN	192	25	0	
CY7C68013A (7C681000B)	4131065	611157737	G-TAIWAN	128	80	0	
CY7C68013A (7C681000B)	4131065	611157737	G-TAIWAN	192	25	0	
CY7C68013A (7C681000B)	4131065	611157739	G-TAIWAN	128	80	0	
CY7C68013A (7C681000B)	4131065	611157739	G-TAIWAN	192	25	0	
STRESS: HI-ACCEL SATURATION TEST, 130C, 3.3V, 85%RH, PRE COND 192 HR 30C/60%RH, MSL3							
CY29940AXC (7C829940BR)	8052001	611157742	G-TAIWAN	128	80	0	

Reliability Test Data

QTP #: 120201

<i>Device</i>	<i>Fab Lot #</i>	<i>Assy Lot #</i>	<i>Assy Loc</i>	<i>Duration</i>	<i>Samp</i>	<i>Rej</i>	<i>Failure Mechanism</i>
STRESS: INTERNAL VISUAL							
CY7C68013A (7C681000B)	4131065	611157091	G-TAIWAN	COMP	5	0	
CY29940AXC (7C829940BR)	8052001	611157742	G-TAIWAN	COMP	5	0	
CY7C136 (7C136G)	2831581	611158148	G-TAIWAN	COMP	5	0	
STRESS: HIGH TEMP STORAGE, 150C							
CY7C68013A (7C681000B)	4131065	611157091	G-TAIWAN	500	95	0	
CY7C68013A (7C681000B)	4131065	611157091	G-TAIWAN	1000	85	0	
CY7C68013A (7C681000B)	4131065	611157091	G-TAIWAN	1500	75	0	
CY7C68013A (7C681000B)	4131065	611157091	G-TAIWAN	2000	75	0	
CY7C68013A (7C681000B)	4131065	611157737	G-TAIWAN	500	95	0	
CY7C68013A (7C681000B)	4131065	611157737	G-TAIWAN	1000	85	0	
CY7C68013A (7C681000B)	4131065	611157737	G-TAIWAN	1500	75	0	
CY7C68013A (7C681000B)	4131065	611157739	G-TAIWAN	500	95	0	
CY7C68013A (7C681000B)	4131065	611157739	G-TAIWAN	1000	85	0	
CY7C68013A (7C681000B)	4131065	611157739	G-TAIWAN	1500	75	0	
CY7C68013A (7C681000B)	4131065	611157739	G-TAIWAN	2000	75	0	
CY29940AXC (7C829940BR)	8052001	611157742	G-TAIWAN	500	95	0	
CY29940AXC (7C829940BR)	8052001	611157742	G-TAIWAN	1000	85	0	
CY29940AXC (7C829940BR)	8052001	611157742	G-TAIWAN	1500	75	0	
CY7C136 (7C136G)	2831581	611158148	G-TAIWAN	500	95	0	
CY7C136 (7C136G)	2831581	611158148	G-TAIWAN	1000	85	0	
CY7C136 (7C136G)	2831581	611158148	G-TAIWAN	1500	75	0	
CY7C64713(7CC681030BC)	4249029	611316756	G-TAIWAN	500	45	0	
CY7C64713(7CC681030BC)	4249029	611316756	G-TAIWAN	1000	45	0	
CY7C64713(7CC681030BC)	4249029	611316756	G-TAIWAN	3000	45	0	

Reliability Test Data

QTP #: 120201

Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp Rej	Failure Mechanism	
STRESS: PRESSURE COOKER TEST (121C, 100%RH), 15 Psig, PRE COND 192 HR 30C/60%RH (MSL3)							
CY7C68013A (7C681000B)		4131065	611157091	G-TAIWAN	168	94	0
CY7C68013A (7C681000B)		4131065	611157091	G-TAIWAN	288	84	0
CY7C68013A (7C681000B)		4131065	611157737	G-TAIWAN	168	95	0
CY7C68013A (7C681000B)		4131065	611157739	G-TAIWAN	168	92	0
CY7C68013A (7C681000B)		4131065	611157739	G-TAIWAN	288	82	0
CY29940AXC (7C829940BR)		8052001	611157742	G-TAIWAN	168	95	0
CY7C136 (7C136G)		2831581	611158148	G-TAIWAN	168	95	0
CY7C64713(7CC681030BC)		4249029	611316756	G-TAIWAN	168	45	0
CY7C64713(7CC681030BC)		4249029	611316756	G-TAIWAN	500	39	0
STRESS: PHYSICAL DIMENSION							
CY7C68013A (7C681000B)		4131065	611157091	G-TAIWAN	COMP	30	0
CY7C68013A (7C681000B)		4131065	611157737	G-TAIWAN	COMP	30	0
CY7C68013A (7C681000B)		4131065	611157739	G-TAIWAN	COMP	30	0
CY29940AXC (7C829940BR)		8052001	611157742	G-TAIWAN	COMP	30	0
CY7C136 (7C136G)		2831581	611158148	G-TAIWAN	COMP	30	0
STRESS: POST MSL3 BALL SHEAR							
CY7C68013A (7C681000B)		4131065	611157091	G-TAIWAN	COMP	4	0
CY29940AXC (7C829940BR)		8052001	611157742	G-TAIWAN	COMP	4	0
CY7C136 (7C136G)		2831581	611158148	G-TAIWAN	COMP	4	0
STRESS: POST MSL3 BOND PULL							
CY7C68013A (7C681000B)		4131065	611157091	G-TAIWAN	COMP	4	0
CY29940AXC (7C829940BR)		8052001	611157742	G-TAIWAN	COMP	4	0
CY7C136 (7C136G)		2831581	611158148	G-TAIWAN	COMP	4	0
STRESS: POST MSL3 CONSTRUCTIONAL ANALYSIS							
CY7C68013A (7C681000B)		4131065	611157091	G-TAIWAN	COMP	3	0
CY29940AXC (7C829940BR)		8052001	611157742	G-TAIWAN	COMP	3	0
CY7C136 (7C136G)		2831581	611158148	G-TAIWAN	COMP	3	0

Reliability Test Data

QTP #: 120201

<i>Device</i>	<i>Fab Lot #</i>	<i>Assy Lot #</i>	<i>Assy Loc</i>	<i>Duration</i>	<i>Samp</i>	<i>Rej</i>	<i>Failure Mechanism</i>
STRESS: POST HI-ACCEL SATURATION TEST BALL SHEAR							
CY7C68013A (7C681000B)	4131065	611157091	G-TAIWAN	128	5	0	
CY29940AXC (7C829940BR)	8052001	611157742	G-TAIWAN	128	5	0	
STRESS: POST HIGH TEMP STORAGE BALL SHEAR							
CY7C68013A (7C681000B)	4131065	611157091	G-TAIWAN	500	5	0	
CY7C68013A (7C681000B)	4131065	611157091	G-TAIWAN	1000	5	0	
CY29940AXC (7C829940BR)	8052001	611157742	G-TAIWAN	500	5	0	
CY29940AXC (7C829940BR)	8052001	611157742	G-TAIWAN	1000	5	0	
CY7C136 (7C136G)	2831581	611158148	G-TAIWAN	500	5	0	
CY7C136 (7C136G)	2831581	611158148	G-TAIWAN	1000	5	0	
STRESS: POST PRESSURE COOKER TEST BALL SHEAR TEST							
CY7C68013A (7C681000B)	4131065	611157091	G-TAIWAN	168	5	0	
CY29940AXC (7C829940BR)	8052001	611157742	G-TAIWAN	168	5	0	
CY7C136 (7C136G)	2831581	611158148	G-TAIWAN	168	5	0	
CY7C64713(7CC681030BC)	4249029	611316756	G-TAIWAN	500	5	0	
STRESS: POST TC BALL SHEAR							
CY7C68013A (7C681000B)	4131065	611157091	G-TAIWAN	500	5	0	
CY29940AXC (7C829940BR)	8052001	611157742	G-TAIWAN	500	5	0	
CY7C136 (7C136G)	2831581	611158148	G-TAIWAN	500	5	0	
STRESS: POST HIGH TEMP STORAGE BOND PULL							
CY7C68013A (7C681000B)	4131065	611157091	G-TAIWAN	500	5	0	
CY7C68013A (7C681000B)	4131065	611157091	G-TAIWAN	1000	5	0	
CY29940AXC (7C829940BR)	8052001	611157742	G-TAIWAN	500	5	0	
CY29940AXC (7C829940BR)	8052001	611157742	G-TAIWAN	1000	5	0	
CY7C136 (7C136G)	2831581	611158148	G-TAIWAN	500	5	0	
CY7C136 (7C136G)	2831581	611158148	G-TAIWAN	1000	5	0	
STRESS: POST HI-ACCEL SATURATION TEST BOND PULL							
CY7C68013A (7C681000B)	4131065	611157091	G-TAIWAN	128	5	0	
CY29940AXC (7C829940BR)	8052001	611157742	G-TAIWAN	128	5	0	

Reliability Test Data

QTP #: 120201

<i>Device</i>	<i>Fab Lot #</i>	<i>Assy Lot #</i>	<i>Assy Loc</i>	<i>Duration</i>	<i>Samp</i>	<i>Rej</i>	<i>Failure Mechanism</i>
STRESS: POST PRESSURE COOKER TEST BOND PULL TEST							
CY7C68013A (7C681000B)	4131065	611157091	G-TAIWAN	168	5	0	
CY29940AXC (7C829940BR)	8052001	611157742	G-TAIWAN	168	5	0	
CY7C136 (7C136G)	2831581	611158148	G-TAIWAN	168	5	0	
STRESS: POST TC BOND PULL							
CY7C68013A (7C681000B)	4131065	611157091	G-TAIWAN	500	5	0	
CY29940AXC (7C829940BR)	8052001	611157742	G-TAIWAN	500	5	0	
CY7C136 (7C136G)	2831581	611158148	G-TAIWAN	500	5	0	
SOLDERABILITY TEST							
CY7C68013A (7C681000B)	4131065	611157091	G-TAIWAN	COMP	5	0	
CY29940AXC (7C829940BR)	8052001	611157742	G-TAIWAN	COMP	5	0	
CY7C136 (7C136G)	2831581	611158148	G-TAIWAN	COMP	5	0	
STRESS: TC COND. C -65C TO 150C, PRE COND 192 HR 30C/60%RH, MSL3							
CY7C68013A (7C681000B)	4131065	611157091	G-TAIWAN	500	94	0	
CY7C68013A (7C681000B)	4131065	611157091	G-TAIWAN	1000	84	0	
CY7C68013A (7C681000B)	4131065	611157091	G-TAIWAN	1500	74	0	
CY7C68013A (7C681000B)	4131065	611157091	G-TAIWAN	2000	74	0	
CY7C68013A (7C681000B)	4131065	611157737	G-TAIWAN	500	94	0	
CY7C68013A (7C681000B)	4131065	611157737	G-TAIWAN	1000	84	0	
CY7C68013A (7C681000B)	4131065	611157739	G-TAIWAN	500	95	0	
CY7C68013A (7C681000B)	4131065	611157739	G-TAIWAN	1000	84	0	
CY7C68013A (7C681000B)	4131065	611157739	G-TAIWAN	1500	74	0	
CY7C68013A (7C681000B)	4131065	611157739	G-TAIWAN	2000	74	0	
CY29940AXC (7C829940BR)	8052001	611157742	G-TAIWAN	500	95	0	
CY29940AXC (7C829940BR)	8052001	611157742	G-TAIWAN	1000	85	0	
CY29940AXC (7C829940BR)	8052001	611157742	G-TAIWAN	1500	75	0	
CY7C136 (7C136G)	2831581	611158148	G-TAIWAN	500	95	0	
CY7C136 (7C136G)	2831581	611158148	G-TAIWAN	1000	85	0	
CY7C136 (7C136G)	2831581	611158148	G-TAIWAN	1500	75	0	

Reliability Test Data

QTP #: 120201

Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: THERMAL SHOCK							
CY29940AXC (7C829940BR)	8052001	611157742	G-TAIWAN	200	100	0	
CY29940AXC (7C829940BR)	8052001	611157742	G-TAIWAN	1000	90	0	
STRESS: X-RAY							
CY7C68013A (7C681000B)	4131065	611157091	G-TAIWAN	COMP	15	0	
CY7C68013A (7C681000B)	4131065	611157737	G-TAIWAN	COMP	15	0	
CY7C68013A (7C681000B)	4131065	611157739	G-TAIWAN	COMP	15	0	
CY29940AXC (7C829940BR)	8052001	611157742	G-TAIWAN	COMP	15	0	
CY7C136 (7C136G)	2831581	611158148	G-TAIWAN	COMP	15	0	

Reliability Test Data

QTP #: 141404

Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: ACOUSTIC, MSL3							
CY8C4245AX(8CP44200AC)	4318437	611408847	ASEK, Taiwan	COMP	15	0	
CY8C4245AX(8CP44200AC)	4318437	611408848	ASEK, Taiwan	COMP	15	0	
CY8C4245AX(8CP44200AC)	4318437	611408849	ASEK, Taiwan	COMP	15	0	
STRESS: BALL SHEAR							
CY8C4245AX(8CP44200AC)	4318437	611408847	ASEK, Taiwan	COMP	10	0	
CY8C4245AX(8CP44200AC)	4318437	611408848	ASEK, Taiwan	COMP	10	0	
CY8C4245AX(8CP44200AC)	4318437	611408849	ASEK, Taiwan	COMP	10	0	
STRESS: BOND PULL							
CY8C4245AX(8CP44200AC)	4318437	611408847	ASEK, Taiwan	COMP	10	0	
CY8C4245AX(8CP44200AC)	4318437	611408848	ASEK, Taiwan	COMP	10	0	
CY8C4245AX(8CP44200AC)	4318437	611408849	ASEK, Taiwan	COMP	10	0	
STRESS: CONSTRUCTIONAL ANALYSIS							
CY8C4245AX(8CP44200AC)	4318437	611408847	ASEK, Taiwan	COMP	5	0	
CY8C4245AX(8CP44200AC)	4318437	611408848	ASEK, Taiwan	COMP	5	0	
CY8C4245AX(8CP44200AC)	4318437	611408849	ASEK, Taiwan	COMP	5	0	
STRESS: HI-ACCEL SATURATION TEST, 130C, 5.5V, 85%RH, PRE COND 192 HR 30C/60%RH, MSL3							
CY8C4245AX(8CP44200AC)	4318437	611408847	ASEK, Taiwan	128	80	0	
CY8C4245AX(8CP44200AC)	4318437	611408848	ASEK, Taiwan	128	80	0	
CY8C4245AX(8CP44200AC)	4318437	611408849	ASEK, Taiwan	128	80	0	
STRESS: HIGH TEMP STORAGE, 150C							
CY8C5468AXI(8C561001AC)	4304019	611314007	ASEK, Taiwan	500	80	0	
CY8C5468AXI(8C561001AC)	4304019	611314007	ASEK, Taiwan	1000	80	0	
CY8C5468AXI(8C561001AC)	4304019	611314009	ASEK, Taiwan	500	60	0	
CY8C5468AXI(8C561001AC)	4304019	611314009	ASEK, Taiwan	1000	60	0	
STRESS: INTERNAL VISUAL							
CY8C4245AX(8CP44200AC)	4318437	611408847	ASEK, Taiwan	COMP	5	0	
CY8C4245AX(8CP44200AC)	4318437	611408848	ASEK, Taiwan	COMP	5	0	
CY8C4245AX(8CP44200AC)	4318437	611408849	ASEK, Taiwan	COMP	5	0	

Reliability Test Data

QTP #: 141404

Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: PRESSURE COOKER TEST (121C, 100%RH), 15 Psig, PRE COND 192 HR 30C/60%RH (MSL3)							
CY8C4245AX(8CP44200AC)	4318437	611408847	ASEK, Taiwan	168	80	0	
CY8C4245AX(8CP44200AC)	4318437	611408847	ASEK, Taiwan	288	80	0	
CY8C4245AX(8CP44200AC)	4318437	611408848	ASEK, Taiwan	168	80	0	
CY8C4245AX(8CP44200AC)	4318437	611408848	ASEK, Taiwan	288	80	0	
CY8C4245AX(8CP44200AC)	4318437	611408849	ASEK, Taiwan	168	80	0	
CY8C4245AX(8CP44200AC)	4318437	611408849	ASEK, Taiwan	288	80	0	
STRESS: TC COND. C -65C TO 150C, PRE COND 192 HR 30C/60%RH, MSL3							
CY8C4245AX(8CP44200AC)	4318437	611408847	ASEK, Taiwan	500	80	0	
CY8C4245AX(8CP44200AC)	4318437	611408847	ASEK, Taiwan	1000	80	0	
CY8C4245AX(8CP44200AC)	4318437	611408848	ASEK, Taiwan	500	80	0	
CY8C4245AX(8CP44200AC)	4318437	611408848	ASEK, Taiwan	1000	80	0	
CY8C4245AX(8CP44200AC)	4318437	611408849	ASEK, Taiwan	500	80	0	
CY8C4245AX(8CP44200AC)	4318437	611408849	ASEK, Taiwan	1000	80	0	
STRESS: X-RAY							
CY8C4245AX(8CP44200AC)	4318437	611408847	ASEK, Taiwan	COMP	15	0	
CY8C4245AX(8CP44200AC)	4318437	611408848	ASEK, Taiwan	COMP	15	0	
CY8C4245AX(8CP44200AC)	4318437	611408849	ASEK, Taiwan	COMP	15	0	

Reliability Test Data

QTP #: 162301

<i>Device</i>	<i>Fab Lot #</i>	<i>Assy Lot #</i>	<i>Assy Loc</i>	<i>Duration</i>	<i>Samp</i>	<i>Rej</i>	<i>Failure Mechanism</i>
STRESS: ACOUSTICS							
CYAT81688 (8A206803AH)	5532014	611534015	ASEK-G	COMP	22	0	
CY7C006AV (7CC0063NFC)	4431911	611617889	ASEK-G	COMP	15	0	
CY29940AXC (7CC829940BR)	8444015	611617887	ASEK-G	COMP	15	0	
CY7C006AV (7C0063NFC)	4521965	611617888	ASEK-G	COMP	15	0	
STRESS: BALL SHEAR							
CYAT81688 (8A206803AH)	5532014	611534015	ASEK-G	COMP	150	0	
CY7C006AV (7CC0063NFC)	4431911	611617889	ASEK-G	COMP	100	0	
CY29940AXC (7CC829940BR)	8444015	611617887	ASEK-G	COMP	100	0	
CY7C006AV (7C0063NFC)	4521965	611617888	ASEK-G	COMP	100	0	
STRESS: BOND PULL							
CYAT81688 (8A206803AH)	5532014	611534015	ASEK-G	COMP	150	0	
CY7C006AV (7CC0063NFC)	4431911	611617889	ASEK-G	COMP	100	0	
CY29940AXC (7CC829940BR)	8444015	611617887	ASEK-G	COMP	100	0	
CY7C006AV (7C0063NFC)	4521965	611617888	ASEK-G	COMP	100	0	
STRESS: CONSTRUCTIONAL ANALYSIS							
CYAT81688 (8A206803AH)	5532014	611534014	ASEK-G	COMP	5	0	
CY7C006AV (7CC0063NFC)	4431911	611617889	ASEK-G	COMP	5	0	
CY29940AXC (7CC829940BR)	8444015	611617887	ASEK-G	COMP	5	0	
CY7C006AV (7C0063NFC)	4521965	611617888	ASEK-G	COMP	5	0	
STRESS: DIE SHEAR							
CY7C006AV (7CC0063NFC)	4431911	611617889	ASEK-G	COMP	15	0	
CY29940AXC (7CC829940BR)	8444015	611617887	ASEK-G	COMP	15	0	
CY7C006AV (7C0063NFC)	4521965	611617888	ASEK-G	COMP	15	0	
STRESS: DYE PENETRANT							
CYAT81688 (8A206803AH)	5532014	611534014	ASEK-G	COMP	15	0	
CY7C006AV (7CC0063NFC)	4431911	611617889	ASEK-G	COMP	15	0	
CY29940AXC (7CC829940BR)	8444015	611617887	ASEK-G	COMP	15	0	

Reliability Test Data

QTP #: 162301

<i>Device</i>	<i>Fab Lot #</i>	<i>Assy Lot #</i>	<i>Assy Loc</i>	<i>Duration</i>	<i>Samp</i>	<i>Rej</i>	<i>Failure Mechanism</i>
STRESS: FINAL VISUAL							
CYAT81688 (8A206803AH)	5532014	611534015	ASEK-G	COMP	7761	0	
CY7C006AV (7CC0063NFC)	4431911	611617889	ASEK-G	COMP	974	0	
CY29940AXC (7CC829940BR)	8444015	611617887	ASEK-G	COMP	5588	0	
CY7C006AV (7C0063NFC)	4521965	611617888	ASEK-G	COMP	862	0	
STRESS: PHYSICAL DIMENSION							
CYAT81688 (8A206803AH)	5532014	611534015	ASEK-G	COMP	10	0	
CY7C006AV (7CC0063NFC)	4431911	611617889	ASEK-G	COMP	10	0	
CY29940AXC (7CC829940BR)	8444015	611617887	ASEK-G	COMP	10	0	
CY7C006AV (7C0063NFC)	4521965	611617888	ASEK-G	COMP	10	0	
STRESS: SOLDERABILITY							
CY7C006AV (7CC0063NFC)	4431911	611617889	ASEK-G	COMP	3	0	
CY29940AXC (7CC829940BR)	8444015	611617887	ASEK-G	COMP	3	0	
CY7C006AV (7C0063NFC)	4521965	611617888	ASEK-G	COMP	3	0	
STRESS: TC COND. C -65C TO 150C, PRE COND 192 HRS 30C/60%RH, MSL3							
CYAT81688 (8A206803AH)	5532014	611534015	ASEK-G	500	84	0	
CYAT81688 (8A206803AH)	5532014	611534015	ASEK-G	1000	79	0	
CY7C006AV (7CC0063NFC)	4431911	611617889	ASEK-G	500	77	0	
CY29940AXC (7CC829940BR)	8444015	611617887	ASEK-G	500	77	0	
STRESS: X-RAY							
CYAT81688 (8A206803AH)	5532014	611534015	ASEK-G	COMP	77	0	
CY7C006AV (7CC0063NFC)	4431911	611617889	ASEK-G	COMP	77	0	
CY29940AXC (7CC829940BR)	8444015	611617887	ASEK-G	COMP	77	0	

Reliability Test Data

QTP #: 174303

<i>Device</i>	<i>Fab Lot #</i>	<i>Assy Lot #</i>	<i>Assy Loc</i>	<i>Duration</i>	<i>Samp</i>	<i>Rej</i>	<i>Failure Mechanism</i>
STRESS: ACOUSTIC, MSL3							
CY8C4125AXI2 (8CP46003B)	3710134	611740357	G-TAIWAN	COMP	77	0	
STRESS: BALL SHEAR							
CY8C4125AXI2 (8CP46003B)	3710134	611740357	G-TAIWAN	COMP	5	0	
STRESS: BOND PULL							
CY8C4125AXI2 (8CP46003B)	3710134	611740357	G-TAIWAN	COMP	5	0	
STRESS: CONSTRUCTIONAL ANALYSIS							
CY8C4125AXI2 (8CP46003B)	3710134	611740357	G-TAIWAN	COMP	5	0	
STRESS: FINAL VISUAL							
CY8C4125AXI2 (8CP46003B)	3710134	611740357	G-TAIWAN	COMP	1705	0	
STRESS: PHYSICAL DIMENSION							
CY8C4125AXI2 (8CP46003B)	3710134	611740357	G-TAIWAN	COMP	30	0	
STRESS: X-RAY							
CY8C4125AXI2 (8CP46003B)	3710134	611740357	G-TAIWAN	COMP	160	0	

Document History Page

Document Title: QTP#174303 : Qualification of ASEK for 64L-TQFP (14x 14 x 1.4mm) package at MSL3, 260C
Reflow Temperature

Document Number: 002-22917

Rev.	ECN No.	Orig. of Change	Description of Change
**	6045777	EKNG	Initial spec release.
*A	6050361	EKNG	Updated the Wire material and Wire Size
*B	6093403	EKNG	Updated Reliability Stress Summary Table and Test data

Cypress Semiconductor Package Qualification Report

**QTP# 174402 VERSION *A
MAR 2018**

**44L TQFP (10x10x1.4)
Pure Sn, Au Wire
MSL3, 260°C Reflow
ASE (G) - Taiwan**

**FOR ANY QUESTIONS ON THIS REPORT PLEASE CONTACT reliability@cypress.com :
OR VIA LINK A CYLINK CRM CASE**

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Francis Classe
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Approved By:
David Hoffman
Reliability Director

PACKAGE QUALIFICATION HISTORY

QTP Number	Description of Qualification Purpose	Date
123808	Qualification of PSoC4® 4100 and PSoC4® 4200 in TQFP44 10x10x1.4mm package at ASEK Taiwan assembly using 0.8mil Bare Copper Wire, G631 mold compound, FH900 Die Attach Film and Pure Sn Leadfinish., MSL3, 260C Relfow Temperature.	May 2013
141404	Qualification of PSoC4® 4100 and PSoC4® 4200 in TQFP44 10x10x1.4mm package in ASEK Taiwan assembly using CuPd wire, G631 mold compound, FH900 Die Attach Film and Pure Sn Lead finish at MSL3,260C Reflow Temperature	June 2014
152603	Qualification of Automotive 128-Lead TQFP (14x20x1.4mm) Package in ASEK-Taiwan (G) using 0.8mil Au wire with G631 mold compound, CRM-1076 die attach material, Copper with Ag plating leadframe and Pure Sn leadfinish at MSL3, 260C Reflow Temperature.	Mar 2016
174303	Qualification of ASEK for 64L-TQFP (14x 14 x 1.4mm) package at MSL3, 260C Reflow Temperature	Jan 2018
174402	Qualification of ASEK for 44L- TQFP 10X10X1.4mm package at MSL3, 260C Reflow Temperature	Mar 2018

MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION	
Package Designation:	AZ44A
Package Outline, Type, or Name:	44-Lead Thin Quad Flat Pack (TQFP), 1.4mm
Mold Compound Name/Manufacturer:	G631H / Sumitomo
Mold Compound Flammability Rating:	V-0 / UL94
Mold Compound Alpha Emission Rate:	N/A
Oxygen Rating Index: >28%	50%
Lead Frame Designation:	FMP
Lead Frame Material:	Copper
Substrate Material:	N/A
Lead Finish, Composition / Thickness:	Pure Sn
Die Backside Preparation Method/Metallization:	Backgrind
Die Separation Method:	SAW Process
Die Attach Supplier:	Hitachi
Die Attach Material:	FH-900
Bond Diagram Designation	002-21355
Wire Bond Method:	Thermalsonic Bonding
Wire Material/Size:	Au/ 0.8mil (20um)
Thermal Resistance Theta JA °C/W:	60.5 °C/W
Package Cross Section Yes/No:	Yes
Assembly Process Flow:	49-41999
Name/Location of Assembly (prime) facility:	ASE(G)-Taiwan
MSL LEVEL	3
REFLOW PROFILE	260C

ELECTRICAL TEST / FINISH DESCRIPTION	
Test Location:	CML-R

RELIABILITY TESTS PERFORMED PER SPECIFICATION REQUIREMENTS

Stress/Test	Test Condition (Temp/Bias)	Result P/F
Acoustic Microscopy	J-STD-020 Precondition: JESD22 Moisture Sensitivity Level (192 Hrs., 30 C°, 60% RH, 260C Reflow)	P
Ball Shear	JESD22-B116A, Cpk : 1.33, Ppk : 1.66	P
Bond Pull	MIL-STD-883 – Method 2011, Cpk : 1.33, Ppk : 1.66	P
Constructional Analysis	Criteria: Meet external and internal characteristics of Cypress package	P
Final Visual Inspection	JESD22-B101B	P
Physical Dimension	MIL-STD-1835, JESD22-B100	P
X-Ray	MIL-STD-883 - 2012	P
Dye Penetrant Test	Criteria: No Package Crack	P
Pressure Cooker	JESD22-A102, 121C, 100%RH, 15 Psig Precondition: JESD22-A113 Moisture Sensitivity MSL 3 (192 Hrs., 30°C, 60% RH, 260°C Reflow)	P
Electrostatic Discharge Charge Device Model (ESD-CDM)	AEC-Q100-011 250V/500V/ 750V (corner pins)	P
High Temp Storage	JESD22-A103: 150 C, no bias	P
Tin Whisker	JESD22-A121 / JESD201	P
Unbiased High Accelerated Saturation Test (UnHAST)	JESD22-A118, 130C, 85%RH	P
Pressure Cooker Test	JESD22-A102, 121 C, 100%RH, 15 PSIG Precondition: JESD22 Moisture Sensitivity Level (192 Hrs., 30 C□, 60% RH, 260C Reflow)	P
Temperature Cycle	MIL-STD-883C, Method 1010, Condition C, -65 C to 150 C Precondition: JESD22 Moisture Sensitivity Level (192 Hrs., 30 C□, 60% RH, 260C Reflow)	P

Reliability Test Data

QTP #: 123808

Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: ACOUSTIC, MSL3							
CY8C4245AXI (8CC44200AC)	4251883	611303750	ASE, Taiwan (G)	COMP	15	0	
CY8C4245AXI (8CC44200AC)	4251883	611302905	ASE, Taiwan (G)	COMP	15	0	
CY8C4245AXI (8CC44200AC)	4251883	611302904	ASE, Taiwan (G)	COMP	15	0	
STRESS: BALL SHEAR							
CY8C4245AXI (8CC44200AC)	4251883	611303750	ASE, Taiwan (G)	COMP	5	0	
CY8C4245AXI (8CC44200AC)	4251883	611302905	ASE, Taiwan (G)	COMP	5	0	
CY8C4245AXI (8CC44200AC)	4251883	611302904	ASE, Taiwan (G)	COMP	5	0	
STRESS: BOND PULL							
CY8C4245AXI (8CC44200AC)	4251883	611303750	ASE, Taiwan (G)	COMP	5	0	
CY8C4245AXI (8CC44200AC)	4251883	611302905	ASE, Taiwan (G)	COMP	5	0	
CY8C4245AXI (8CC44200AC)	4251883	611302904	ASE, Taiwan (G)	COMP	5	0	
STRESS: CONSTRUCTIONAL ANALYSIS							
CY8C4245AXI (8CC44200AC)	4251883	611303750	ASE, Taiwan (G)	COMP	5	0	
CY8C4245AXI (8CC44200AC)	4251883	611302905	ASE, Taiwan (G)	COMP	5	0	
CY8C4245AXI (8CC44200AC)	4251883	611302904	ASE, Taiwan (G)	COMP	5	0	
STRESS: ESD-CHARGE DEVICE MODEL, 500V							
CY8C4245AXI (8CC44200AC)	4251883	611302905	ASE, Taiwan (G)	500	9	0	
STRESS: ESD-CHARGE DEVICE MODEL, 1000V							
CY8C4245AXI (8CC44200AC)	4251883	611302905	ASE, Taiwan (G)	1000	3	0	
STRESS: ESD-CHARGE DEVICE MODEL, 1,250V							
CY8C4245AXI (8CC44200AC)	4251883	611302905	ASE, Taiwan (G)	1250	3	0	
STRESS: ESD-HUMAN BODY CIRCUIT PER JEDEC EIA/JESD22-A114-B, 2,200V							
CY8C4245AXI (8CC44200AC)	4251883	611302905	ASE, Taiwan (G)	2200	8	0	
STRESS: ESD-HUMAN BODY CIRCUIT PER JEDEC EIA/JESD22-A114-B, 3,300V							
CY8C4245AXI (8CC44200AC)	4251883	611302905	ASE, Taiwan (G)	3300	3	0	
STRESS: HI-ACCEL SATURATION TEST, 130C, 5.5V, 60%RH, PRE COND 192 HR 30C/60%RH, MSL3							
CY8C4245AXI (8CC44200AC)	4251883	611303750	ASE, Taiwan (G)	128	77	0	
CY8C4245AXI (8CC44200AC)	4251883	611302905	ASE, Taiwan (G)	128	80	0	
CY8C4245AXI (8CC44200AC)	4251883	611302904	ASE, Taiwan (G)	128	80	0	

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Reliability Test Data

QTP #: 123808

<i>Device</i>	<i>Fab Lot #</i>	<i>Assy Lot #</i>	<i>Assy Loc</i>	<i>Duration</i>	<i>Samp</i>	<i>Rej</i>	<i>Failure Mechanism</i>
STRESS: HIGH TEMP STORAGE, 150C							
CY8C4245AXI (8CC44200AC)	4131065	611157091	ASE, Taiwan (G)	500	95	0	
CY8C4245AXI (8CC44200AC)	4131065	611157091	ASE, Taiwan (G)	1000	85	0	
CY8C4245AXI (8CC44200AC)	4131065	611157091	ASE, Taiwan (G)	1500	75	0	
CY8C4245AXI (8CC44200AC)	4131065	611157091	ASE, Taiwan (G)	2000	75	0	
CY8C4245AXI (8CC44200AC)	4131065	611157737	ASE, Taiwan (G)	500	95	0	
CY8C4245AXI (8CC44200AC)	4131065	611157737	ASE, Taiwan (G)	1000	75	0	
CY8C4245AXI (8CC44200AC)	4131065	611157737	ASE, Taiwan (G)	1500	75	0	
CY8C4245AXI (8CC44200AC)	4131065	611157739	ASE, Taiwan (G)	500	95	0	
CY8C4245AXI (8CC44200AC)	4131065	611157739	ASE, Taiwan (G)	1000	85	0	
CY8C4245AXI (8CC44200AC)	4131065	611157739	ASE, Taiwan (G)	1500	75	0	
CY8C4245AXI (8CC44200AC)	4131065	611157739	ASE, Taiwan (G)	2000	75	0	
CY8C4245AXI (8CC44200AC)	8052001	611157742	ASE, Taiwan (G)	500	95	0	
CY8C4245AXI (8CC44200AC)	8052001	611157742	ASE, Taiwan (G)	1000	85	0	
CY8C4245AXI (8CC44200AC)	8052001	611157742	ASE, Taiwan (G)	1500	75	0	
CY8C4245AXI (8CC44200AC)	2831581	611158148	ASE, Taiwan (G)	500	95	0	
CY8C4245AXI (8CC44200AC)	2831581	611158148	ASE, Taiwan (G)	1000	85	0	
CY8C4245AXI (8CC44200AC)	2831581	611158148	ASE, Taiwan (G)	1500	75	0	
STRESS: INTERNAL VISUAL							
CY8C4245AXI (8CC44200AC)	4251883	611303750	ASE, Taiwan (G)	COMP	1	0	
STRESS: PRESSURE COOKER TEST (121C, 100%RH), 15 Psig, PRE COND 192 HR 30C/60%RH (MSL3)							
CY8C4245AXI (8CC44200AC)	4251883	611303750	ASE, Taiwan (G)	168	77	0	
CY8C4245AXI (8CC44200AC)	4251883	611302905	ASE, Taiwan (G)	168	80	0	
CY8C4245AXI (8CC44200AC)	4251883	611302904	ASE, Taiwan (G)	168	80	0	
STRESS: POST 1000H HTS BALLSHEAR							
CY8C4245AXI (8CC44200AC)	4131065	611157091	ASE, Taiwan (G)	COMP	5	0	
CY8C4245AXI (8CC44200AC)	8052001	611157742	ASE, Taiwan (G)	COMP	5	0	
CY8C4245AXI (8CC44200AC)	2831581	611158148	ASE, Taiwan (G)	COMP	5	0	

Reliability Test Data

QTP #: 123808

<i>Device</i>	<i>Fab Lot #</i>	<i>Assy Lot #</i>	<i>Assy Loc</i>	<i>Duration</i>	<i>Samp</i>	<i>Rej</i>	<i>Failure Mechanism</i>
STRESS: POST 1000HTS WIREPULL							
CY8C4245AXI (8CC44200AC)	4131065	611157091	ASE, Taiwan (G)	COMP	5	0	
CY8C4245AXI (8CC44200AC)	8052001	611157742	ASE, Taiwan (G)	COMP	5	0	
CY8C4245AXI (8CC44200AC)	2831581	611158148	ASE, Taiwan (G)	COMP	5	0	
STRESS: POST MSL HTS BALLSHEAR							
CY8C4245AXI (8CC44200AC)	4131065	611157091	ASE, Taiwan (G)	COMP	1	0	
CY8C4245AXI (8CC44200AC)	8052001	611157742	ASE, Taiwan (G)	COMP	1	0	
CY8C4245AXI (8CC44200AC)	2831581	611158148	ASE, Taiwan (G)	COMP	1	0	
STRESS: POST MSL HTS WIREPUL							
CY8C4245AXI (8CC44200AC)	4131065	611157091	ASE, Taiwan (G)	COMP	1	0	
CY8C4245AXI (8CC44200AC)	8052001	611157742	ASE, Taiwan (G)	COMP	1	0	
CY8C4245AXI (8CC44200AC)	2831581	611158148	ASE, Taiwan (G)	COMP	1	0	
STRESS: STATIC LATCH-UP TESTING,							
CY8C4245AXI (8CC44200AC)	4251883	611302905	ASE, Taiwan (G)	85C, ±140mA	6	0	
CY8C4245AXI (8CC44200AC)	4251883	611302905	ASE, Taiwan (G)	85C, ±180mA	2	0	
CY8C4245AXI (8CC44200AC)	4251883	611302905	ASE, Taiwan (G)	125C, ±140mA	2	0	
STRESS: TC COND. C -65C TO 150C, PRECONDITION 192 HRS 30C/60%RH							
CY8C4245AXI (8CC44200AC)	4251883	611303750	ASE, Taiwan (G)	500	77	0	
CY8C4245AXI (8CC44200AC)	4251883	611302905	ASE, Taiwan (G)	500	80	0	
CY8C4245AXI (8CC44200AC)	4251883	611302904	ASE, Taiwan (G)	500	80	0	
STRESS: XRAY							
CY8C4245AXI (8CC44200AC)	4251883	611303750	ASE, Taiwan (G)	COMP	15	0	
CY8C4245AXI (8CC44200AC)	4251883	611302905	ASE, Taiwan (G)	COMP	15	0	
CY8C4245AXI (8CC44200AC)	4251883	611302904	ASE, Taiwan (G)	COMP	15	0	

Reliability Test Data

QTP #: 141404

Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: ACOUSTIC, MSL3							
CY8C4245AX(8CP44200AC)	4318437	611408847	ASEK, Taiwan	COMP	15	0	
CY8C4245AX(8CP44200AC)	4318437	611408848	ASEK, Taiwan	COMP	15	0	
CY8C4245AX(8CP44200AC)	4318437	611408849	ASEK, Taiwan	COMP	15	0	
STRESS: BALL SHEAR							
CY8C4245AX(8CP44200AC)	4318437	611408847	ASEK, Taiwan	COMP	10	0	
CY8C4245AX(8CP44200AC)	4318437	611408848	ASEK, Taiwan	COMP	10	0	
CY8C4245AX(8CP44200AC)	4318437	611408849	ASEK, Taiwan	COMP	10	0	
STRESS: BOND PULL							
CY8C4245AX(8CP44200AC)	4318437	611408847	ASEK, Taiwan	COMP	10	0	
CY8C4245AX(8CP44200AC)	4318437	611408848	ASEK, Taiwan	COMP	10	0	
CY8C4245AX(8CP44200AC)	4318437	611408849	ASEK, Taiwan	COMP	10	0	
STRESS: CONSTRUCTIONAL ANALYSIS							
CY8C4245AX(8CP44200AC)	4318437	611408847	ASEK, Taiwan	COMP	5	0	
CY8C4245AX(8CP44200AC)	4318437	611408848	ASEK, Taiwan	COMP	5	0	
CY8C4245AX(8CP44200AC)	4318437	611408849	ASEK, Taiwan	COMP	5	0	
STRESS: HI-ACCEL SATURATION TEST, 130C, 5.5V, 85%RH, PRE COND 192 HR 30C/60%RH, MSL3							
CY8C4245AX(8CP44200AC)	4318437	611408847	ASEK, Taiwan	128	80	0	
CY8C4245AX(8CP44200AC)	4318437	611408848	ASEK, Taiwan	128	80	0	
CY8C4245AX(8CP44200AC)	4318437	611408849	ASEK, Taiwan	128	80	0	
STRESS: HIGH TEMP STORAGE, 150C							
CY8C5468AXI(8C561001AC)	4304019	611314007	ASEK, Taiwan	500	80	0	
CY8C5468AXI(8C561001AC)	4304019	611314007	ASEK, Taiwan	1000	80	0	
CY8C5468AXI(8C561001AC)	4304019	611314009	ASEK, Taiwan	500	60	0	
CY8C5468AXI(8C561001AC)	4304019	611314009	ASEK, Taiwan	1000	60	0	
STRESS: INTERNAL VISUAL							
CY8C4245AX(8CP44200AC)	4318437	611408847	ASEK, Taiwan	COMP	5	0	
CY8C4245AX(8CP44200AC)	4318437	611408848	ASEK, Taiwan	COMP	5	0	
CY8C4245AX(8CP44200AC)	4318437	611408849	ASEK, Taiwan	COMP	5	0	

Reliability Test Data

QTP #: 141404

Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: PRESSURE COOKER TEST (121C, 100%RH), 15 Psig, PRE COND 192 HR 30C/60%RH (MSL3)							
CY8C4245AX(8CP44200AC)	4318437	611408847	ASEK, Taiwan	168	80	0	
CY8C4245AX(8CP44200AC)	4318437	611408847	ASEK, Taiwan	288	80	0	
CY8C4245AX(8CP44200AC)	4318437	611408848	ASEK, Taiwan	168	80	0	
CY8C4245AX(8CP44200AC)	4318437	611408848	ASEK, Taiwan	288	80	0	
CY8C4245AX(8CP44200AC)	4318437	611408849	ASEK, Taiwan	168	80	0	
CY8C4245AX(8CP44200AC)	4318437	611408849	ASEK, Taiwan	288	80	0	
STRESS: TC COND. C -65C TO 150C, PRE COND 192 HR 30C/60%RH, MSL3							
CY8C4245AX(8CP44200AC)	4318437	611408847	ASEK, Taiwan	500	80	0	
CY8C4245AX(8CP44200AC)	4318437	611408847	ASEK, Taiwan	1000	80	0	
CY8C4245AX(8CP44200AC)	4318437	611408848	ASEK, Taiwan	500	80	0	
CY8C4245AX(8CP44200AC)	4318437	611408848	ASEK, Taiwan	1000	80	0	
CY8C4245AX(8CP44200AC)	4318437	611408849	ASEK, Taiwan	500	80	0	
CY8C4245AX(8CP44200AC)	4318437	611408849	ASEK, Taiwan	1000	80	0	
STRESS: X-RAY							
CY8C4245AX(8CP44200AC)	4318437	611408847	ASEK, Taiwan	COMP	15	0	
CY8C4245AX(8CP44200AC)	4318437	611408848	ASEK, Taiwan	COMP	15	0	
CY8C4245AX(8CP44200AC)	4318437	611408849	ASEK, Taiwan	COMP	15	0	

Reliability Test Data

QTP #: 152603

<i>Device</i>	<i>Fab Lot #</i>	<i>Assy Lot #</i>	<i>Assy Loc</i>	<i>Duration</i>	<i>Samp</i>	<i>Rej</i>	<i>Failure Mechanism</i>
STRESS: ACOUSTICS							
CYAT81688 (8A206803AH)	5532014	611534015	ASEK-G	COMP	22	0	
CYAT81688 (8A206803AH)	5532014	611534014	ASEK-G	COMP	21	0	
CYAT81688 (8A206803AH)	5527014	611536506	ASEK-G	COMP	22	0	
STRESS: BALL SHEAR							
CYAT81688 (8A206803AH)	5532014	611534015	ASEK-G	COMP	150	0	
CYAT81688 (8A206803AH)	5532014	611534014	ASEK-G	COMP	150	0	
CYAT81688 (8A206803AH)	5527014	611536506	ASEK-G	COMP	150	0	
STRESS: BOND PULL							
CYAT81688 (8A206803AH)	5532014	611534015	ASEK-G	COMP	150	0	
CYAT81688 (8A206803AH)	5532014	611534014	ASEK-G	COMP	150	0	
CYAT81688 (8A206803AH)	5527014	611536506	ASEK-G	COMP	150	0	
STRESS: CONSTRUCTIONAL ANALYSIS							
CYAT81688 (8A206803AH)	5532014	611534014	ASEK-G	COMP	5	0	
STRESS: DYE PENETRANT							
CYAT81688 (8A206803AH)	5532014	611534015	ASEK-G	COMP	15	0	
CYAT81688 (8A206803AH)	5532014	611534014	ASEK-G	COMP	15	0	
CYAT81688 (8A206803AH)	5527014	611536506	ASEK-G	COMP	15	0	
STRESS: HIGH TEMP DYNAMIC OPERATING LIFE-EARLY FAILURE RATE, 150C, 2.07V, Vcc Max							
CYAT81688 (8A206803AH)	5527015	611534013	ASEK-G	48	3233	0	
CYAT81688 (8A206803AH)	5532014	611534015	ASEK-G	48	207	0	
CYAT81688 (8A206803AH)	5532014	611534014	ASEK-G	48	3424	0	
CYAT81688 (8A206803AH)	5527014	611536506	ASEK-G	48	3438	0	
STRESS: ESD-CHARGE DEVICE MODEL							
CYAT81688 (8A206803AH)	5532014	611534014	ASEK-G	250	3	0	
CYAT81688 (8A206803AH)	5532014	611534014	ASEK-G	500	3	0	
CYAT81688 (8A206803AH)	5532014	611534014	ASEK-G	750	3	0	

Reliability Test Data

QTP #: 152603

Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
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STRESS: ESD-HUMAN BODY CIRCUIT PER JESD22-A114-B

CYAT81688 (8A206803AH)	5532014	611534014	ASEK-G	500	3	0	
CYAT81688 (8A206803AH)	5532014	611534014	ASEK-G	1000	3	0	
CYAT81688 (8A206803AH)	5532014	611534014	ASEK-G	2000	3	0	
CYAT81688 (8A206803AH)	5532014	611534014	ASEK-G	4000	3	0	

STRESS: FINAL VISUAL

CYAT81688 (8A206803AH)	5532014	611534015	ASEK-G	COMP	1637	0	
CYAT81688 (8A206803AH)	5532014	611534014	ASEK-G	COMP	7761	0	
CYAT81688 (8A206803AH)	5527014	611536506	ASEK-G	COMP	7193	0	

STRESS: HI-ACCEL SATURATION TEST, 130C, 85%RH, 5.5V, PRE COND 192 HR 30C/60%RH, MSL3

CYAT81688 (8A206803AH)	5532014	611534015	ASEK-G	96	80	0	
CYAT81688 (8A206803AH)	5532014	611534014	ASEK-G	96	80	0	
CYAT81688 (8A206803AH)	5527014	611536506	ASEK-G	96	79	0	

STRESS: HIGH TEMP DYNAMIC OPERATING LIFE-LATENT FAILURE RATE, 150C, 2.07V, Vcc Max

CYAT81688 (8A206803AH)	5532014	611534015	ASEK-G	408	82	0	
CYAT81688 (8A206803AH)	5532014	611534014	ASEK-G	408	82	0	
CYAT81688 (8A206803AH)	5527014	611536506	ASEK-G	408	82	0	

STRESS: PRESSURE COOKER TEST, 121C, 100%RH, 15 Psig, PRE COND 192 HR 30C/60%RH, MSL3

CYAT81688 (8A206803AH)	5532014	611534015	ASEK-G	96	80	0	
CYAT81688 (8A206803AH)	5532014	611534015	ASEK-G	168	80	0	
CYAT81688 (8A206803AH)	5532014	611534014	ASEK-G	96	80	0	
CYAT81688 (8A206803AH)	5532014	611534014	ASEK-G	168	79	0	
CYAT81688 (8A206803AH)	5527014	611536506	ASEK-G	96	80	0	
CYAT81688 (8A206803AH)	5527014	611536506	ASEK-G	168	80	0	

Reliability Test Data

QTP #: 152603

<i>Device</i>	<i>Fab Lot #</i>	<i>Assy Lot #</i>	<i>Assy Loc</i>	<i>Duration</i>	<i>Samp</i>	<i>Rej</i>	<i>Failure Mechanism</i>
STRESS: PHYSICAL DIMENSION							
CYAT81688 (8A206803AH)	5532014	611534015	ASEK-G	COMP	10	0	
CYAT81688 (8A206803AH)	5532014	611534014	ASEK-G	COMP	10	0	
CYAT81688 (8A206803AH)	5527014	611536506	ASEK-G	COMP	10	0	
STRESS: POST TEMPERATURE CYCLE WIRE BOND PULL							
CYAT81688 (8A206803AH)	5532014	611534015	ASEK-G	500	5	0	
STRESS: PRE /POST LFR CRITICAL PARAMETER							
CYAT81688 (8A206803AH)	5532014	611534015	ASEK-G	COMP	80+2	0	
CYAT81688 (8A206803AH)	5532014	611534014	ASEK-G	COMP	80+2	0	
CYAT81688 (8A206803AH)	5527014	611536506	ASEK-G	COMP	80+2	0	
STRESS: SOLDERABILITY							
CYAT81688 (8A206803AH)	5532014	611534015	ASEK-G	COMP	15	0	
CYAT81688 (8A206803AH)	5532014	611534014	ASEK-G	COMP	15	0	
CYAT81688 (8A206803AH)	5527014	611536506	ASEK-G	COMP	15	0	
STRESS: TC COND. C -65C TO 150C, PRE COND 192 HRS 30C/60%RH, MSL3							
CYAT81688 (8A206803AH)	5532014	611534015	ASEK-G	500	84	0	
CYAT81688 (8A206803AH)	5532014	611534015	ASEK-G	1000	79	0	
CYAT81688 (8A206803AH)	5532014	611534014	ASEK-G	500	82	0	
CYAT81688 (8A206803AH)	5532014	611534014	ASEK-G	1000	81	0	
CYAT81688 (8A206803AH)	5527014	611536506	ASEK-G	500	85	0	
CYAT81688 (8A206803AH)	5527014	611536506	ASEK-G	1000	85	0	

Reliability Test Data

QTP #: 174303

<i>Device</i>	<i>Fab Lot #</i>	<i>Assy Lot #</i>	<i>Assy Loc</i>	<i>Duration</i>	<i>Samp</i>	<i>Rej</i>	<i>Failure Mechanism</i>
STRESS: ACOUSTIC, MSL3							
CY8C4125AXI2 (8CP46003B)	3710134	611740357	G-TAIWAN	COMP	77	0	
STRESS: BALL SHEAR							
CY8C4125AXI2 (8CP46003B)	3710134	611740357	G-TAIWAN	COMP	5	0	
STRESS: BOND PULL							
CY8C4125AXI2 (8CP46003B)	3710134	611740357	G-TAIWAN	COMP	5	0	
STRESS: CONSTRUCTIONAL ANALYSIS							
CY8C4125AXI2 (8CP46003B)	3710134	611740357	G-TAIWAN	COMP	5	0	
STRESS: FINAL VISUAL							
CY8C4125AXI2 (8CP46003B)	3710134	611740357	G-TAIWAN	COMP	1705	0	
STRESS: PHYSICAL DIMENSION							
CY8C4125AXI2 (8CP46003B)	3710134	611740357	G-TAIWAN	COMP	30	0	
STRESS: X-RAY							
CY8C4125AXI2 (8CP46003B)	3710134	611740357	G-TAIWAN	COMP	160	0	

Reliability Test Data

QTP #: 174402

<i>Device</i>	<i>Fab Lot #</i>	<i>Assy Lot #</i>	<i>Assy Loc</i>	<i>Duration</i>	<i>Samp</i>	<i>Rej</i>	<i>Failure Mechanism</i>
STRESS: ACOUSTIC, MSL3							
CP5788EM (7C531200D)	4731099	611738726	G-TAIWAN	COMP	285	0	
STRESS: BALL SHEAR							
CP5788EM (7C531200D)	4731099	611738726	G-TAIWAN	COMP	100	0	
STRESS: BOND PULL							
CP5788EM (7C531200D)	4731099	611738726	G-TAIWAN	COMP	100	0	
STRESS: X-RAY							
CP5788EM (7C531200D)	4731099	611738726	G-TAIWAN	COMP	15	0	
STRESS: ESD-CHARGE DEVICE MODEL, 500V							
CP5788EM (7C531200D)	4731099	611738726	G-TAIWAN	COMP	15	0	
STRESS: HI-ACCEL SATURATION TEST, 130C, 85%RH, PRE COND 192 HR 30C/60%RH, MSL3							
CP5788EM (7C531200D)	4731099	611738726	G-TAIWAN	96hrs	77	0	
STRESS: HIGH TEMP STORAGE, 150C							
CP5788EM (7C531200D)	4731099	611738726	G-TAIWAN	500hrs	45	0	
CP5788EM (7C531200D)	4731099	611738726	G-TAIWAN	1000hrs	45	0	
STRESS: TC COND. D -55C TO 125C, PRECONDITION 192 HRS 30C/60%RH							
CP5788EM (7C531200D)	4731099	611738726	G-TAIWAN	500cyc	77	0	
CP5788EM (7C531200D)	4731099	611738726	G-TAIWAN	1000cyc	77	0	
STRESS: PRESSURE COOKER TEST (121C, 100%RH), 15 Psig, PRE COND 192 HR 30C/60%RH (MSL3)							
CP5788EM (7C531200D)	4731099	611738726	G-TAIWAN	168hrs	77	0	
STRESS: Tin Whisker Test							
CP5788EM (7C531200D)	4731099	611738726	G-TAIWAN	COMP	18	0	
STRESS: Dye Penetrant Test							
CP5788EM (7C531200D)	4731099	611738726	G-TAIWAN	COMP	15	0	

Document History Page

Document Title: QTP#174402 : Qualification of ASEK for 44L-TQFP (10x 10 x 1.4mm) package at MSL3, 260C
Reflow Temperature
Document Number: 002-23231

Rev.	ECN No.	Orig. of Change	Description of Change
**	6088828	EKNG	Initial spec release.
*A	6094877	EKNG	Update Reliability Test Summary Table and Test Data

PACKAGE MATERIAL DECLARATION DATASHEET

Cypress Package Code	AZ	Body Size (mil/mm)	14 x 20 mm
Package Weight – Site 1	B1 : 936.0100 mg B2 : 887.0200 mg B3: 1097.9804 mg B4: 918.3334 mg	Package Weight – Site 2	B1: 942.0000 mg B2: 939.5877 mg *** B3: 942.5000 mg B4: 933.3968 mg B5: 933.0000 mg
Package Weight – Site 3	B1: 887.0200 mg B2: 841.5800 mg		

SUMMARY

The 100L-TQFP package is qualified at three 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 # 040806, 062603, 112602, 125105, 150503 (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-AZ100-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

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.



**100L –TQFP (14 x 20 mm)
Pb-Free Package**

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 NiPdAu with Standard Molding Compound

Material	Purpose of Use	Substance Composition	CAS Number	Weight by mg	% Weight of Substance per Homogenous Material	PPM	% Weight of Substance per Package
Leadframe	Base Material	Cu	7440-50-8	107.9120	94.0000%	115,289	11.5289%
		Mg	7439-95-4	0.1607	0.1400%	172	0.0172%
		Si	7440-21-3	1.2628	1.1000%	1,349	0.1349%
		Ni	7440-02-0	4.0869	3.5600%	4,366	0.4366%
		Fe	7439-89-6	0.2296	0.2000%	245	0.0245%
		Zn	7440-66-6	1.1480	1.0000%	1,226	0.1226%
Lead Finish	External Plating	Ni	7440-02-0	0.1875	93.7400%	200	0.0200%
		Pd	7440-05-3	0.0095	4.7400%	10	0.0010%
		Au	7440-57-5	0.0031	1.5200%	3	0.0003%
Die Attach	Adhesive	Ag	7440-22-4	1.9900	78.0400%	2,126	0.2126%
		Bismaleimide	-----	0.2800	10.9800%	299	0.0299%
		Polymer	-----	0.1499	5.8800%	160	0.0160%
		Methacrylate	-----	0.0500	1.9600%	54	0.0053%
		Acylate ester	-----	0.0500	1.9600%	54	0.0053%
		Organic Peroxide	-----	0.0301	1.1800%	32	0.0032%
Die	Circuit	Si	7440-21-3	35.7000	100.0000%	38,141	3.8141%
Wire	Interconnect	Au	7440-57-5	3.1300	100.0000%	3,344	0.3344%
Mold Compound	Encapsulation	SiO ₂	60676-86-0	686.0744	88.0000%	732,978	73.2978%
		Epoxy Resin	-----	38.9815	5.0000%	41,646	4.1646%
		Phenol Resin	-----	38.9815	5.0000%	41,646	4.1646%
		Brominated Epoxy Resin	-----	6.2370	0.8000%	6,664	0.6663%
		Antimony Trioxide	1309-64-4	3.1185	0.4000%	3,332	0.3332%
		Others	-----	6.2370	0.8000%	6,664	0.6663%

Package Weight (mg): 936.0100

% 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 NiPdAu with Green Molding Compound

Material	Purpose of Use	Substance Composition	CAS Number	Weight by mg	% Weight of Substance per Homogenous Material	PPM	% Weight of Substance per Package
Leadframe	Based Material	Cu	7440-50-8	147.1668	96.2000%	165,911	16.5911%
		Si	7440-21-3	0.9943	0.6500%	1,121	0.1121%
		Mg	7439-95-4	0.2295	0.1500%	259	0.0259%
		Ni	7440-02-0	4.5894	3.0000%	5,174	0.5174%
Lead Finish	External Plating	Ni	7440-02-0	1.8500	96.8600%	2,086	0.2086%
		Pd	7440-05-3	0.0300	1.5700%	34	0.0034%
		Au	7440-57-5	0.0300	1.5700%	34	0.0034%
Die Attach	Adhesive	Ag	7440-22-4	6.2203	79.8500%	7,013	0.7013%
		Bismaleimide	-----	0.7003	8.9900%	789	0.0790%
		Polymer	-----	0.3903	5.0100%	440	0.0440%
		Methacrylate	-----	0.1597	2.0500%	180	0.0180%
		Acylate ester	-----	0.1597	2.0500%	180	0.0180%
		Organic Peroxide	-----	0.1597	2.0500%	180	0.0180%
Die	Circuit	Si	7440-21-3	108.7900	100.0000%	122,647	12.2647%
Wire	Interconnect	Au	7440-57-5	2.6100	100.0000%	2,942	0.2942%
Mold Compound	Encapsulation	Silica	60676-86-0	545.5166	89.0000%	614,999	61.4999%
		Epoxy Resin	-----	36.7764	6.0000%	41,461	4.1461%
		Phenol Resin	-----	30.6470	5.0000%	34,550	3.4551%

Package Weight (mg): 887.0200

% 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.

B3. MATERIAL COMPOSITION (Note 3)

Using Copper wire with NiPdAu and Kyocera Molding Compound

Material	Purpose of Use	Substance Composition	CAS Number	Weight by mg	% Weight of Substance per Homogenous Material	PPM	% Weight of Substance per Package
Leadframe	Based Material	Cu	7440-50-8	184.7981	97.4100	168,307	16.8307
		Si	7440-21-3	4.5531	2.4000	4,147	0.4147
		Mg	7439-95-4	0.1328	0.0700	121	0.0121
		Ni	7440-02-0	0.2277	0.1200	207	0.0207
Lead Finish	External Plating	Ni	7440-02-0	2.2862	96.5200	2,082	0.2082
		Pd	7440-05-3	0.0412	1.7400	38	0.0038
		Au	7440-57-5	0.0412	1.7400	38	0.0038
Die Attach	Adhesive	Ag	7440-22-4	7.7283	80.0000	7,039	0.7039
		Bismaleimide	-----	0.8694	9.0000	792	0.0792
		Polymer	-----	0.4830	5.0000	440	0.0440
		Methacrylate	-----	0.1932	2.0000	176	0.0176
		Acylate ester	-----	0.1932	2.0000	176	0.0176
		Organic Peroxide	-----	0.1932	2.0000	176	0.0176
Die	Circuit	Si	7440-21-3	134.9113	100.0000	122,872	12.2872
Wire	Interconnect	Cu	7440-50-8	1.2171	100.0000	1,108	0.1108
Mold Compound	Encapsulation	SiO2	60676-86-0	676.4991	89.0000	616,130	61.6130
		Phenol Resin	-----	38.0056	5.0000	34,614	3.4614
		Epoxy Resin	-----	43.7064	5.7500	39,806	3.9806
		Carbon Black	1333-86-4	1.9003	0.2500	1,731	0.1731

Package Weight (mg): 1097.9804

% 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.

B4. MATERIAL COMPOSITION (Note 3)

Using NiPdAu with Green Molding Compound

Material	Purpose of Use	Substance Composition	CAS Number	Weight by mg	% Weight of Substance per Homogenous Material	PPM	% Weight of Substance per Package
Leadframe	Based Material	Cu	7440-50-8	233.7660	96.2000%	254,555	25.4555%
		Si	7440-21-3	1.5795	0.6500%	1,720	0.1720%
		Mg	7439-95-4	0.3645	0.1500%	397	0.0397%
		Ni	7440-02-0	7.2900	3.0000%	7,938	0.7938%
Lead Finish	External Plating	Ni	7440-02-0	2.9382	96.8600%	3,199	0.3199%
		Pd	7440-05-3	0.0476	1.5700%	52	0.0052%
		Au	7440-57-5	0.0476	1.5700%	52	0.0052%
Die Attach	Adhesive	Ag	7440-22-4	8.1447	79.8500%	8,869	0.8869%
		Bismaleimide	-----	0.9170	8.9900%	999	0.0999%
		Polymer	-----	0.5110	5.0100%	556	0.0556%
		Methacrylate	-----	0.2091	2.0500%	228	0.0228%
		Acylate ester	-----	0.2091	2.0500%	228	0.0228%
		Organic Peroxide	-----	0.2091	2.0500%	228	0.0228%
Die	Circuit	Si	7440-21-3	21.1000	100.0000%	22,976	2.2976%
Wire	Interconnect	Cu	7440-50-8	2.7000	99.0000%	2,940	0.2940%
		Pd	7440-05-3	0.3000	1.0000%	327	0.0327%
Mold Compound	Encapsulation	Silica	60676-86-0	567.8200	89.0000%	618,316	61.8316%
		Epoxy Resin	-----	38.2800	6.0000%	41,684	4.1684%
		Phenol Resin	-----	31.9000	5.0000%	34,737	3.4737%

Package Weight (mg): 918.3334

% 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	< 2.0	< 2.0	< 2.0	< 2.0	< 50.00	< 45.00	CoA-COVT-R
	Carrier tape	< 2.0	< 2.0	< 2.0	< 2.0	< 50.00	< 45.00	CoA-CART-R
	Plastic Reel	< 5.0	< 5.0	< 5.0	< 10.0	< 50.0	< 45.0	CoA-PLRL-R
Tray	Tray	< 2.0	< 2.0	< 2.0	< 2.0	< 0.0005	< 0.0005	CoA-TRAY-R
Others	Moisture Barrier Bag	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 5.0	CoA-MBBG –R

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: Advanced Semiconductor Engineering Taiwan (ASET)
Package Qualification Report # 034101, 120201, 152602, 174605, 174610 (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-100AZ-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 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.



100L –TQFP (14 x 20 mm) Pb-Free Package

B1. MATERIAL COMPOSITION (Note 3)

Using Gold Wire

Material	Purpose of Use	Substance Composition	CAS Number	Weight by mg	% Weight of Substance per Homogenous Material	PPM	% Weight of Substance per Package
Leadframe	Base Material	Cu	7440-50-8	227.9492	94.1900%	241,985	24.1984%
		Ni	7440-02-0	7.0667	2.9200%	7,502	0.7502%
		Si	7440-21-3	1.5247	0.6300%	1,619	0.1619%
		Mg	7439-95-4	0.3872	0.1600%	411	0.0411%
		Ag	7440-22-4	5.0822	2.1000%	5,395	0.5395%
Lead Finish	External Plating	Pure Sn	7440-31-5	16.4900	100.0000%	17,505	1.7505%
Die Attach	Adhesive	Ag	7440-22-4	2.4502	72.4900%	2,601	0.2601%
		Epoxy Resin	Proprietary	0.6601	19.5300%	701	0.0701%
		Cu	7440-50-8	0.0899	2.6600%	95	0.0095%
		Gamma-Butyrolactone	-----	0.0899	2.6600%	95	0.0095%
		Aromatic Hydrocarbons	-----	0.0899	2.6600%	95	0.0095%
Die	Circuit	Si	7440-21-3	20.7200	100.0000%	21,996	2.1996%
Wire	Interconnect	Au	7440-57-5	4.5200	100.0000%	4,798	0.4798%
Mold Compound	Encapsulation	Epoxy Resin	85954-11-6	32.7440	5.0000%	34,760	3.4760%
		Phenol Resin	26834-02-6	26.1952	4.0000%	27,808	2.7808%
		SiO2	60676-86-0	579.5033	88.4900%	615,184	61.5184%
		Aromatic Phosphate	139189-30-3	9.8232	1.5000%	10,428	1.0428%
		Others	-----	6.6143	1.0100%	7,022	0.7022%

Package Weight (mg): **942.0000**

% 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". 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 Homogenous Material	PPM	% Weight of Substance per Package
Leadframe	Base Material	Cu	7440-50-8	227.9492	94.1900%	242,606	24.2606%
		Ni	7440-02-0	7.0667	2.9200%	7,521	0.7521%
		Si	7440-21-3	1.5247	0.6300%	1,623	0.1623%
		Mg	7439-95-4	0.3872	0.1600%	412	0.0412%
		Ag	7440-22-4	5.0822	2.1000%	5,409	0.5409%
Lead Finish	External Plating	Sn	7440-31-5	16.4900	100.0000%	17,550	1.7550%
Die Attach	Adhesive	Ag	7440-22-4	2.5012	74.0000%	2,662	0.2662%
		Epoxy resin A	9003-36-5	0.1352	4.0000%	144	0.0144%
		Epoxy resin B	Trade Secret	0.2028	6.0000%	216	0.0216%
		Diluent A	Trade Secret	0.1352	4.0000%	144	0.0144%
		Diluent B	Trade Secret	0.2028	6.0000%	216	0.0216%
		Phenolic Hardener	Trade Secret	0.1690	5.0000%	180	0.0180%
		Dicyandiamide	461-58-5	0.0169	0.5000%	18	0.0018%
		Organic peroxide	Trade Secret	0.0169	0.5000%	18	0.0018%
Die	Circuit	Si	7440-21-3	20.7200	100.0000%	22,052	2.2052%
Wire	Interconnect	Copper	7440-50-8	2.1078	100.0000%	2,243	0.2243%
Mold Compound	Encapsulation	Epoxy resin A	Trade Secret	32.7440	5.0000%	34,849	3.4849%
		Epoxy,Cresol Novolac	29690-82-2	32.7440	5.0000%	34,849	3.4849%
		Phenol resin	Trade Secret	32.7440	5.0000%	34,849	3.4849%
		Metal Hydroxide	Trade Secret	32.7440	5.0000%	34,849	3.4849%
		Carbon Black	1333-86-4	1.9646	0.3000%	2,091	0.2091%
		Silica Fused A	60676-86-0	454.4867	69.4000%	483,709	48.3709%
		Silica Fused B	7631-86-9	65.4880	10.0000%	69,699	6.9699%
		Silica,crystalline	14808-60-7	1.9646	0.3000%	2,091	0.2091%

Package Weight (mg): 939.5877

% 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.

B3. MATERIAL COMPOSITION (Note 3)

Using Copper Palladium Wire, Sumitomo Die Attach and Mold Compound

Material	Purpose of Use	Substance Composition	CAS Number	Weight by mg	% Weight of Substance per Homogenous Material	PPM	% Weight of Substance per Package
Leadframe	Base Material	Cu	7440-50-8	321.3000	91.8000%	341,264	34.1264%
		Ni	7440-02-0	11.2000	3.2000%	11,896	1.1896%
		Si	7440-21-3	4.2000	1.2000%	4,461	0.4461%
		Mg	7439-95-4	1.0500	0.3000%	1,115	0.1115%
		Ag	7440-22-4	12.2500	3.5000%	13,011	1.3011%
Lead Finish	External Plating	Sn	7440-31-5	16.6000	100.0000%	17,632	1.7632%
Die Attach	Adhesive	Ag	7440-22-4	3.9050	78.1000%	4,148	0.4148%
		Epoxy resin A	9003-36-5	0.2000	4.0000%	212	0.0212%
		Epoxy resin B	Trade Secret	0.2000	4.0000%	212	0.0212%
		Diluent A	Trade Secret	0.2000	4.0000%	212	0.0212%
		Diluent B	Trade Secret	0.2000	4.0000%	212	0.0212%
		Phenolic Hardener	Trade Secret	0.2500	5.0000%	266	0.0266%
		Dicyandiamide	461-58-5	0.0150	0.3000%	16	0.0016%
		Organic peroxide	Trade Secret	0.0300	0.6000%	32	0.0032%
Die	Circuit	Si	7440-21-3	18.1000	100.0000%	19225	1.9225%
Wire	Interconnect	Copper	7440-50-8	0.7752	96.9000%	823	0.0823%
		Palladium	7440-05-3	0.0248	3.1000%	26	0.0026%
Mold Compound	Encapsulation	Epoxy resin A	Trade Secret	16.5300	3.0000%	17,557	1.7557%
		Epoxy Resin B	Trade Secret	16.5300	3.0000%	17,557	1.7557%
		Phenol resin	Trade Secret	27.5500	5.0000%	29,262	2.9262%
		Carbon Black	1333-86-4	1.6530	0.3000%	1,756	0.1756%
		Silica Fused A	60676-86-0	459.5340	83.4000%	488,087	48.8087%
		Silica Fused B	7631-86-9	27.5500	5.0000%	29,262	2.9262%
		Silica, crystalline	14808-60-7	1.6530	0.3000%	1,756	0.1756%

Package Weight (mg): 941.5000
% 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.

B4. MATERIAL COMPOSITION (Note 3)

Using Golden Wire, Sumitomo Die Attach and Mold Compound

Material	Purpose of Use	Substance Composition	CAS Number	Weight by mg	% Weight of Substance per Homogenous Material	PPM	% Weight of Substance per Package
Leadframe	Base Material	Cu	7440-50-8	249.9893	94.3000%	267,827	26.7827%
		Ni	7440-02-0	4.9574	1.8700%	5,311	0.5311%
		Si	7440-21-3	2.2533	0.8500%	2,414	0.2414%
		Mg	7439-95-4	0.4772	0.1800%	511	0.0511%
		Ag	7440-22-4	7.4228	2.8000%	7,952	0.7952%
Lead Finish	External Plating	Pure Sn	7440-31-5	20.2980	100.0000%	21,746	2.1746%
Die Attach	Adhesive	Ag	7440-22-4	1.7078	74.2500%	1,830	0.1830%
		Epoxy Resin A	9003-36-5	0.0920	4.0000%	99	0.0099%
		Epoxy Resin B	Trade Secret	0.1380	6.0000%	148	0.0148%
		Diluent A	Trade Secret	0.0920	4.0000%	99	0.0099%
		Diluent B	Trade Secret	0.1380	6.0000%	148	0.0148%
		Hardener	Trade Secret	0.1150	5.0000%	123	0.0123%
		Dicyandiamide	461-58-5	0.0058	0.2500%	6	0.0006%
		Organic peroxide	Trade Secret	0.0115	0.5000%	12	0.0012%
Die	Circuit	Si	7440-21-3	11.6000	100.0000%	12,428	1.2428%
Wire	Interconnect	Au	7440-57-5	1.5987	100.0000%	1,713	0.1713%
Mold Compound	Encapsulation	Epoxy Resin A	Trade secret	18.9750	3.0000%	20,329	2.0329%
		Epoxy Resin B	Trade secret	18.9750	3.0000%	20,329	2.0329%
		Phenol Resin	Trade secret	50.6000	8.0000%	54,210	5.4210%
		Carbon Black	1333-86-4	2.5300	0.4000%	2,711	0.2711%
		Silica(Amorphous) A	60676-86-0	464.2550	73.4000%	497,381	49.7381%
		Silica(Amorphous) B	7631-86-9	77.1650	12.2000%	82,671	8.2671%

Package Weight (mg): 933.3968

% 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.



100L –TQFP (14 x 20 mm) Pb-Free Package

B5. MATERIAL COMPOSITION (Note 3)

Using Copper- Palladium-Golden Wire, Sumitomo Die Attach and Mold Compound

Material	Purpose of Use	Substance Composition	CAS Number	Weight by mg	% Weight of Substance per Homogenous Material	PPM	% Weight of Substance per Package
Leadframe	Base Material	Cu	7440-50-8	249.9893	94.3000%	268,800	26.8800%
		Ni	7440-02-0	4.9574	1.8700%	5,332	0.5332%
		Si	7440-21-3	2.2533	0.8500%	2,423	0.2423%
		Mg	7439-95-4	0.4772	0.1800%	513	0.0513%
		Ag	7440-22-4	7.4228	2.8000%	7,981	0.7981%
Lead Finish	External Plating	Pure Sn	7440-31-5	17.4982	100.0000%	18,815	1.8815%
Die Attach	Adhesive	Ag	7440-22-4	1.7078	74.2500%	1,836	0.1836%
		Epoxy Resin A	9003-36-5	0.0920	4.0000%	99	0.0099%
		Epoxy Resin B	Trade Secret	0.1380	6.0000%	148	0.0148%
		Diluent A	Trade Secret	0.0920	4.0000%	99	0.0099%
		Diluent B	Trade Secret	0.1380	6.0000%	148	0.0148%
		Hardener	Trade Secret	0.1150	5.0000%	124	0.0124%
		Dicyandiamide	461-58-5	0.0058	0.2500%	6	0.0006%
		Organic peroxide	Trade Secret	0.0115	0.5000%	12	0.0012%
Die	Circuit	Si	7440-21-3	11.6000	100.0000%	12,473	1.2473%
Wire	Interconnect	Cu	7440-50-8	0.9959	97.6400%	1,071	0.1071%
		Pd	7440-05-3	0.0204	2.0000%	22	0.0022%
		Au	7440-57-5	0.0036	0.3500%	4	0.0004%
Mold Compound	Encapsulation	Epoxy Resin A	Trade secret	18.9750	3.0000%	20,403	2.0403%
		Epoxy Resin B	Trade secret	18.9750	3.0000%	20,403	2.0403%
		Phenol Resin	Trade secret	50.6000	8.0000%	54,407	5.4407%
		Carbon Black	1333-86-4	2.5300	0.4000%	2,720	0.2720%
		Silica(Amorphous) A	60676-86-0	464.2550	73.4000%	499,188	49.9188%
		Silica(Amorphous) B	7631-86-9	77.1650	12.2000%	82,971	8.2971%

Package Weight (mg): **930.0000**

% 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". 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.



100L –TQFP (14 x 20 mm) Pb-Free Package

ASSEMBLY Site 3: Jiangsu Changjiang Electronics Technology (JCET) Package Qualification Report # 110909, 111803, 141302 (Note 1)

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-AZ100- 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 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.



100L –TQFP (14 x 20 mm) 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 Homogenous Material	PPM	% Weight of Substance per Package
Leadframe	Based Material	Cu	7440-50-8	147.1668	96.2000%	165,911	16.5911%
		Si	7440-21-3	0.9943	0.6500%	1,121	0.1121%
		Mg	7439-95-4	0.2295	0.1500%	259	0.0259%
		Ni	7440-02-0	4.5894	3.0000%	5,174	0.5174%
Lead Finish	External Plating	Ni	7440-02-0	1.8500	96.8600%	2,086	0.2086%
		Pd	7440-05-3	0.0300	1.5700%	34	0.0034%
		Au	7440-57-5	0.0300	1.5700%	34	0.0034%
Die Attach	Adhesive	Ag	7440-22-4	6.2203	79.8500%	7,013	0.7013%
		Bismaleimide	-----	0.7003	8.9900%	789	0.0789%
		Polymer	-----	0.3903	5.0100%	440	0.0440%
		Methacrylate	-----	0.1597	2.0500%	180	0.0180%
		Acylate ester	-----	0.1597	2.0500%	180	0.0180%
		Organic Peroxide	-----	0.1597	2.0500%	180	0.0180%
Die	Circuit	Si	7440-21-3	108.7900	100.0000%	122,647	12.2647%
Wire	Interconnect	Au	7440-57-5	2.6100	100.0000%	2,942	0.2942%
Mold Compound	Encapsulation	Silica	60676-86-0	545.5166	89.0000%	614,999	61.4999%
		Epoxy Resin	-----	36.7764	6.0000%	41,461	4.1461%
		Phenol Resin	-----	30.6470	5.0000%	34,550	3.4550%

Package Weight (mg): **887.0200**

% 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.



100L –TQFP (14 x 20 mm) Pb-Free Package

B2.USING COPPER PALLADIUM WIRE

Material	Purpose of Use	Substance Composition	CAS Number	Weight by mg	% weight of substance per Homogeneous us	PPM	%% Weight of Substance per package
Leadframe	Base Material	Nickel	7440-02-0	4.4000	2.2000%	5,228	0.5228%
		Silicon	7440-21-3	0.9000	0.4500%	1,069	0.1069%
		Magnesium	7439-95-4	0.3000	0.1500%	356	0.0356%
		Silver	7440-22-4	4.6000	2.3000%	5,466	0.5466%
		Copper	7440-50-8	189.8000	94.9000%	225,528	22.5528%
Lead Finish	External Plating	Tin	7440-31-5	15.0000	100.0000%	17,824	1.7824%
Die Attach	Adhesive	Silver	7440-22-4	6.2203	79.8500%	7,391	0.7391%
		Proprietary Bismaleimide	Proprietary	0.7003	8.9900%	832	0.0832%
		Proprietary Polymer	Proprietary	0.3903	5.0100%	464	0.0464%
		Methacrylate	Proprietary	0.1597	2.0500%	190	0.0190%
		Acrylate Ester	Proprietary	0.1597	2.0500%	190	0.0190%
		Organic Peroxide	Proprietary	0.1597	2.0500%	190	0.0190%
Die	Circuit	Silicon	7440-21-3	108.7900	100.0000%	129,269	12.9269%
Wire	Interconnect	Copper	7440-50-8	4.9125	98.2500%	5,837	0.5837%
		Palladium	7440-05-3	0.0875	1.7500%	104	0.0104%
Mold Compound	Encapsulation	Epoxy Resin A	Trade Secret	15.1500	3.0000%	18,002	1.8002%
		Epoxy Resin B	Trade Secret	15.1500	3.0000%	18,002	1.8002%
		Phenol Resin	Trade Secret	25.2500	5.0000%	30,003	3.0003%
		Silica(Amorphous)	60676-86-0	447.9350	88.7000%	532,255	53.2255%
		Carbon Black	1333-86-4	1.5150	0.3000%	1,800	0.1800%

Package Weight (mg): **841.5800**

% 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.



100L –TQFP (14 x 20 mm) Pb-Free Package

II. DECLARATION OF PACKAGING / INDIRECT MATERIALS

Type	Material	Lead PPM	Cadmium PPM	Cr VI PPM	Mercury PPM	PBB PPM	PBDE PPM	Analysis Report (Note2)
Tape & Reel	Cover tape	< 2.0	< 2.0	< 2.0	< 2.0	< 50.00	< 45.00	CoA-COVT-R
	Carrier tape	< 2.0	< 2.0	< 2.0	< 2.0	< 50.00	< 45.00	CoA-CART-R
	Plastic Reel	< 5.0	< 5.0	< 5.0	< 10.0	<50.0	<45.0	CoA-PLRL-R
Tray	Tray	< 2.0	< 2.0	< 2.0	< 2.0	< 0.0005	< 0.0005	CoA-TRAY-R
Others	Moisture Barrier Bag	<2.0	<2.0	<2.0	<2.0	<5.0	<5.0	CoA-MBBG –R

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.

Document History Page

Document Title: 100L-TQFP 14X20MM PB-FREE PACKAGE MATERIAL DECLARATION
DATASHEET
Document Number: 001-04358

Rev.	ECN No.	Orig. of Change	Description of Change
**	391439	GFJ	New document
*A	494016	ERI	Added 1. Add QTP Reference 062603 2. B1 : NiPdAu with Standard Molding Compound 3. B2 : NiPdAu with Green Molding Compound
*B	513923	ERI	Corrected Table B2; Removed values for Br and Sb
*C	2581994	JARG	Added column for %weight of substance per homogeneous material in material composition tables 1, 2 and 3. Updated and added Lead, Cr+VI, PBB and PBDE on the Declaration of Packaging/Indirect Materials table assembly sites 1 and 2. Updated Cypress Logo. Add CAS number for Antimony Trioxide in material composition table 1. Added Note 4: Actual testing performed on package family basis. Engineering calculations were applied to derive individual package data.
*D	3219040	REYD	Added Assembly Site 3 – JCET
*E	3342623	HLR	Added Reference QTP No. 112602 on Assembly Site 1.
*F	3412074	JARG	Updated Material Composition Tables for Assembly Site 1 - Tables B1 and B2, Assembly Site 2 - Table B and Assembly Site 3 – Table B to reflect 4 decimal places on values.
*G	3453706	NKZ	Added Automotive QTP reference 111803 in assembly 3.
*H	3645691	COPI	Added PMDD B2 for assembly site 2 – ASE Taiwan Copper wire qualification under QTP # 120201.
*I	3805192	JARG	Assembly Site 3: Corrected material composition table to meet the total of 100.0000% weight of substance per package.

Document History Page

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



100L –TQFP (14 x 20 mm) Pb-Free Package

Document Title: 100L-TQFP14X20MM PB-FREE PACKAGE MATERIAL DECLARATION
DATASHEET
Document Number: 001-04358

Rev.	ECN No.	Orig. of Change	Description of Change
*J	4075211	YUM	Added assembly site name in the Assembly heading in site 1, 2 and 3. Changed Assembly Code to Assembly Site Name in site 1, 2 and 3. Removed entire Tube row in the Indirect Materials Section.
*K	4081278	UDR/YUM	Added B3 on Package Weight - Site 1. Added QTP # 125105 on Assembly Site 1 Package Qualification Reports. Added B3 on Assembly Site 1 Material Composition.
*L	4327794	REYD	Added PMDD for Assembly Site 3-B2 – JCET Copper Qualification under QTP # 141302. Added subsections under Assembly Site 3-B: B1.USING GOLD WIRE and B2.USING COPPER PALLADIUM WIRE under Assembly Site 3-B. Transferred Material Composition Table under Assembly Site 3-B to 3-B1.
*M	4404935	REYD	Added B2 value in the Package Weight- Site 3. Updated Material Composition Table under Assembly Site 3-B2.
*N	4722722	RODP	Added B4 on Package Weight - Site 1. Added QTP # 150503 on Assembly Site 1 Package Qualification Reports. Added B4 on Assembly Site 1 Material Composition.
*O	5004871	CS DCON	Sunset Review - Added Site 2 Package B3 Weight, QTP152602 and Material Composition table. Also updated the summary from two assemble sites to 3. Removed distribution and posting in the document history page.
*P		SUHU	Added B4 and B5 value in the Package Weight- Site 2. Updated Material Composition Table under Assembly Site 2- B4 and B5

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

PACKAGE MATERIAL DECLARATION DATASHEET

Cypress Package Code	AZ	Body Size (mil/mm)	14 x 14 mm
Package Weight – Site 1	B1: 569.9900 mg B2: 660.0100 mg B3: 644.9998 mg B4: 657.2885 mg B5 : 632.8000 mg	Package Weight – Site 2	B1: 661.0004 mg B2: 658.6038 mg B3: 668.7599 mg B4: 670.2265 mg
Package Weight – Site 3	B1: 660.0100 mg B2: 651.0699 mg		

SUMMARY

The 100L-TQFP package is qualified at three 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 # 040806, 052805, 062603, 112302, 133307, 125105, 134503, 152607 (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-AZ100-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

B. MATERIAL COMPOSITION (Note 3)

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: NiPdAu with Standard Mold 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	39.7595	96.2000%	69,755	6.9755
		Mg	7439-95-4	0.2686	0.6500%	471	0.0471
		Si	7440-21-3	0.0620	0.1500%	109	0.0109
		Ni	7440-02-0	1.2399	3.0000%	2,175	0.2175
Lead Finish	External Plating	Ni	7440-02-0	0.1930	96.5200%	339	0.0339
		Pd	7440-05-3	0.0035	1.7400%	6	0.0006
		Au	7440-57-5	0.0035	1.7400%	6	0.0006
Die Attach	Adhesive	Ag	7440-22-4	0.8300	78.3000%	1,456	0.1456
		Bismaleimide	Trade Secret	0.1200	11.3200%	211	0.0211
		Polymer	Trade Secret	0.0600	5.6600%	105	0.0105
		Methacrylate	Trade Secret	0.0200	1.8900%	35	0.0035
		Acylate ester	Trade Secret	0.0200	1.8900%	35	0.0035
		Organic Peroxide	Trade Secret	0.0100	0.9400%	17	0.0017
Die	Circuit	Si	7440-21-3	14.9500	100.0000%	26,229	2.6229
Wire	Interconnect	Au	7440-57-5	3.3400	100.0000%	5,860	0.5860
Mold Compound	Encapsulation	SiO ₂	60676-86-0	448.0168	88.0000%	786,008	78.6008
		Epoxy Resin	Trade Secret	25.4555	5.0000%	44,660	4.4660
		Phenol Resin	Trade Secret	25.4555	5.0000%	44,660	4.4660
		Brominated Epoxy Resin	Trade Secret	4.0729	0.8000%	7,146	0.7146
		Antimony Trioxide	1309-64-4	2.0364	0.4000%	3,573	0.3573
		Others	Trade Secret	4.0729	0.8000%	7,146	0.7146

Package Weight (mg): **569.9900**

% 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.

B2: NiPdAu with Green Mold 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	140.7791	96.2000%	213,298	21.3298
		Si	7440-21-3	0.9512	0.6500%	1,441	0.1441
		Mg	7439-95-4	0.2195	0.1500%	333	0.0333
		Ni	7440-02-0	4.3902	3.0000%	6,652	0.6652
Lead Finish	External Plating	Ni	7440-02-0	3.5326	96.5200%	5,352	0.5352
		Pd	7440-05-3	0.0637	1.7400%	96	0.0096
		Au	7440-57-5	0.0637	1.7400%	96	0.0096
Die Attach	Adhesive	Ag	7440-22-4	2.0320	80.0000%	3,079	0.3079
		Bismaleimide	Trade Secret	0.2286	9.0000%	346	0.0346
		Polymer	Trade Secret	0.1270	5.0000%	192	0.0192
		Methacrylate	Trade Secret	0.0508	2.0000%	77	0.0077
		Acylate ester	Trade Secret	0.0508	2.0000%	77	0.0077
		Organic Peroxide	Trade Secret	0.0508	2.0000%	77	0.0077
Die	Circuit	Si	7440-21-3	35.4700	100.0000%	53,742	5.3742
Wire	Interconnect	Au	7440-57-5	5.0700	100.0000%	7,682	0.7682
Mold Compound	Encapsulation	SiO ₂	60676-86-0	415.5677	89.0000%	629,638	62.9638
		Phenol Resin	Trade Secret	23.3465	5.0000%	35,373	3.5373
		Epoxy Resin	Trade Secret	28.0158	6.0000%	42,448	4.2448

Package Weight (mg): **660.0100**

% 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.

B3: NiPdAu with Green Mold Compound using CuPd Bonding 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	Cu	7440-50-8	187.7022	96.2000	291,011	29.1011
		Si	7440-21-3	1.2683	0.6500	1,966	0.1966
		Mg	7439-95-4	0.2927	0.1500	454	0.0454
		Ni	7440-02-0	5.8535	3.0000	9,075	0.9075
Lead Finish	External Plating	Ni	7440-02-0	4.7134	96.5204	7,308	0.7308
		Pd	7440-05-3	0.0848	1.7370	132	0.0132
		Au	7440-57-5	0.0851	1.7427	132	0.0132
Die Attach	Adhesive	Ag	7440-22-4	1.1858	80.0000	1,839	0.1839
		Proprietary bismaleimide	Trade Secret	0.1334	9.0000	207	0.0207
		Proprietary polymer	Trade Secret	0.0741	5.0000	115	0.0115
		Methacrylate	Trade Secret	0.0296	2.0000	46	0.0046
		Acrylate ester	Trade Secret	0.0296	2.0000	46	0.0046
		Organic Peroxide	Trade Secret	0.0296	2.0000	46	0.0046
Die	Circuit	Si	7440-21-3	20.7523	100.0000	32,174	3.2174
Wire	Interconnect	Cu	7440-50-8	6.3822	99.0000	9,895	0.9895
		Pd	7440-05-3	0.0645	1.0000	100	0.0100
Mold Compound	Encapsulation	SiO2	60676-86-0	370.5237	89.0000	574,455	57.4455
		Phenol Resin	Trade Secret	20.8159	5.0000	32,273	3.2273
		Epoxy Resin	Trade Secret	24.9791	6.0000	38,727	3.8727
Package Weight (mg):				644.9998	% 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.

B4: Using Copper wire with NiPdAu and Kyocera Molding Compound

Material	Purpose of Use	Substance Composition	CAS Number	Weight by mg	% Weight of Substance per Homogenous Material	PPM	% Weight of Substance per Package
Leadframe	Based Material	Cu	7440-50-8	142.5498	97.4100%	216,876	21.6876%
		Si	7440-21-3	3.5122	2.4000%	5,343	0.5343%
		Mg	7439-95-4	0.1024	0.0700%	156	0.0156%
		Ni	7440-02-0	0.1756	0.1200%	267	0.0267%
Lead Finish	External Plating	Ni	7440-02-0	3.5326	96.5200%	5,375	0.5375%
		Pd	7440-05-3	0.0637	1.7400%	97	0.0097%
		Au	7440-57-5	0.0637	1.7400%	97	0.0097%
Die Attach	Adhesive	Ag	7440-22-4	2.0320	80.0000%	3,091	0.3091%
		Bismaleimide	Trade Secret	0.2286	9.0000%	348	0.0348%
		Polymer	Trade Secret	0.1270	5.0000%	193	0.0193%
		Methacrylate	Trade Secret	0.0508	2.0000%	77	0.0077%
		Acylate ester	Trade Secret	0.0508	2.0000%	77	0.0077%
		Organic Peroxide	Trade Secret	0.0508	2.0000%	77	0.0077%
Die	Circuit	Si	7440-21-3	35.4700	100.0000%	53,964	5.3964%
Wire	Interconnect	Cu	7440-50-8	2.3485	100.0000%	3,573	0.3573%
Mold Compound	Encapsulation	SiO2	60676-86-0	415.5677	89.0000%	632,247	63.2247%
		Phenol Resin	Trade Secret	23.3465	5.0000%	35,519	3.5519%
		Epoxy Resin	Trade Secret	26.8485	5.7500%	40,847	4.0847%
		Carbon Black	1333-86-4	1.1673	0.2500%	1,776	0.1776%

Package Weight (mg): **657.2885**

% 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.

B5: NiPdAu-Ag termination finish with Green Mold 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	187.7022	96.2000%	296,622	29.6622%
		Si	7440-21-3	1.2683	0.6500%	2,004	0.2004%
		Mg	7439-95-4	0.2927	0.1500%	463	0.0463%
		Ni	7440-02-0	5.8535	3.0000%	9,250	0.9250%
Lead Finish	External Plating	Ni	7440-02-0	4.7134	96.5204%	7,448	0.7448%
		Pd	7440-05-3	0.0848	1.7370%	134	0.0134%
		Au-Ag	7440-57-5 7440-22-4	0.0851	1.7427%	134	0.0134%
Die Attach	Adhesive	Ag	7440-22-4	0.5686	80.0000%	899	0.0899%
		Bismaleimide	Trade Secret	0.0640	9.0000%	101	0.0101%
		Polymer	Trade Secret	0.0355	5.0000%	56	0.0056%
		Methacrylate	Trade Secret	0.0142	2.0000%	22	0.0022%
		Acylate ester	Trade Secret	0.0142	2.0000%	22	0.0022%
		Organic Peroxide	Trade Secret	0.0142	2.0000%	22	0.0022%
Die	Circuit	Si	7440-21-3	9.9508	100.0000%	15,725	1.5725%
Wire	Interconnect	Au	7440-57-5	7.4487	100.0000%	11,771	1.1771%
Mold Compound	Encapsulation	SiO ₂	60676-86-0	369.0739	89.0000%	583,239	58.3239%
		Phenol Resin	Trade Secret	20.7345	5.0000%	32,766	3.2766%
		Epoxy Resin	Trade Secret	24.8814	6.0000%	39,320	3.9320%
Package Weight (mg):				632.8000	% Total:		100.0000

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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 2: Advanced Semiconductor Engineering Taiwan (ASET)
Package Qualification Report # 034101, 120201, 133306, 163803, 175002 (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-AZ100-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)
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	Cu	7440-50-8	123.5354	92.8000%	186,892	18.6892%
		Ni	7440-02-0	3.8339	2.8800%	5,800	0.5800%
		Si	7440-21-3	0.8653	0.6500%	1,309	0.1309%
		Mg	7439-95-4	0.1997	0.1500%	302	0.0302%
		Ag	7440-22-4	4.6858	3.5200%	7,089	0.7089%
Lead Finish	External Plating	Pure Sn	7440-31-5	20.9500	100.0000%	31,694	3.1694%
Die Attach	Adhesive	Ag	7440-22-4	2.5802	73.3000%	3,903	0.3903%
		Epoxy Resin	Trade Secret	0.7300	20.7400%	1,104	0.1104%
		Copper	7440-50-8	0.0700	1.9900%	106	0.0106%
		Gamma-Butyrolactone	96-48-0	0.0700	1.9900%	106	0.0106%
		Aromatic-hydrocarbons	Trade Secret	0.0700	1.9900%	106	0.0106%
Die	Circuit	Si	7440-21-3	20.6900	100.0000%	31,301	3.1301%
Wire	Interconnect	Au	7440-57-5	4.4900	100.0000%	6,793	0.6793%
Mold Compound	Encapsulation	Epoxy Resin	85954-11-6	23.9115	5.0000%	36,175	3.6175%
		Phenol Resin	26834-02-6	19.0814	3.9900%	28,867	2.8867%
		SiO2	60676-86-0	423.2336	88.5000%	640,292	64.0292%
		Aromatic Phosphate	139189-30-3	7.2213	1.5100%	10,925	1.0925%
		Others	Trade Secret	4.7823	1.0000%	7,235	0.7235%

Package Weight (mg): 661.0004
% 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: 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	Cu	7440-50-8	123.5400	92.8000%	187,579	18.7579%
		Ni	7440-02-0	3.8300	2.8800%	5,815	0.5815%
		Si	7440-21-3	0.8600	0.6500%	1,306	0.1306%
		Mg	7439-95-4	0.2000	0.1500%	304	0.0304%
		Ag	7440-22-4	4.6900	3.5200%	7,121	0.7121%
Lead Finish	External Plating	Sn	7440-31-5	20.9500	100.0000%	31,810	3.1810%
Die Attach	Adhesive	Ag	7440-22-4	2.6048	74.0000%	3,955	0.3955%
		Epoxy resin A	9003-36-5	0.1408	4.0000%	214	0.0214%
		Epoxy resin B	Trade Secret	0.2112	6.0000%	321	0.0321%
		Diluent A	Trade Secret	0.1408	4.0000%	214	0.0214%
		Diluent B	Trade Secret	0.2112	6.0000%	321	0.0321%
		Phenolic Hardener	Trade Secret	0.1760	5.0000%	267	0.0267%
		Dicyandiamide	461-58-5	0.0176	0.5000%	27	0.0027%
		Organic peroxide	Trade Secret	0.0176	0.5000%	27	0.0027%
Die	Circuit	Si	7440-21-3	20.6900	100.0000%	31,415	3.1415%
Wire	Interconnect	Copper	7440-50-8	2.0938	100.0000%	3,179	0.3179%
Mold Compound	Encapsulation	Epoxy resin A	Trade Secret	23.9115	5.0000%	36,306	3.6306%
		Epoxy,Cresol Novolac	29690-82-2	23.9115	5.0000%	36,306	3.6306%
		Phenol resin	Trade Secret	23.9115	5.0000%	36,306	3.6306%
		Metal Hydroxide	Trade Secret	23.9115	5.0000%	36,306	3.6306%
		Carbon Black	1333-86-4	1.4347	0.3000%	2,178	0.2178%
		Silica Fused A	60676-86-0	331.8916	69.4000%	503,932	50.3932%
		Silica Fused B	7631-86-9	47.8230	10.0000%	72,613	7.2613%
		Silica,crystalline	14808-60-7	1.4347	0.3000%	2,178	0.2178%

Package Weight (mg): 658.6038

% 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.

B3: Using Copper Palladium Wire

Material	Purpose of Use	Substance Composition	CAS Number	Weight by mg	% weight of substance per Homogeneous	PPM	%Weight of Substance per package
Leadframe	External Plating	Copper	7440-50-8	138.8166	96.2000%	207,573	20.7573%
		Nickel	7440-02-0	4.3290	3.0000%	6,473	0.6473%
		Silicon	7440-21-3	0.9379	0.6500%	1,402	0.1402%
		Magnesium	7439-95-4	0.2164	0.1500%	324	0.0324%
External Plating	Matte Sn	Tin	7440-31-5	20.8000	100.0000%	31,102	3.1102%
Die Attach	Adhesive	Novolak Epoxy Resin	Trade Secret	0.1416	12.5000%	212	0.0212%
		Phenol Resin	Trade Secret	0.1416	12.5000%	212	0.0212%
		Amorphous Silica	68611-44-9	0.0590	5.0000%	88	0.0088%
		Acrylic Copolymer	Trade Secret	0.8378	70.0000%	1,253	0.1253%
Die	Silicon	Silicon	7440-21-3	12.6700	100.0000%	18,946	1.8946%
Wire	Interconnect	Copper	7440-50-8	2.2096	99.9800%	3,304	0.3304%
		Palladium	7440-05-3	0.0004	0.0200%	1	0.0001%
Mold Compound	Encapsulation	Epoxy Resin-A	Trade secret	21.9420	3.0000%	32,810	3.2810%
		Epoxy Resin-B	Trade secret	14.6280	3.0000%	21,873	2.1873%
		Phenol Resin	Trade secret	32.1816	5.0000%	48,121	4.8121%
		Carbon Black	1333-86-4	2.4380	0.3000%	3,646	0.3646%
		Silica (SiO ₂)	60676-86-0	416.4104	88.7000%	622,661	62.2661%

Package Weight (mg): 668.7599

% 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.

B4: Using Gold Wire with G631SH 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	165.4524	91.9180%	246,860	24.6860%
		Fe	7439-89-6	0.3240	0.1800%	483	0.0483%
		Si	7440-21-3	1.8000	1.0000%	2,686	0.2686%
		Mn	7439-96-5	0.1440	0.0800%	215	0.0215%
		Ni	7440-02-0	7.2000	4.0000%	10,743	1.0743%
		Zn	7440-66-6	1.4400	0.8000%	2,149	0.2149%
		Mg	7439-95-4	0.4500	0.2500%	671	0.0671%
		Ag	7440-22-4	2.8800	1.6000%	4,297	0.4297%
		Polyimide	Trade secret	0.2700	0.1500%	403	0.0403%
		NBR	9003-18-3	0.0144	0.0080%	21	0.0021%
		Bismaleimide	79922-55-7	0.0144	0.0080%	21	0.0021%
		Phenol resin	28453-20-5	0.0108	0.0060%	16	0.0016%
Lead Finish	External Plating	Sn	7440-31-5	20.8979	99.9900%	31,180	3.1180%
		Impurities		0.0021	0.0100%	3	0.0003%
Die Attach	Adhesive	Ag	7440-22-4	6.9100	74.2213%	10,310	1.0310%
		Epoxy resin A	9003-36-5	0.3700	3.9742%	552	0.0552%
		Epoxy resin B	Trade Secret	0.5600	6.0150%	836	0.0836%
		Diluent A	Trade Secret	0.3700	3.9742%	552	0.0552%
		Diluent B	Trade Secret	0.5600	6.0150%	836	0.0836%
		Hardener	Trade Secret	0.4700	5.0483%	701	0.0701%
		Dicyandiamide	461-58-5	0.0200	0.2148%	30	0.0030%
		Organic peroxide	Trade Secret	0.0500	0.5371%	75	0.0075%
Die	Circuit	Si	7440-21-3	34.5665	100.0000%	51,574	5.1574%
Wire	Interconnect	Gold	7440-57-5	1.5500	100.0000%	3,179	0.2313%
Mold Compound	Encapsulation	Epoxy Resin A	Trade Secret	12.7170	3.0000%	36,306	1.8974%
		Epoxy Resin B	Trade Secret	12.7170	3.0000%	36,306	1.8974%
		Phenol Resin	Trade Secret	31.7925	7.5000%	36,306	4.7435%
		Carbon Black	1333-86-4	2.3315	0.5500%	36,306	0.3479%
		Silica(Amorphous) A	60676-86-0	300.7571	70.9500%	2,178	44.8739%
		Silica(Amorphous) B	7631-86-9	63.5850	15.0000%	503,932	9.4871%

Package Weight (mg): 670.2265

% 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.

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 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: Jiangsu Changjiang Electronics Technology (JCET) Package Qualification Report # 110909, 111817, 141302 , 124804 (See Note 1)
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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-AZ100-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)
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	Cu	7440-50-8	140.7791	96.2000%	213,298	21.3298
		Si	7440-21-3	0.9512	0.6500%	1,441	0.1441
		Mg	7439-95-4	0.2195	0.1500%	333	0.0333
		Ni	7440-02-0	4.3902	3.0000%	6,652	0.6652
Lead Finish	External Plating	Ni	7440-02-0	3.5326	96.5200%	5,352	0.5352
		Pd	7440-05-3	0.0637	1.7400%	96	0.0096
		Au	7440-57-5	0.0637	1.7400%	96	0.0096
Die Attach	Adhesive	Ag	7440-22-4	2.0320	80.0000%	3,079	0.3079
		Bismaleimide	Trade Secret	0.2286	9.0000%	346	0.0346
		Polymer	Trade Secret	0.1270	5.0000%	192	0.0192
		Methacrylate	Trade Secret	0.0508	2.0000%	77	0.0077
		Acylate ester	Trade Secret	0.0508	2.0000%	77	0.0077
		Organic Peroxide	Trade Secret	0.0508	2.0000%	77	0.0077
Die	Circuit	Si	7440-21-3	35.4700	100.0000%	53,742	5.3742
Wire	Interconnect	Au	7440-57-5	5.0700	100.0000%	7,682	0.7682
Mold Compound	Encapsulation	SiO ₂	60676-86-0	415.5677	89.0000%	629,638	62.9638
		Phenol Resin	Trade Secret	23.3465	5.0000%	35,373	3.5373
		Epoxy Resin	Trade Secret	28.0158	6.0000%	42,448	4.2448

Package Weight (mg): 660.0100
% 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.USING COPPER PALLADIUM 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	2.7060	2.2000%	4,156	0.4156%
		Silicon	7440-21-3	0.5535	0.4500%	850	0.0850%
		Magnesium	7439-95-4	0.1845	0.1500%	283	0.0283%
		Silver	7440-22-4	2.8290	2.3000%	4,345	0.4345%
		Copper	7440-50-8	116.7270	94.9000%	179,285	17.9285%
Lead Finish	External Plating	Tin	7440-31-5	20.8500	100.0000%	32,024	3.2024%
Die Attach	Adhesive	Silver	7440-22-4	2.0320	80.0000%	3,121	0.3121%
		Proprietary Bismaleimide	Trade Secret	0.2286	9.0000%	351	0.0351%
		Proprietary Polymer	Trade Secret	0.1270	5.0000%	195	0.0195%
		Methacrylate	Trade Secret	0.0508	2.0000%	78	0.0078%
		Acrylate Ester	Trade Secret	0.0508	2.0000%	78	0.0078%
		Organic Peroxide	Trade Secret	0.0508	2.0000%	78	0.0078%
Die	Circuit	Silicon	7440-21-3	35.4700	100.0000%	54,480	5.4480%
Wire	Interconnect	Copper	7440-50-8	2.1715	98.2600%	3,335	0.3335%
		Palladium	7440-05-3	0.0384	1.7400%	59	0.0059%
Mold Compound	Encapsulation	Epoxy Resin A	Trade Secret	14.0100	3.0000%	21,518	2.1518%
		Epoxy Resin B	Trade Secret	14.0100	3.0000%	21,518	2.1518%
		Phenol Resin	Trade Secret	23.3500	5.0000%	35,864	3.5864%
		Silica(Amorphous)	60676-86-0	414.2290	88.7000%	636,228	63.6228%
		Carbon Black	1333-86-4	1.4010	0.3000%	2,152	0.2152%

Package Weight (mg): 651.0699
% 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.

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.

Document History Page

Document Title: 100L - TQFP (14 X 14 MM) PB-FREE PACKAGE MATERIAL DECLARATION
 DATASHEET
 Document Number: 001-04270

Rev.	ECN No.	Orig. of Change	Description of Change
**	390185	GFJ	New document
*A	391439	GFJ	Added compliance to Directive 2002/95/EC (RoHS) requirement in the summary. Changed the material composition of Assembly Site 1 and in Assembly Site 2. Added CoA references of indirect materials used in Assembly Site 2.
*B	1318604	MRB	Added reference QTP for Automotive part on Assembly site 1.
*C	1521844	MRB	1. Updated Cypress Logo 2. Added on the material composition the percent weight per homogeneous material and weight of substance 3. Updated and added Lead, Cr+VI, PBB and PBDE on the Declaration of Packaging/Indirect Materials. 4. Added note 4: the package were based on Engineering calculation and performed on a package family basis. 5. Deleted Declaration of Packaging/Indirect Materials on Assembly site 1.
*D	2567367	HLR	Added CAS number of Antimony Trioxide and Silver. DCon: Replaced from CML to WEB in the distribution list.
*E	2737814	MAHA	Added the following for assembly site 1: 1. Package weight for B2 2. Reference QTP # 062603 3. Table B2: NiPdAu with Green Mold Compound
*F	3040395	HLR	Changed the composition of Leadframe on Assembly Site1 (B1).
*G	3219033	REYD	Added Assembly Site 3 – JCET
*H	3340834	CMG	Added QTP# 111817 on Assembly Site 3 – JCET
*I	3400881	CMG	Revised Summary statement – changed package is qualified from “at two assembly sites” to “at three assembly sites” Added QTP# 112302 on Assembly Site 1
*J	3645691	COPI	Added PMDD B2 for assembly site 2 – ASE Taiwan Copper wire qualification under QTP # 120201.
*K	3767019	HLR	Updated the material compositions of Assembly Site 1, Site 2.B1 and Site 3 to reflect 4 decimal places on values.

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

Rev.	ECN No.	Orig. of Change	Description of Change
*L	4031297	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.
*M	4122589	JVP	Added package weight in Assembly Site 1 (B3) and Assembly Site 2 (B3) Added Section B3 for NiPdAu with Green Mold Compound using CuPd Bonding Wire for Assembly Site 1, CML , QTP#133307 Added Section B3 for CuPd Bonding Wire for Assembly Site 2, ASE-K, QTP#133306
*N	3932683	UDR	Added Section B4 for Copper Wire using NiPdAu and Kyocera Mold Compound for Assembly Site 1, CML , QTP#125105
*O	4307613	HLR	Added B5 material composition for Assembly Site 1 in reference to Automotive qualification for NiPdAu-Ag termination finish (Reference QTP No. 134503).
*P	4404959	REYD	Added B2 on Package Weight and QTP # 141302 under Site 3. Added subsections B1.USING GOLD WIRE and B2.USING COPPER PALLADIUM WIRE under Assembly Site 3.
*Q	4726106	FZD	Added QTP# 124804 in Assembly Site 3.
*R	5004863	HLR DCON	Changed the substances with "-----"to "Trade Secret". Removed distribution and posting in the document history page.
*S	5181469	JSO	Added QTP 152607 in assembly site 1.
*T	5516377	HLR	Changed Cypress Logo.
*U	5635424	JSO	Added QTP 163803 in assembly site 2
*V	6018607	KLTA	Added B4 material composition for Assembly Site 2 using Au wire with G631SH compound (QTP#175002)

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

PACKAGE MATERIAL DECLARATION DATASHEET

Cypress Package Code	AZ	Body Size (mil/mm)	14 x 14 mm
Package Weight – Site 1	B1: 589.9943 mg B2: 654.9992 mg B3: 654.9267 mg	Package Weight – Site 2	B1: 639.9319 mg B2: 638.4269 mg B3: 672.0401 mg
Package Weight – Site 3	B1: 654.9992 mg B2: 621.5263 mg B3: 631.8959 mg	Package Weight – Site 4	649.6101 mg

SUMMARY

The 64L-TQFP package is qualified at two assembly sites. Packages from different assembly sites are likely to have different materials composition. However, Cypress guarantees that product ordered with a part number containing an "X" (e.g. CY7C1328G-133AXI, CY2308SXC-1HT) meets all requirement of the EU RoHS directive.

ASSEMBLY Site 1: Cypress Manufacturing Limited (CML)
Package Qualification Report # 040806, 062603, 152917 (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-AZ64-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 Using Standard Mold Compound

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	41.6720	97.4100%	70,631	7.0631%
		Fe	7439-89-6	1.0310	2.4100%	1,747	0.1747%
		P	7723-14-0	0.0299	0.0700%	51	0.0051%
		Zn	7440-66-6	0.0513	0.1200%	87	0.0087%
Lead Finish	External Plating	Ni	7440-02-0	0.1930	96.5200%	327	0.0327%
		Pd	7440-05-3	0.0035	1.7400%	6	0.0006%
		Au	7440-57-5	0.0035	1.7400%	6	0.0006%
Die Attach	Adhesive	Ag	7440-22-4	0.8800	80.0000%	1,492	0.1492%
		Bismaleimide	-----	0.1000	9.0900%	169	0.0169%
		Polymer	-----	0.0600	5.4500%	102	0.0102%
		Methacrylate	-----	0.0200	1.8200%	34	0.0034%
		Acrylate ester	-----	0.0200	1.8200%	34	0.0034%
		Organic Peroxide	-----	0.0200	1.8200%	34	0.0034%
Die	Circuit	Si	7440-21-3	15.4800	100.0000%	26,238	2.6238%
Wire	Interconnect	Au	7440-57-5	3.4200	100.0000%	5,797	0.5797%
Mold Compound	Encapsulation	SiO ₂	60676-86-0	462.1878	87.7000%	783,377	78.3377%
		Antimony Trioxide	1309-64-4	2.6351	0.5000%	4,466	0.4466%
		Epoxy Resin	85954-11-6	26.3505	5.0000%	44,662	4.4662%
		Phenol Resin	26834-02-6	25.2965	4.8000%	42,876	4.2876%
		Brominated Epoxy Resin	-----	5.2701	1.0000%	8,932	0.8932%
		Others	-----	5.2701	1.0000%	8,932	0.8932%

Package Weight (mg): **589.9943**
% 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. NiPdAu Using Green Mold Compound

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	166.1165	96.2000%	253,613	25.3613%
		Si	7440-21-3	1.1224	0.6500%	1,714	0.1714%
		Mg	7439-95-4	0.2590	0.1500%	395	0.0395%
		Ni	7440-02-0	5.1803	3.0000%	7,909	0.7909%
Lead Finish	External Plating	Ni	7440-02-0	4.1714	96.5204%	6,368	0.6368%
		Pd	7440-05-3	0.0751	1.7370%	115	0.0115%
		Au	7440-57-5	0.0753	1.7427%	115	0.0115%
Die Attach	Adhesive	Ag	7440-22-4	0.4369	80.0000%	667	0.0667%
		Bismaleimide	-----	0.0491	9.0000%	75	0.0075%
		Polymer	-----	0.0273	5.0000%	42	0.0042%
		Methacrylate	-----	0.0109	2.0000%	17	0.0017%
		Acrylate ester	-----	0.0109	2.0000%	17	0.0017%
		Organic Peroxide	-----	0.0109	2.0000%	17	0.0017%
Die	Circuit	Si	7440-21-3	7.6453	100.0000%	11,672	1.1672%
Wire	Interconnect	Au	7440-57-5	8.1667	100.0000%	12,468	1.2468%
Mold Compound	Encapsulation	SiO ₂	60676-86-0	410.8606	89.0000%	627,268	62.7268%
		Phenol Resin	-----	23.0821	5.0000%	35,240	3.5240%
		Epoxy Resin	-----	27.6985	6.0000%	42,288	4.2288%

Package Weight (mg): **654.9992**
% 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.

B3. NiPdAu with Green Mold Compound using CuPd Bonding 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	Cu	7440-50-8	187.9723	95.6222%	287,013	28.7013%
		Si	7440-21-3	1.4083	0.7164%	2,150	0.2150%
		Mg	7439-95-4	0.2438	0.1240%	372	0.0372%
		Ni	7440-02-0	6.9536	3.5373%	10,617	1.0617%
Lead Finish	External Plating	Ni	7440-02-0	4.9275	99.9371%	7,524	0.7524%
		Pd	7440-05-3	0.0019	0.0385%	3	0.0003%
		Au	7440-57-5	0.0012	0.0243%	2	0.0002%
Die Attach	Adhesive	Ag	7440-22-4	1.4859	74.9584%	2,269	0.2269%
		Proprietary bismaleimide	Trade Secret	0.2335	11.7792%	357	0.0357%
		Proprietary polymer	Trade Secret	0.1741	8.7827%	266	0.0266%
		Methacrylate	Trade Secret	0.0496	2.5021%	76	0.0076%
		Acrylate ester	Trade Secret	0.0196	0.9888%	30	0.0030%
		Organic Peroxide	Trade Secret	0.0196	0.9888%	30	0.0030%
Die	Circuit	Si	7440-21-3	21.7743	100.0000%	33,247	3.3247%
Wire	Interconnect	Cu	7440-50-8	6.3822	99.9906%	9,745	0.9745%
		Pd	7440-50-3	0.0006	0.0094%	1	0.0001%
Mold Compound	Encapsulation	SiO2	60676-86-0	373.6237	88.2690%	570,482	57.0482%
		Phenol Resin	Trade Secret	25.9159	6.1227%	39,571	3.9571%
		Epoxy Resin	Trade Secret	23.7391	5.6084%	36,247	3.6247%

Package Weight (mg): 654.9267
% 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: Advanced Semiconductor Engineering Taiwan (ASET)
Package Qualification Report # 034101, 120201, 174303 (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-AZ64-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)
B1: 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	104.5090	90.8300%	163,313	16.3313%
		Ni	7440-02-0	3.2562	2.8300%	5,088	0.5088%
		Si	7440-21-3	0.7019	0.6100%	1,097	0.1097%
		Mg	7439-95-4	0.1956	0.1700%	306	0.0306%
		Ag	7440-22-4	6.3973	5.5600%	9,997	0.9997%
Lead Finish	External Plating	Pure Sn	7440-31-5	19.9700	100.0000%	31,206	3.1206%
Die Attach	Adhesive	Ag	7440-22-4	2.5600	74.4200%	4,001	0.4001%
		Epoxy Resin	Proprietary	0.7000	20.3500%	1,094	0.1094%
		Cu	7440-50-8	0.0599	1.7400%	94	0.0094%
		Gamma-Butyrolactone	-----	0.0599	1.7400%	94	0.0094%
		Aromatic Hydrocarbons	-----	0.0599	1.7400%	94	0.0094%
Die	Circuit	Si	7440-21-3	20.6700	100.0000%	32,300	3.2300%
Wire	Interconnect	Au	7440-57-5	2.8200	100.0000%	4,407	0.4407%
Mold Compound	Encapsulation	Epoxy Resin	85954-11-6	23.8532	4.9900%	37,275	3.7275%
		Phenol Resin	26834-02-6	19.1208	4.0000%	29,879	2.9879%
		SiO2	60676-86-0	423.0477	88.5000%	661,082	66.1082%
		Aromatic Phosphate	139189-30-3	7.1703	1.5000%	11,205	1.1205%
		Others	-----	4.7802	1.0000%	7,470	0.7470%

Package Weight (mg): **639.9319**
% 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: 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	104.5090	90.8300%	163,698	16.3698%
		Ni	7440-02-0	3.2562	2.8300%	5,100	0.5100%
		Si	7440-21-3	0.7019	0.6100%	1,099	0.1099%
		Mg	7439-95-4	0.1956	0.1700%	306	0.0306%
		Ag	7440-22-4	6.3973	5.5600%	10,020	1.0020%
Lead Finish	External Plating	Sn	7440-31-5	19.9700	100.0000%	31,280	3.1280%
Die Attach	Adhesive	Ag	7440-22-4	2.5454	74.0000%	3,987	0.3987%
		Epoxy resin A	9003-36-5	0.1376	4.0000%	216	0.0216%
		Epoxy resin B	Trade Secret	0.2064	6.0000%	323	0.0323%
		Diluent A	Trade Secret	0.1376	4.0000%	216	0.0216%
		Diluent B	Trade Secret	0.2064	6.0000%	323	0.0323%
		Phenolic Hardener	Trade Secret	0.1720	5.0000%	269	0.0269%
		Dicyandiamide	461-58-5	0.0172	0.5000%	27	0.0027%
		Organic peroxide	Trade Secret	0.0172	0.5000%	27	0.0027%
Die	Circuit	Si	7440-21-3	20.6700	100.0000%	32,376	3.2376%
Wire	Interconnect	Copper	7440-50-8	1.3150	100.0000%	2,060	0.2060%
Mold Compound	Encapsulation	Epoxy resin A	Trade Secret	23.8986	5.0000%	37,434	3.7434%
		Epoxy, Cresol Novolac	29690-82-2	23.8986	5.0000%	37,434	3.7434%
		Phenol resin	Trade Secret	23.8986	5.0000%	37,434	3.7434%
		Metal Hydroxide	Trade Secret	23.8986	5.0000%	37,434	3.7434%
		Carbon Black	1333-86-4	1.4339	0.3000%	2,246	0.2246%
		Silica Fused A	60676-86-0	331.7127	69.4000%	519,578	51.9578%
		Silica Fused B	7631-86-9	47.7972	10.0000%	74,867	7.4867%
		Silica, crystalline	14808-60-7	1.4339	0.3000%	2,246	0.2246%

Package Weight (mg): 638.4269
% 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.

B3: Using Copper Palladium 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	169.7220	94.2900	252547	25.2547
		Ni	7440-02-0	5.7600	3.2000	8571	0.8571
		Si	7440-21-3	1.3140	0.7300	1955	0.1955
		Mg	7439-95-4	0.3240	0.1800	482	0.0482
		Ag	7440-22-4	2.8800	1.6000	4285	0.4285
Lead Finish	External Plating	Sn	7440-31-5	20.0000	100.0000	29760	2.9760
Die Attach	Adhesive	Epoxy Resin	Trade Secret	0.2828	14.1400	421	0.0421
		Phenol Resin	Trade Secret	0.2828	14.1400	421	0.0421
		SiO2 Filler	Trade Secret	0.0808	4.0400	120	0.0120
		Acrylic Copolymer	Trade Secret	1.3536	67.6800	2014	0.2014
Die	Circuit	Si	7440-21-3	7.2400	100.0000	10773	1.0773
Wire	Interconnect	Copper	7440-50-8	0.2897	96.5500	431	0.0431
		Palladium	5/3/7440	0.0093	3.1000	14	0.0014
		Gold	7440-57-5	0.0011	0.3500	2	0.0002
Mold Compound	Encapsulation	Epoxy resin A	Trade Secret	13.8750	3.0000	20646	2.0646
		Epoxy resin B	Trade Secret	13.8750	3.0000	20646	2.0646
		Phenol resin	Trade Secret	23.1250	5.0000	34410	3.4410
		Carbon Black	1333-86-4	1.3875	0.3000	2065	0.2065
		Silica Fused A	60676-86-0	363.9875	78.7000	541616	54.1616
		Silica Fused B	7631-86-9	44.8625	9.7000	66756	6.6756
		Silica, crystalline	14808-60-7	1.3875	0.3000	2065	0.2065

Package Weight (mg): 672.0401
% 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.

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: Jiangsu Changjiang Electronics Technology (JCET)
Package Qualification Report # 110901, 141302, *151704 (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-AZ64-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

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.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	166.1165	96.2000%	253,613	25.3613%
		Si	7440-21-3	1.1224	0.6500%	1,714	0.1714%
		Mg	7439-95-4	0.2590	0.1500%	395	0.0395%
		Ni	7440-02-0	5.1803	3.0000%	7,909	0.7909%
Lead Finish	External Plating	Ni	7440-02-0	4.1714	96.5204%	6,368	0.6368%
		Pd	7440-05-3	0.0751	1.7370%	115	0.0115%
		Au	7440-57-5	0.0753	1.7427%	115	0.0115%
Die Attach	Adhesive	Ag	7440-22-4	0.4369	80.0000%	667	0.0667%
		Bismaleimide	-----	0.0491	9.0000%	75	0.0075%
		Polymer	-----	0.0273	5.0000%	42	0.0042%
		Methacrylate	-----	0.0109	2.0000%	17	0.0017%
		Acrylate ester	-----	0.0109	2.0000%	17	0.0017%
		Organic Peroxide	-----	0.0109	2.0000%	17	0.0017%
Die	Circuit	Si	7440-21-3	7.6453	100.0000%	11,672	1.1672%
Wire	Interconnect	Au	7440-57-5	8.1667	100.0000%	12,468	1.2468%
Mold Compound	Encapsulation	SiO ₂	60676-86-0	410.8606	89.0000%	627,268	62.7268%
		Phenol Resin	-----	23.0821	5.0000%	35,240	3.5240%
		Epoxy Resin	-----	27.6985	6.0000%	42,288	4.2288%

Package Weight (mg): **654.9992**
% 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.USING COPPER PALLADIUM 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	2.5300	2.2000%	4,071	0.4071%
		Silicon	7440-21-3	0.5175	0.4500%	833	0.0833%
		Magnesium	7439-95-4	0.1725	0.1500%	278	0.0278%
		Silver	7440-22-4	2.6450	2.3000%	4,256	0.4256%
		Copper	7440-50-8	109.1350	94.9000%	175,592	17.5592%
Lead Finish	External Plating	Tin	7440-31-5	19.9700	100.0000%	32,131	3.2131%
Die Attach	Adhesive	Silver	7440-22-4	0.4369	80.0000%	703	0.0703%
		Proprietary Bismaleimide	Proprietary	0.0491	9.0000%	79	0.0079%
		Proprietary Polymer	Proprietary	0.0273	5.0000%	44	0.0044%
		Methacrylate	Proprietary	0.0109	2.0000%	18	0.0018%
		Acrylate Ester	Proprietary	0.0109	2.0000%	18	0.0018%
		Organic Peroxide	Proprietary	0.0109	2.0000%	18	0.0018%
Die	Circuit	Silicon	7440-21-3	7.6453	100.0000%	12,301	1.2301%
Wire	Interconnect	Copper	7440-50-8	1.3410	98.2400%	2,158	0.2158%
		Palladium	7440-05-3	0.0240	1.7600%	39	0.0039%
Mold Compound	Encapsulation	Epoxy Resin A	Trade Secret	14.3100	3.0000%	23,024	2.3024%
		Epoxy Resin B	Trade Secret	14.3100	3.0000%	23,024	2.3024%
		Phenol Resin	Trade Secret	23.8500	5.0000%	38,373	3.8373%
		Silica(Amorphous)	60676-86-0	423.0990	88.7000%	680,742	68.0742%
		Carbon Black	1333-86-4	1.4310	0.3000%	2,302	0.2302%

Package Weight (mg): **621.5263**
% 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.

*** B3.USING COPPER PALLADIUM 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	3.8580	3.0000%	3749	0.3749
		Silicon	7440-21-3	1.0931	0.8500%	1,318	0.1318
		Magnesium	7439-95-4	0.1929	0.1500%	233	0.0233
		Silver	7440-22-4	2.5720	2.0000%	4,082	0.4082
		Copper	7440-50-8	120.8840	94.0000%	191,849	19.1849
Lead Finish	External Plating	Tin	7440-31-5	12.9100	100.0000%	20,489	2.0489
Die Attach	Adhesive	Silver	7440-22-4	0.4369	80.0000%	705	0.0705
		Proprietary Bismaleimide	Proprietary	0.0491	9.0000%	79	0.0079
		Proprietary Polymer	Proprietary	0.0273	5.0000%	44	0.0044
		Methacrylate	Proprietary	0.0109	2.0000%	18	0.0018
		Acrylate Ester	Proprietary	0.0109	2.0000%	18	0.0018
		Organic Peroxide	Proprietary	0.0109	2.0000%	18	0.0018
Die	Circuit	Silicon	7440-21-3	7.2200	100.0000%	11,458	1.1458
Wire	Interconnect	Copper	7440-50-8	2.7748	98.4000%	4,404	0.4404
		Palladium	7440-05-3	0.0451	1.6000%	71	0.0071
Mold Compound	Encapsulation	Epoxy Resin A	Trade Secret	16.7930	3.5000%	26,651	2.6651
		Epoxy Resin B	Trade Secret	16.7930	3.5000%	26,651	2.6651
		Phenol Resin	Trade Secret	11.9950	2.5000%	19,036	1.9036
		Silica(Amorphous)	60676-86-0	431.8200	90.0000%	685,318	68.5318
		Carbon Black	1333-86-4	2.3990	0.5000%	3,807	0.3807

Package Weight (mg): **631.8959**

% 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 4: Amkor Technology Philippines (P1/P2)
Package Qualification Report # 113604 (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-AZ64- Amkor Philippines (P1/P2)
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	Cu	7440-50-8	132.4628	96.9500%	203,911	20.3911%
		Fe	7439-89-6	3.2655	2.3900%	5,027	0.5027%
		Zn	7440-66-6	0.1640	0.1200%	252	0.0252%
		P	7723-14-0	0.0410	0.0300%	63	0.0063%
		Ag	7440-22-4	0.6968	0.5100%	1,073	0.1073%
Lead Finish	External Plating	Pure Sn	7440-31-5	5.0900	100.0000%	7,835	0.7835%
Die Attach	Adhesive	Resin	-----	0.7360	20.0000%	1,133	0.1133%
		Ag	7440-22-4	2.5760	70.0000%	3,965	0.3965%
		Anhydride	-----	0.3680	10.0000%	566	0.0566%
Die	Circuit	Si	7440-21-3	21.2400	100.0000%	32,697	3.2697%
Wire	Interconnect	Au	7440-57-5	1.9500	100.0000%	3,002	0.3002%
Mold Compound	Encapsulation	Epoxy Resin	-----	31.2663	6.5000%	48,131	4.8131%
		Silica	60676-86-0	423.2976	88.0000%	651,618	65.1618%
		Phenol Resin	-----	24.0510	5.0000%	37,024	3.7024%
		Carbon Black	1333-86-4	2.4051	0.5000%	3,702	0.3702%

Package Weight (mg): **649.6101**
% 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.

Document History Page

Document Title: 64L-TQFP (14X14MM) PB-FREE PACKAGE MATERIAL DECLARATION DATASHEET
 Document Number: 001-04269

Rev.	ECN No.	Orig. of Change	Description of Change
**	390185	GFJ	New document
*A	2247089	MAHA	1. Updated Cypress logo. 2. Added “% weight of substance per Homogenous Material” and “% Weight of Substance per Package” on the Material Composition table. 3. Completed the RoHS Substances namely: Lead, Cadmium, Mercury, Chromium VI, PBB and PBDE on Declaration of Packaging Indirect Materials table. 4. Added Note 4: Actual testing performed on package family basis. Engineering calculations were applied to derive individual package data.
*B	2678536	HLR	Added CAS number of Antimony Trioxide
*C	2741162	MAHA	Corrected the PPM values for assembly site 2.
*D	4404978	MAHA	Added the following for assembly site 1: a. Package weight for B2 b. Reference QTP# 062603 c. CoA-AZ64-R1 d. Table B2. NiPdAu Using Green Mold Compound
*E	3287026	REYD	Added Assembly Site 3- JCET. Expressed in 4 decimal places the Weight by mg, % weight of substance per Homogenous material, % weight of substance per package and total package weight of Assembly Site1 Material Composition B2. Expressed Package Weight – Site 1-B2 in 4 decimal places.
*F	3534186	HLR	Updated Assembly Sites 1(B1) and 2 to reflect 4 decimal places on values of material composition table. Added Assembly Site 4 Update the Indirect Materials table.
*G	3645691	COPI	Added PMDD B2 for Assembly site 2 – ASE Taiwan Copper wire qualification under QTP # 120201.
*H	3864427	MRB	Updated analysis report on Assembly site 4 from CoA-AZ64-L to CoA-AZ64-M in align to QTP report 113604 Updated package weight on Assembly site 4 from 649.6100 to 649.6101
*I	4031297	YUM	Added Assembly site name in the Assembly heading.

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.

Rev.	ECN No.	Orig. of Change	Description of Change
			Changed Assembly Code to Assembly Site Name. Removed entire Tube row in the Indirect Materials Section.
*J	4404978	REYD	Added B2 on Package Weight and QTP # 141302 under Site 3. Added subsections B1.USING GOLD WIRE and B2.USING COPPER PALLADIUM WIRE under Assembly Site 3.
*K	4756622	HLR	Sunset Due – No Change
*L	4811967	JVP	Added Section B3 Copper Palladium for Assembly Site 3 JCET for QTP#151704
*M	5219437	AWP	Added Section B3 Copper Palladium for Assembly Site 1 CML for QTP#152917
		SLLO	Removed Distribution and Posting from the document history page
*N	6014721	SUIK	Added Section B3 Copper Palladium for Assembly Site 2 ASET for QTP#174303
		AVE	Replaced CY logo

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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.



44L -TQFP Pb-Free Package

PACKAGE MATERIAL DECLARATION DATASHEET

Cypress Package Code	AZ	Body Size (mil/mm)	10 x 10 mm
Package Weight – Site 1	B1: 180.0023 mg B2: 329.9900 mg B3: 335.5330 mg	Package Weight – Site 2	B1: 343.9689 mg B2: 265.0051 mg B3: 351.5650 mg B4: 464.6297 mg B4: 465.1001 mg B6: 341.7599 mg
Package Weight – Site 3	B1: 260.0379 mg B2: 260.5300 mg	Page Weight – Site 4	B1: 329.9900 mg B2: 328.4354 mg
Package Weight – Site 5	B: 342.2580 mg		
SUMMARY			

The 44L-TQFP package is qualified at three assembly sites. Packages from different assembly sites are likely to have different materials composition. Cypress ordering part numbers containing an “X” (e.g. CY7C1328G-133AXI, CY2308SXC-1HT) meet the Directive of 2002/95/ EC (Rohs) requirement.

ASSEMBLY Site 1: Cypress Manufacturing Limited (CML)
Package Qualification Report # 040806, 062603, 133102 (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-AZ44-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.

B1. MATERIAL COMPOSITION (Note 3)

NiPdAu Using Standard Mold Compound

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	40.1483	93.9800%	223,043	22.3043%
		Mg	7439-95-4	0.0598	0.1400%	332	0.0332%
		Si	7440-21-3	0.4699	1.1000%	2,611	0.2611%
		Ni	7440-02-0	1.5208	3.5600%	8,449	0.8449%
		Fe	7439-89-6	0.0897	0.2100%	498	0.0498%
		Zn	7440-66-6	0.4315	1.0100%	2,397	0.2397%
Lead Finish	External Plating	Ni	7440-02-0	0.193	96.5200%	1,072	0.1072%
		Pd	7440-05-3	0.0035	1.7400%	19	0.0019%
		Au	7440-57-5	0.0035	1.7400%	19	0.0019%
Die Attach	Adhesive	Ag	7440-22-4	0.3465	77.0100%	1,925	0.1925%
		Bismaleimide	Trade Secret	0.0495	11.0000%	275	0.0275%
		Polymer	Trade Secret	0.0297	6.6000%	165	0.0165%
		Methacrylate	Trade Secret	0.0099	2.2000%	55	0.0055%
		Acylate ester	Trade Secret	0.0099	2.2000%	55	0.0055%
		Organic Peroxide	Trade Secret	0.0045	0.9900%	25	0.0025%
Die	Circuit	Si	7440-21-3	6.22	100.0000%	34,555	3.4555%
Wire	Interconnect	Au	7440-57-5	6.32	100.0000%	35,111	3.5111%
Mold Compound	Encapsulation	SiO ₂	60676-86-0	109.2028	88.0100%	606,674	60.6674%
		Epoxy Resin	Trade Secret	6.204	5.0000%	34,466	3.4466%
		Phenol Resin	Trade Secret	6.204	5.0000%	34,466	3.4466%
		Brominated Epoxy Resin	Trade Secret	0.9926	0.8000%	5,515	0.5515%
		Antimony Trioxide	1309-64-4	0.4963	0.4000%	2,757	0.2757%
		Others	Trade Secret	0.9926	0.8000%	5,515	0.5515%

Package Weight (mg): **180.0023**
% 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.

B2. MATERIAL COMPOSITION (Note 3)

NiPdAu Using Green Mold Compound

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	92.9100	96.2000%	281,554	28.1554%
		Si	7440-21-3	0.6278	0.6500%	1,902	0.1902%
		Mg	7439-95-4	0.1449	0.1500%	439	0.0439%
		Ni	7440-02-0	2.8974	3.0000%	8,780	0.8780%
Lead Finish	External Plating	Ni	7440-02-0	2.3261	96.5200%	7,049	0.7049%
		Pd	7440-05-3	0.0419	1.7400%	127	0.0127%
		Au	7440-57-5	0.0419	1.7400%	127	0.0127%
Die Attach	Adhesive	Ag	7440-22-4	0.4160	80.0000%	1,261	0.1261%
		Bismaleimide	Trade Secret	0.0468	9.0000%	142	0.0142%
		Polymer	Trade Secret	0.0260	5.0000%	79	0.0079%
		Methacrylate	Trade Secret	0.0104	2.0000%	32	0.0032%
		Acylate ester	Trade Secret	0.0104	2.0000%	32	0.0032%
		Organic Peroxide	Trade Secret	0.0104	2.0000%	32	0.0032%
Die	Circuit	Si	7440-21-3	7.1900	100.0000%	21,789	2.1789%
Wire	Interconnect	Au	7440-57-5	6.7800	100.0000%	20,546	2.0546%
Mold Compound	Encapsulation	SiO ₂	60676-86-0	192.6939	89.0000%	583,939	58.3939%
		Phenol Resin	Trade Secret	10.8255	5.0000%	32,806	3.2806%
		Epoxy Resin	Trade Secret	12.9906	6.0000%	39,367	3.9367%

Package Weight (mg): **329.9900**
% 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.

B3. MATERIAL COMPOSITION (Note 3)

NiPdAu Using Green Mold Compound with Copper-Palladium (Cu-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
Leadframe	Base Material	Cu	7440-50-8	93.5017	95.8613%	278,666	27.8666%
		Si	7440-21-3	0.8795	0.9017%	2,621	0.2621%
		Mg	7439-95-4	0.1678	0.1720%	500	0.0500%
		Ni	7440-02-0	2.9895	3.0649%	8,910	0.8910%
Lead Finish	External Plating	Ni	7440-02-0	2.4549	95.0480%	7,316	0.7316%
		Pd	7440-05-3	0.0655	2.5360%	195	0.0195%
		Au	7440-57-5	0.0624	2.4160%	186	0.0186%
Die Attach	Adhesive	Ag	7440-22-4	0.6984	79.7807%	2,081	0.2081%
		Bismaleimide	Trade Secret	0.0768	8.7731%	229	0.0229%
		Polymer	Trade Secret	0.0378	4.3180%	113	0.0113%
		Methacrylate	Trade Secret	0.0208	2.3761%	62	0.0062%
		Acylate ester	Trade Secret	0.0208	2.3761%	62	0.0062%
		Organic Peroxide	Trade Secret	0.0208	2.3761%	62	0.0062%
Die	Circuit	Si	7440-21-3	8.2540	100.0000%	24,600	2.4600%
Wire	Interconnect	Cu	7440-50-8	7.9957	93.8991%	23,830	2.3830%
		Pd	7440-05-3	0.5195	6.1009%	1,548	0.1548%
Mold Compound	Encapsulation	SiO ₂	60676-86-0	193.9535	89.0646%	578,046	57.8046%
		Phenol Resin	Trade Secret	10.9430	5.0251%	32,614	3.2614%
		Epoxy Resin	Trade Secret	12.8706	5.9103%	38,359	3.8359%

Package Weight (mg): **335.5330**

% 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	< 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 2: Advanced Semiconductor Engineering Taiwan (ASET)
Package Qualification Report # 034101, 120201, 123808, 141404, 174402 (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-AZ44-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.

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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)

Gold Wire Material

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	83.4169	91.9600%	242,513	24.2513%
		Ni	7440-02-0	2.6124	2.8800%	7,595	0.7595%
		Si	7440-21-3	0.5533	0.6100%	1,609	0.1609%
		Mg	7439-95-4	0.1361	0.1500%	396	0.0396%
		Ag	7440-22-4	3.9912	4.4000%	11,603	1.1603%
Lead Finish	External Plating	Sn	7440-31-5	12.2100	100.0000%	35,497	3.5497%
Die Attach	Adhesive	Ag	7440-22-4	2.5099	71.7100%	7,297	0.7297%
		Epoxy Resin	9003-36-5	0.6899	19.7100%	2,006	0.2006%
		Gamma Butyrolactone	96-48-0	0.1001	2.8600%	291	0.0291%
		Phenolic Resin	9003-35-5	0.1001	2.8600%	291	0.0291%
		Aromatic Hydrocarbons	Trade Secret	0.1001	2.8600%	291	0.0291%
Die	Circuit	Si	7440-21-3	24.4900	100.0000%	71,198	7.1198%
Wire	Interconnect	Au	7440-57-5	2.0000	100.0000%	5,814	0.5814%
Mold Compound	Encapsulation	Silica Fused	60676-86-0	186.8269	88.5100%	543,151	54.3151%
		Epoxy Resin	85954-11-6	10.5540	5.0000%	30,683	3.0683%
		Phenol Resin	26834-02-6	8.4221	3.9900%	24,485	2.4485%
		Aromatic Phosphate	1333-86-4	3.1662	1.5000%	9,205	0.9205%
		Others	Trade Secret	2.0897	0.9900%	6,075	0.6075%

Package Weight (mg): **343.9689**

% 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.

B2. MATERIAL COMPOSITION (Note 3)
1.0 mm thick package using Cu 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	92.2254	94.3000%	348,014	34.8014%
		Ni	7440-02-0	2.4450	2.5000%	9,226	0.9226%
		Si	7440-21-3	0.4890	0.5000%	1,845	0.1845%
		Mg	7439-95-4	0.0978	0.1000%	369	0.0369%
		Ag	7440-22-4	2.5428	2.6000%	9,595	0.9595%
Lead Finish	External Plating	Sn	7440-31-5	5.3550	100.0000%	20,207	2.0207%
Die Attach	Adhesive	Silver	7440-22-4	0.3515	78.1000%	1,326	0.1326%
		Epoxy Resin A	9003-36-5	0.0180	4.0000%	68	0.0068%
		Epoxy Resin B	Trade Secret	0.0180	4.0000%	68	0.0068%
		Diluent A	Trade Secret	0.0180	4.0000%	68	0.0068%
		Diluent B	Trade Secret	0.0180	4.0000%	68	0.0068%
		Phenolic Hardener	Trade Secret	0.0225	5.0000%	85	0.0085%
		Dicyandiamide	461-58-5	0.0014	0.3000%	5	0.0005%
		Organic peroxide	Trade secret	0.0027	0.6000%	10	0.0010%
Die	Circuit	Si	7440-21-3	3.1200	100.0000%	11,773	1.1773%
Wire	Interconnect	Copper (Cu)	7440-50-8	0.2800	100.0000%	1,057	0.1057%
Mold Compound	Encapsulation	Epoxy Resin A	Trade secret	7.9000	5.0000%	29,811	2.9811%
		Epoxy, Cresol Novolac	29690-82-2	7.9000	5.0000%	29,811	2.9811%
		Phenol Resin	Trade secret	7.9000	5.0000%	29,811	2.9811%
		Metal Hydroxide	Trade secret	7.9000	5.0000%	29,811	2.9811%
		Carbon Black	1333-86-4	0.4740	0.3000%	1,789	0.1789%
		Silica, Crystalline	14808-60-7	109.6520	69.4000%	413,772	41.3772%
		Silica Fused B	7631-86-9	15.8000	10.0000%	59,622	5.9622%
		Silica Fused A	60676-86-0	0.4740	0.3000%	1,789	0.1789%

Package Weight (mg): 265.0051
% 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.

B3. MATERIAL COMPOSITION (Note 3)
1.4mm thick package using Cu 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	59.8805	94.3000%	170,326	17.0326%
		Ni	7440-02-0	1.5875	2.5000%	4,516	0.4516%
		Si	7440-21-3	0.3175	0.5000%	903	0.0903%
		Mg	7439-95-4	0.0635	0.1000%	181	0.0181%
		Ag	7440-22-4	1.6510	2.6000%	4,696	0.4696%
Lead Finish	External Plating	Sn	7440-31-5	5.3550	100.0000%	15,232	1.5232%
Die Attach	Adhesive	Silver	7440-22-4	0.5311	78.1000%	1,511	0.1511%
		Epoxy Resin A	9003-36-5	0.0272	4.0000%	77	0.0077%
		Epoxy Resin B	Trade Secret	0.0272	4.0000%	77	0.0077%
		Diluent A	Trade Secret	0.0272	4.0000%	77	0.0077%
		Diluent B	Trade Secret	0.0272	4.0000%	77	0.0077%
		Phenolic Hardener	Trade Secret	0.0340	5.0000%	97	0.0097%
		Dicyandiamide	461-58-5	0.0020	0.3000%	6	0.0006%
		Organic peroxide	Trade secret	0.0041	0.6000%	12	0.0012%
Die	Circuit	Si	7440-21-3	5.0100	100.0000%	14,251	1.4251%
Wire	Interconnect	Copper (Cu)	7440-50-8	0.2200	100.0000%	626	0.0626%
Mold Compound	Encapsulation	Epoxy Resin A	Trade secret	13.8400	5.0000%	39,367	3.9367%
		Epoxy, Cresol Novolac	29690-82-2	13.8400	5.0000%	39,367	3.9367%
		Phenol Resin	Trade secret	13.8400	5.0000%	39,367	3.9367%
		Metal Hydroxide	Trade secret	13.8400	5.0000%	39,367	3.9367%
		Carbon Black	1333-86-4	0.8304	0.3000%	2,362	0.2362%
		Silica, Crystalline	14808-60-7	192.0992	69.4000%	546,409	54.6409%
		Silica Fused B	7631-86-9	27.6800	10.0000%	78,734	7.8734%
		Silica Fused A	60676-86-0	0.8304	0.3000%	2,362	0.2362%

Package Weight (mg): **351.5650**
% 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)

1.4mm thick package using Die Attach Film and Cu 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	125.5410	96.2000	270,196	27.0196
		Ni	7440-02-0	3.9150	3.0000	8,426	0.8426
		Si	7440-21-3	0.8483	0.6500	1,826	0.1826
		Mg	7439-95-4	0.1958	0.1500	421	0.0421
Lead Finish	External Plating	Sn	7440-31-5	13.8000	100.0000	29,701	2.9701
Die Attach	Adhesive	Novolak Epoxy Resin	Trade Secret	0.1296	12.0000	279	0.0279
		Phenol Resin	Trade Secret	0.1296	12.0000	279	0.0279
		Amorphous Silica	68611-44-9	0.0540	5.0000	116	0.0116
		Acrylic Copolymer	Trade Secret	0.7668	71.0000	1,650	0.1650
Die	Circuit	Si	7440-21-3	5.6000	100.0000	12,053	1.2053
Wire	Interconnect	Copper	7440-50-8	1.8496	100.0000	2,982	0.3982
Mold Compound	Encapsulation	Epoxy Resin-1	Trade secret	14.0310	4.5000	30,198	3.0198
		Epoxy Resin-2	Trade secret	9.3540	3.0000	20,132	2.0132
		Phenol Resin	Trade secret	20.5788	6.6000	44,291	4.4291
		Carbon Black	1333-86-4	1.5590	0.5000	3,355	0.3355
		Silica (SiO ₂)	60676-86-0	266.2772	85.4000	573,095	57.3095

Package Weight (mg): **464.6297**
% 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.

B5. MATERIAL COMPOSITION (Note 3)

1.4mm thick package using CuPd Bonding 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	127.0802	96.2000	273,232	27.3232
		Ni	7440-02-0	3.9630	3.0000	8,521	0.8521
		Si	7440-21-3	0.8587	0.6500	1,846	0.1846
		Mg	7439-95-4	0.1982	0.1500	426	0.0426
Lead Finish	External Plating	Sn	7440-31-5	13.8000	100.0000	29,671	2.9671
Die Attach	Adhesive	Novolak Epoxy Resin	Trade Secret	0.1296	12.0000	279	0.0279
		Phenol Resin	Trade Secret	0.1296	12.0000	279	0.0279
		Amorphous Silica	68611-44-9	0.0540	5.0000	116	0.0116
		Acrylic Copolymer	Trade Secret	0.7668	71.0000	1,649	0.1649
Die	Circuit	Si	7440-21-3	5.6000	100.0000	12,040	1.2040
Wire	Interconnect	Copper	7440-50-8	1.9196	99.9800	4,127	0.4127
		Palladium	7440-05-3	0.0004	0.0200	0.83	0.0001
Mold Compound	Encapsulation	Epoxy Resin-1	Trade secret	13.9770	4.5000	30,052	3.0052
		Epoxy Resin-2	Trade secret	9.3180	3.0000	20,034	2.0034
		Phenol Resin	Trade secret	20.4996	6.6000	44,076	4.4076
		Carbon Black	1333-86-4	1.5530	0.5000	3,339	0.3339
		Silica (SiO ₂)	60676-86-0	265.2524	85.4000	570,313	57.0313

Package Weight (mg): **465.1001**

% 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.

B6. MATERIAL COMPOSITION (Note 3)

1.4mm thick package using Die Attach Film and Au Bonding 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	89.6750	94.3947	262392	26.2392%
		Ag	7440-22-4	1.4300	1.5053	4184	0.4184%
		Mg	7439-95-4	0.1660	0.1747	486	0.0486%
		Si	7440-21-3	0.6890	0.7253	2016	0.2016%
		Ni	7440-02-0	3.0400	3.2000	8895	0.8895%
Lead Finish	External Plating	Sn	7440-31-5	12.0000	100.0000	35112	3.5112%
Die Attach	Adhesive	Epoxy Resin	Trade Secret	0.2828	14.1400	827	0.0827%
		Phenol Resin	Trade Secret	0.2828	14.1400	827	0.0827%
		SiO2 Filler	Trade Secret	0.0808	4.0400	236	0.0236%
		Acrylic Copolymer	Trade Secret	1.3536	67.6800	3961	0.3961%
Die	Circuit	Si	7440-21-3	7.4598	100.0000	21828	2.1828%
Wire	Interconnect	Au	7440-57-5	0.4001	100.0000	1171	0.1171%
Mold Compound	Encapsulation	Epoxy resin A	Trade Secret	6.7470	3.0000	19742	1.9742%
		Epoxy resin B	Trade Secret	6.7470	3.0000	19742	1.9742%
		Phenol resin	Trade Secret	11.2450	5.0000	32903	3.2903%
		Carbon Black	1333-86-4	0.6747	0.3000	1974	0.1974%
		Silica Fused A	60676-86-0	176.9963	78.7000	517897	51.7897%
		Silica Fused B	7631-86-9	21.8153	9.7000	63832	6.3832%
		Silica, crystalline	14808-60-7	0.6747	0.3000	1974	0.1974%

Package Weight (mg): **341.7599**

% 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.

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 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 -TQFP Pb-Free Package

ASSEMBLY Site 3: Amkor Technology Seoul Korea

Package Qualification Report # 034602 (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-AZ44- 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" 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 C151 Leadframe Copper Alloy

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	75.6081	98.3200%	290,758	29.0758%
		Cr	7440-47-3	0.2307	0.3000%	887	0.0887%
		Sn	7440-31-5	0.1923	0.2500%	739	0.0739%
		Zn	7440-66-6	0.1538	0.2000%	591	0.0591%
		Ag	7440-22-4	0.7229	0.9400%	2,780	0.2780%
Lead Finish	External Plating	Pure Sn	7440-31-5	3.49	100.0000%	13,421	1.3421%
Die Attach	Adhesive	Ag	7440-22-4	0.67	69.7900%	2,576	0.2576%
		Epoxy Resin	Trade Secret	0.19	19.7900%	731	0.0731%
		Anhydride	Trade Secret	0.1	10.4200%	385	0.0385%
Die	Circuit	Si	7440-21-3	3.46	100.0000%	13,306	1.3306%
Wire	Interconnect	Au	7440-57-5	1.27	100.0000%	4,884	0.4884%
Mold Compound	Encapsulation	Phenol Resin	Trade Secret	9.7934	5.6300%	37,661	3.7661%
		Epoxy Resin	Trade Secret	10.4022	5.9800%	40,003	4.0003%
		Silica Fused	60676-86-0	152.8847	87.8900%	587,933	58.7933%
		Carbon Black	1333-86-4	0.8698	0.5000%	3,345	0.3345%

Package Weight (mg): **260.0379**

% Total: **100.0000**

B2. MATERIAL COMPOSITION (Note 3)

Using C194 Leadframe Copper Alloy

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	74.5270	96.1912%	286,059	28.6059%
		Fe	7439-89-6	1.7960	2.3181%	6,894	0.6894%
		P	7723-14-0	0.0230	0.0297%	88	0.0088%
		Zn	7440-66-6	0.0920	0.1187%	353	0.0353%
		Ag	7440-22-4	1.0400	1.3423%	3,992	0.3992%
Lead Finish	External Plating	Pure Sn	7440-31-5	3.5020	100.0000%	13,442	1.3442%
Die Attach	Adhesive	Ag	7440-22-4	0.6710	69.9687%	2,576	0.2576%
		Epoxy Resin	Trade Secret	0.1920	20.0209%	737	0.0737%
		Anhydride	Trade Secret	0.0960	10.0104%	368	0.0368%
Die	Circuit	Si	7440-21-3	3.4600	100.0000%	13,281	1.3281%
Wire	Interconnect	Au	7440-57-5	1.2740	100.0000%	4,890	0.4890%
Mold Compound	Encapsulation	Epoxy Resin	Trade Secret	19.9940	11.5003%	76,744	7.6744%
		Silica Fused	60676-86-0	152.9940	87.9999%	587,241	58.7241%
		Carbon Black	1333-86-4	0.8690	0.4998%	3,335	0.3335%

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 -TQFP Pb-Free Package

Package Weight (mg): 260.5300

% 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	< 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

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.

ASSEMBLY Site 4: Jiangsu Changjiang Electronics Technology (JCET)
Package Qualification Report # 110901, 141302 (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-AZ44- 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

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.

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 Material	PPM	% Weight of Substance per Package
Leadframe	Base Material	Cu	7440-50-8	92.9100	96.2000%	281,554	28.1554%
		Si	7440-21-3	0.6278	0.6500%	1,902	0.1902%
		Mg	7439-95-4	0.1449	0.1500%	439	0.0439%
		Ni	7440-02-0	2.8974	3.0000%	8,780	0.8780%
Lead Finish	External Plating	Ni	7440-02-0	2.3261	96.5200%	7,049	0.7049%
		Pd	7440-05-3	0.0419	1.7400%	127	0.0127%
		Au	7440-57-5	0.0419	1.7400%	127	0.0127%
Die Attach	Adhesive	Ag	7440-22-4	0.4160	80.0000%	1,261	0.1261%
		Bismaleimide	Trade Secret	0.0468	9.0000%	142	0.0142%
		Polymer	Trade Secret	0.0260	5.0000%	79	0.0079%
		Methacrylate	Trade Secret	0.0104	2.0000%	32	0.0032%
		Acylate ester	Trade Secret	0.0104	2.0000%	32	0.0032%
		Organic Peroxide	Trade Secret	0.0104	2.0000%	32	0.0032%
Die	Circuit	Si	7440-21-3	7.1900	100.0000%	21,789	2.1789%
Wire	Interconnect	Au	7440-57-5	6.7800	100.0000%	20,546	2.0546%
Mold Compound	Encapsulation	SiO ₂	60676-86-0	192.6939	89.0000%	583,939	58.3939%
		Phenol Resin	Trade Secret	10.8255	5.0000%	32,806	3.2806%
		Epoxy Resin	Trade Secret	12.9906	6.0000%	39,367	3.9367%

Package Weight (mg): **329.9900**
% 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.

B2.USING COPPER PALLADIUM 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	1.9800	2.2000%	6,029	0.6029%
		Silicon	7440-21-3	0.4050	0.4500%	1,233	0.1233%
		Magnesium	7439-95-4	0.1350	0.1500%	411	0.0411%
		Silver	7440-22-4	2.0700	2.3000%	6,303	0.6303%
		Copper	7440-50-8	85.4100	94.9000%	260,051	26.0051%
Lead Finish	External Plating	Tin	7440-31-5	12.2102	100.0000%	37,177	3.7177%
Die Attach	Adhesive	Silver	7440-22-4	0.4160	80.0000%	1,267	0.1267%
		Proprietary Bismaleimide	Trade Secret	0.0468	9.0000%	142	0.0142%
		Proprietary Polymer	Trade Secret	0.0260	5.0000%	79	0.0079%
		Methacrylate	Trade Secret	0.0104	2.0000%	32	0.0032%
		Acrylate Ester	Trade Secret	0.0104	2.0000%	32	0.0032%
		Organic Peroxide	Trade Secret	0.0104	2.0000%	32	0.0032%
Die	Circuit	Silicon	7440-21-3	7.1900	100.0000%	21,892	2.1892%
Wire	Interconnect	Copper	7440-50-8	1.4888	98.2600%	4,533	0.4533%
		Palladium	7440-05-3	0.0264	1.7400%	80	0.0080%
Mold Compound	Encapsulation	Epoxy Resin A	Trade Secret	6.5100	3.0000%	19,821	1.9821%
		Epoxy Resin B	Trade Secret	6.5100	3.0000%	19,821	1.9821%
		Phenol Resin	Trade Secret	10.8500	5.0000%	33,035	3.3035%
		Silica(Amorphous)	60676-86-0	192.4790	88.7000%	586,048	58.6048%
		Carbon Black	1333-86-4	0.6510	0.3000%	1,982	0.1982%

Package Weight (mg): **328.4354**

% Total: **100.000**

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	< 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

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.

**ASSEMBLY Site 5: Amkor Technology Philippines (ATP1)
Package Qualification Report # 150202 (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-AZ44- ATP1
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.

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	73.9229	96.1619%	215,986	21.5986%
		Fe	7439-89-6	1.8206	2.3683%	5,319	0.5319%
		Zn	7440-66-6	0.0910	0.1184%	266	0.0266%
		P	7723-14-0	0.0228	0.0296%	66	0.0066%
		Ag	7440-22-4	1.0161	1.3218%	2,969	0.2969%
Lead Finish	External Plating	Sn	7440-31-5	3.5024	100.0000%	10,233	1.0233%
Die Attach	Adhesive	Polymer	9003-36-5	0.2115	11.0000%	618	0.0618%
		1,4-Butanedioldiglycidyl Ether	2425-79-8	0.0385	2.0000%	112	0.0112%
		Phenolic Resin	9003-35-4	0.0385	2.0000%	112	0.0112%
		Ethylene glycol monobutyl ether acetate	112-07-2	0.0962	5.0000%	284	0.0284%
		Silver	7440-22-4	1.5384	80.0000%	4,495	0.4495%
Die	Circuit	Silicon	7440-21-3	8.9964	100.0000%	26,285	2.6285%
Wire	Interconnect	Cu	7440-50-8	0.3488	97.8970%	1,019	0.1019%
		Pd	7440-05-3	0.0075	2.1030%	22	0.0022%
Mold Compound	Encapsulation	Epoxy Resin A	Trade Secret	20.0485	8.0000%	58,577	5.8577%
		Epoxy Resin B	Trade Secret	5.0121	2.0000%	14,644	1.4644%
		Silica Fused	60676-86-0	210.5094	84.0000%	615,060	61.5060%
		Carbon Black	1333-86-4	1.2530	0.5000%	3,661	0.3661%
		Phenol Resin	Trade Secret	13.7834	5.5000%	40,272	4.0272%

Package Weight (mg): **342.2580**

% 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	< 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

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.

Document History Page

Document Title: 44L-TQFP PB-FREE PACKAGE MATERIAL DECLARATION DATASHEET
Document Number: 001-04267

Rev.	ECN No.	Orig. of Change	Description of Change
**	390185	GFJ	New document
*A	391439	GFJ	Changed of material composition (updating the leadframe used).
*B	399136	GFJ	Additional assembly site with different materials used.
*C	401531	GFJ	Added Package weight in site 3 and word "PMDD". Change the word from two to three in summary of qualified assembly sites. Deleted error existing link in assembly site 1 & 2 under section 1-A – Analysis report. Added assembly site 3
*D	2247127	MAHA	1. Updated Cypress logo. 2. Changed QTP# 034101 to 034602 for assembly site 3. 3. Added "% weight of substance per Homogenous Material" and "% Weight of Substance per Package" on the Material Composition table. 4. Completed the RoHS Substances namely: Lead, Cadmium, Mercury, Chromium VI, PBB and PBDE on Declaration of Packaging Indirect Materials table. 5. Deleted inactive bookset CML and change it to WEB in the distribution list.
*E	2677622	HLR	Added CAS Number of Antimony Trioxide. Changed CAS Number of Gold.
*F	2767274	MAHA	Added the following for assembly site 1: a. Added package weight for B2. b. CoA-AZ44-R1 c. Added reference QTP 062603. d. Added material composition table for NiPdAu using green mold compound.
*G	2882692	HLR	Added CAS Number for Silica Fused and Carbon Black on Assembly Site 3.
*H	3375125	HLR	Added Assembly Site 4 – JCET Updated the material composition table to reflect 4 decimal places on values.
*I	3561356	EBZ	Added package weight B2 for Site 2. Added Material Composition table B2 using copper wire material for Site 2. Added reference QTP #120103 for Site 2.
*J	3657419	COPI	Changed QTP reference # 120103 to QTP # 120201 in Assembly Site 2.

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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: 44L-TQFP PB-FREE PACKAGE MATERIAL DECLARATION DATASHEET
Document Number: 001-04267

Rev.	ECN No.	Orig. of Change	Description of Change
			Added 1.0mm thick package using cu wire in B2 and Added B3 1.4mm thick package using cu wire.
*K	3978911	HLR	Removed Tube specification on Indirect Materials tables.
*L	4031297	YUM	Added Assembly site name in the Assembly heading. Changed Assembly Code to Assembly Site Name.
*M	4102877	AWP	Added on Site 1- CML:B3 – 335.5330 gm and QTP 133102 on the topmost table and added new Table B3. Using Green Mold Compound with Copper-Palladium (Cu-Pd) wire at Autoline (reference QTP#133102)
		HLR	Changed/corrected the Total Package Weight for Assembly Site 1. B1 and Assembly Site 3.
*N	4340124	HLR	Added B4 Material Composition for Assembly Site 2 in reference to QTP No. 123808.
*O	4399451	HLR	Added B5 Material Composition for Assembly Site 2 in reference to QTP No. 141404 (CuPd Bonding Wire)
*P	4404991	REYD	Added B2 on Package Weight and QTP # 141302 under Site 4. Added subsections B1.USING GOLD WIRE and B2.USING COPPER PALLADIUM WIRE under Assembly Site 4
*Q	4632520	ZJL	Added item B2 Material Composition for Site 3 Amkor Korea using C194 leadframe.
*R	4677869	VFR	Added PMDD for Assembly Site 5 – Amkor Technology Philippines under QTP # 150202
*S	4897115	MRB	Added reference Package QTP # 141404 for CuPd wire on Assembly site 2_B5
		MEL	Removed Distribution: WEB and Posting: None from the document history page
*T	5268684	HLR	Changed the substances with “-----” and Proprietary to “Trade Secret. Changed Cypress Logo.
*U	6088451	SUIK	Added Section B6 using Die Attach Film and Au Bonding Wire for Assembly Site 2 ASET for QTP#174402

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Rev.	ECN No.	Orig. of Change	Description of Change
		AVE	Replaced CY logo

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