



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

PRODUCT CHANGE NOTIFICATION

PCN: PCN201005

Date: March 10, 2020

Subject: Qualification of ASE-KH as an Additional Copper Inductor (CuIN) Process Site for Select QFN Pb-Free Packages

To: FUTURE ELECTRONICS
FUTURE ELE
pcn.system2@future.ca

Change Type: Major

Description of Change:

Cypress announces the qualification of Advanced Semiconductor Engineering Inc. (ASE-KH, No.47, Kaifa Road, N.E.P.Z. Kaohsiung City 811, Taiwan, R.O.C.) as an additional copper inductor (CUIN) process site for select QFN Pb-Free packages. ASE-KH is Cypress' existing manufacturing site for many other WLCSP (including RDL) products in high volume production mode.

The select QFN Pb-free packages are copper inductor process at ASE-KH using the following Bill of Materials:

Material	ASE-KH Bill of Materials	DECATECH Bill of Materials
Passivation 1	PI (LTC9320)	PBO (HD8930)
RDL	Cu	Cu
Passivation 2	PI (LTC9320)	PBO (HD8930)

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: 84

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 CUIIN process site has been qualified through a series of tests documented in the Qualification Test Plan QTP#192204. This qualification report can be found as an attachment to this PCN.

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 Commercial, Industrial and Automotive non-PPAP part numbers in the attached file will be assembled at ASE-KH or other approved copper inductor process site.

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.

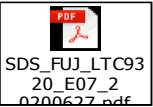









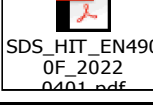
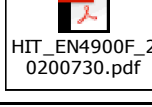
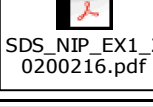
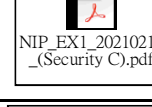
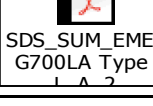
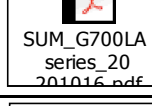


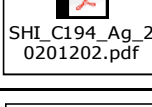
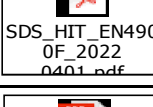
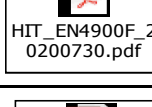
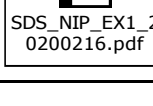
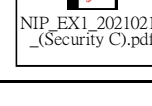
For additional information regarding this change, contact your local sales representative or contact the PCN Administrator at pcn_adm@cypress.com.




Sincerely,

Cypress PCN Administration

Name of part		Material
CuIn RDL Process	Low Cure PI	LTC9320-E07
	Seed Layer	Cu target
		Ti target
	Plated Cu	Purified CuSO4
LQ56A	Lead Frame	Cu (C7025) + Ag Plating
	Die Bonding Paste	EN-4900F
	Wire	Copper Wire (EX1)
	Mold Compound	EME-G700LA Type L-A
	External Plating	Sn (Plating Deposit)
LT48D	Lead Frame	Cu (C194) + Ag Plating
	Die Bonding Paste	EN-4900F
	Wire	Copper Wire (EX1)

	Mold Compound	EME-G700LA Type L-A
	External Plating	Sn (Plating Deposit)

Vendor	SDS	ICP (RoHS)	Expiry Date
Fujifilm Electronics Materials Taiwan Co., Ltd.	 SDS_FUJ_LTC93 20_E07_2 0200627.pdf	 FUJ_LTC9320_E0 7_20200422.pdf	4/22/2020
Umicore AG & Co. KG	 SDS_Umicore_CU _20191222.pdf	 Umicore_target _Cu4N5_2 0210117.pdf	1/17/2021
Umicore AG & Co. KG	 SDS_Umicore_Ti _20200105.pdf	 Umicore_target_ Ti3N_202 10122.pdf	1/22/2021
The Dow Chemical Company	 SDS_DOW_Purifi ed CuSO4_2	 DOW_Purified CuSO4_20 200821.pdf	8/21/2020
Mitsui High-Tec, Inc.	 SDS_MITSUI_C7 025+Ag_2 0220211.pdf	 MITSUI_C7025_Ag _20210305_(Security C).pdf	3/5/2021
Hitachi Chemical Co., Ltd. (Yamazaki Works)	 SDS_HIT_EN490 0F_2022 0401.pdf	 HIT_EN4900F_2 0200730.pdf	7/30/2020
Nippon Micrometal Corporation	 SDS_NIP_EX1_2 0200216.pdf	 NIP_EX1_20210210 _(Security C).pdf	2/10/2021
Sumitomo Bakelite (Taiwan) Co., Ltd.	 SDS_SUM_EME_ G700LA Type LA_2	 SUM_G700LA series_20 201016.pdf	10/16/2020
Advanced Semiconductor Engineering Inc.		 Plating Sn_2020041 6.pdf	4/16/2020
Shinko Electric Industries Co., Ltd.	 MSDS_SHINKO_C 194+Ag Plating	 SHI_C194_Ag_2 0201202.pdf	12/2/2020
Hitachi Chemical Co., Ltd. (Yamazaki Works)	 SDS_HIT_EN490 0F_2022 0401.pdf	 HIT_EN4900F_2 0200730.pdf	7/30/2020
Nippon Micrometal Corporation	 SDS_NIP_EX1_2 0200216.pdf	 NIP_EX1_20210210 _(Security C).pdf	2/10/2021

Sumitomo Bakelite (Taiwan) Co., Ltd.	 SDS_SUM_EME_ G700LA Type LA 2	 SUM_G700LA series_20 201016.pdf	10/16/2020
Advanced Semiconductor Engineering Inc.		 Plating Sn_2020041 6.pdf	4/16/2020

Cypress Semiconductor Package Qualification Report

QTP# 192204 VERSION
February 2020**

**48-Pin QFN (7x7x1.0mm)
56-Pin QFN (7x7x0.6mm)
Pure Sn Leadfinish
MSL3, 260°C Reflow
ASE-Taiwan (G)**

**FOR ANY QUESTIONS ON THIS REPORT, PLEASE CONTACT
reliability@cypress.com**

Prepared By:
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Reliability Engineer

Reviewed By:
Lorena Zapanta (ILZ)
Reliability Manager

Approved By:
David Hoffman (DHH)
Reliability Director

PACKAGE QUALIFICATION HISTORY

QTP Number	Description of Qualification Purpose	Date
192204	Qualification of ASE-Taiwan (G) as an additional Copper Inductor (CUIN) Site for 48 and 56-Pin QFN Packages	February 2020

MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION	
Package Designation:	LQ56A
Package Outline, Type, or Name:	56-Pin QFN , 7x7x0.6mm
Mold Compound Name/Manufacturer:	EME-G700/Sumitomo
Mold Compound Flammability Rating:	V-0 / UL94
Oxygen Rating Index: >28%	54%
Lead Frame Designation:	Full Metal Paddle (FMP)
Lead Frame Material:	Copper
Lead Finish, Composition / Thickness:	Pure Sn
Die Backside Preparation Method/Metallization:	Backgrind
Die Separation Method:	Saw Process
Die Attach Supplier:	Hitachi
Die Attach Material:	EN4900
Bond Diagram Designation	001-97062
Wire Bond Method:	Thermosonic
Package Cross Section Yes/No:	Yes
Assembly Process Flow:	49-41999
Name/Location of Assembly (prime) facility:	ASE-Taiwan (G)
MSL Level	3
Reflow Profile	260

ELECTRICAL TEST / FINISH DESCRIPTION	
Test Location:	CML-RA

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, 260°C Reflow)	P
Ball Shear	JESD22-B116	P
Bond Pull	MIL-STD-883 – Method 2011	P
Constructional Analysis	Criteria: Meet external and internal characteristics of Cypress package	P
Die Shear	MIL-STD-883, Method 2019	P
Dye Penetrant Test	Test to determine the existence and extent of cracks, Criteria: No Package Crack	P
Electrostatic Discharge Charge Device Model (ESD-CDM)	500V/750V/1,000V JESD22-C101	P
Final Visual Inspection	JESD22-B101	P
High Accelerated Saturation Test (HAST)	JEDEC STD 22-A110: 130°C, 85%RH, 5.5V Precondition: JESD22 Moisture Sensitivity Level (192 Hrs., 30°C, 60% RH, 260°C Reflow)	P
High Temperature Storage	JESD22-A103:150°C No bias	P
Internal Visual Inspection	MIL-STD-883-2014	P
Physical Dimension	MIL-STD-1835, JESD22-B100	P
Pressure Cooker Test	JESD22-A102, 121°C, 100%RH, 15 PSIG Precondition: JESD22 Moisture Sensitivity Level (192 Hrs., 30°C, 60% RH, 260°C Reflow)	P
Solderability	J-STD-002, JESD22-B102 95% solder coverage minimum	P
Temperature Cycle	MIL-STD-883, Method 1010, Condition C, -65°C to 150°C Precondition: JESD22 Moisture Sensitivity Level (192 Hrs., 30°C, 60% RH, 260°C Reflow)	P
X-Ray	MIL-STD-883 - 2012	P



Reliability Test Data

QTP #: 192204

<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								
CY8C4128LQI (8CP47600A)	LQ56	4909564	611931933	G-TAIWAN	COMP	22	0	
CY8C4128LQI (8CP47600A)	LQ56	4909564	611931934	G-TAIWAN	COMP	22	0	
CY8C4128LQI (8CP47600A)	LQ56	4909564	611931932	G-TAIWAN	COMP	22	0	
STRESS: BALL SHEAR								
CY8C4128LQI (8CP47600A)	LQ56	4909564	611931933	G-TAIWAN	COMP	40	0	
CY8C4128LQI (8CP47600A)	LQ56	4909564	611931934	G-TAIWAN	COMP	40	0	
CY8C4128LQI (8CP47600A)	LQ56	4909564	611931932	G-TAIWAN	COMP	40	0	
STRESS: BOND PULL								
CY8C4128LQI (8CP47600A)	LQ56	4909564	611931933	G-TAIWAN	COMP	100	0	
CY8C4128LQI (8CP47600A)	LQ56	4909564	611931934	G-TAIWAN	COMP	100	0	
CY8C4128LQI (8CP47600A)	LQ56	4909564	611931932	G-TAIWAN	COMP	100	0	
STRESS: CONSTRUCTIONAL ANALYSIS								
CY8C4128LQI (8CP47600A)	LQ56	4909564	611931933	G-TAIWAN	COMP	5	0	
CY8C4128LQI (8CP47600A)	LQ56	4909564	611931934	G-TAIWAN	COMP	5	0	
CY8C4128LQI (8CP47600A)	LQ56	4909564	611931932	G-TAIWAN	COMP	5	0	
STRESS: DIE SHEAR								
CY8C4128LQI (8CP47600A)	LQ56	4909564	611931933	G-TAIWAN	COMP	10	0	
CY8C4128LQI (8CP47600A)	LQ56	4909564	611931934	G-TAIWAN	COMP	10	0	
CY8C4128LQI (8CP47600A)	LQ56	4909564	611931932	G-TAIWAN	COMP	10	0	
STRESS: DYE PENETRANT TEST								
CY8C4128LQI (8CP47600A)	LQ56	4909564	611931933	G-TAIWAN	COMP	15	0	
CY8C4128LQI (8CP47600A)	LQ56	4909564	611931934	G-TAIWAN	COMP	15	0	
CY8C4128LQI (8CP47600A)	LQ56	4909564	611931932	G-TAIWAN	COMP	15	0	
STRESS: ESD-CHARGE DEVICE MODEL								
CY8C4128LQI (8CP47600A)	LQ56	4909564	611931933	G-TAIWAN	500	9	0	
CY8C4128LQI (8CP47600A)	LQ56	4909564	611931933	G-TAIWAN	750	3	0	
CY8C4128LQI (8CP47600A)	LQ56	4909564	611931933	G-TAIWAN	1000	3	0	



Reliability Test Data

QTP #: 192204

<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: FINAL VISUAL								
CY8C4128LQI (8CP47600A)	LQ56	4909564	611931933	G-TAIWAN	COMP	2724	0	
CY8C4128LQI (8CP47600A)	LQ56	4909564	611931934	G-TAIWAN	COMP	2720	0	
CY8C4128LQI (8CP47600A)	LQ56	4909564	611931932	G-TAIWAN	COMP	2552	0	
STRESS: GLUE ADHESION								
CY8C4128LQI (8CP47600A)	LQ56	4909564	611931933	G-TAIWAN	COMP	15	0	
CY8C4128LQI (8CP47600A)	LQ56	4909564	611931934	G-TAIWAN	COMP	15	0	
CY8C4128LQI (8CP47600A)	LQ56	4909564	611931932	G-TAIWAN	COMP	15	0	
STRESS: HI-ACCEL SATURATION TEST, 130C, 5.5V, 85%RH, PRE COND 192 HR 30C/60%RH, MSL3								
CY8C4128LQI (8CP47600A)	LQ56	4909564	611931933	G-TAIWAN	96	30	0	
CY8C4128LQI (8CP47600A)	LQ56	4909564	611931933	G-TAIWAN	128	30	0	
CY8C4128LQI (8CP47600A)	LQ56	4909564	611931934	G-TAIWAN	96	30	0	
CY8C4128LQI (8CP47600A)	LQ56	4909564	611931934	G-TAIWAN	128	30	0	
CY8C4128LQI (8CP47600A)	LQ56	4909564	611931932	G-TAIWAN	96	28	0	
STRESS: HIGH TEMPERATURE STORAGE, PLASTIC, 150C								
CY8C4128LQI (8CP47600A)	LQ56	4909564	611931933	G-TAIWAN	500	50	0	
CY8C4128LQI (8CP47600A)	LQ56	4909564	611931933	G-TAIWAN	1000	50	0	
STRESS: INTERNAL VISUAL								
CY8C4128LQI (8CP47600A)	LQ56	4909564	611931933	G-TAIWAN	COMP	5	0	
CY8C4128LQI (8CP47600A)	LQ56	4909564	611931934	G-TAIWAN	COMP	5	0	
CY8C4128LQI (8CP47600A)	LQ56	4909564	611931932	G-TAIWAN	COMP	5	0	
STRESS: PRESSURE COOKER TEST (121C, 100%RH), 15 Psig, PRE COND 192 HR 30C/60%RH (MSL3)								
CY8C4128LQI (8CP47600A)	LQ56	4909564	611931933	G-TAIWAN	168	80	0	
STRESS: PHYSICAL DIMENSION								
CY8C4128LQI (8CP47600A)	LQ56	4909564	611931933	G-TAIWAN	COMP	315	0	
CY8C4128LQI (8CP47600A)	LQ56	4909564	611931934	G-TAIWAN	COMP	315	0	
CY8C4128LQI (8CP47600A)	LQ56	4909564	611931932	G-TAIWAN	COMP	315	0	



Reliability Test Data

QTP #: 192204

<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: SOLDERABILITY								
CY27410FLTXI (7CP85400A)	LT48	4450445	611524502	G-TAIWAN	COMP	3	0	
8CP206201	LQ56	N/A	N/A	G-TAIWAN	COMP	3	0	
8CP206201	LQ56	N/A	N/A	G-TAIWAN	COMP	3	0	
STRESS: TC COND. C -65C TO 150C, PRE COND 192 HR 30C/60%RH, MSL3								
CY8C4128LQI (8CP47600A)	LQ56	4909564	611931933	G-TAIWAN	500	80	0	
CY8C4128LQI (8CP47600A)	LQ56	4909564	611931933	G-TAIWAN	1000	80	0	
CY8C4128LQI (8CP47600A)	LQ56	4909564	611931934	G-TAIWAN	500	80	0	
CY8C4128LQI (8CP47600A)	LQ56	4909564	611931934	G-TAIWAN	1000	80	0	
CY8C4128LQI (8CP47600A)	LQ56	4909564	611931932	G-TAIWAN	500	79	0	
CY8C4128LQI (8CP47600A)	LQ56	4909564	611931932	G-TAIWAN	1000	79	0	
STRESS: THIN WHISKER TESTING								
CY8C4128LQI (8CP47600A)	LQ56	4909564	611931933	G-TAIWAN	COMP	18	0	
STRESS: X-RAY								
CY8C4128LQI (8CP47600A)	LQ56	4909564	611931933	G-TAIWAN	COMP	15	0	
CY8C4128LQI (8CP47600A)	LQ56	4909564	611931934	G-TAIWAN	COMP	15	0	
CY8C4128LQI (8CP47600A)	LQ56	4909564	611931932	G-TAIWAN	COMP	15	0	



Document History Page

Document Title: QTP# 192204: 48-PIN QFN (7X7X1.0MM) AND 56-PIN QFN (7X7X0.6MM) PURE SN
LEADFINISH, MSL3, 260C REFLOW, ASE-TAIWAN (G)
Document Number: 002-29579

Rev.	ECN No.	Orig. of Change	Description of Change
**	6792044	JYF	Initial release.



Material Composition Declaration

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This document is a declaration of the substances within the manufacturer listed item. Note: if the item is an assembly with lower level parts, the declaration encompasses all lower level materials for which the manufacturer has engineering responsibility.

Adobe Reader version 7.0.5 is required to complete this declaration.

1752-2 1.1	IPC Web Site for Information on IPC-1752 Standard http://www.ipc.org/IPC-175x	Form Type * Distribute	Declaration Class * Class 6 - RoHS Yes/No, Homogeneous Materials and Mfg Informat
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Supplier Information

Company Name *	Company Unique ID	Unique ID Authority	Response Date *	Response Document ID				
Cypress Semiconductor Corp	CY	CY	2020-01-20					
Contact Name *	Title - Contact	Phone - Contact *	Email - Contact *	Duplicate Contact -> Authorized Representative				
Quality Customer Support Center	Quality Customer Support Group	6328497500	qacs_team@cypress.com					
Authorized Representative *	Title - Representative	Phone - Representative *	Email - Representative *	Supplier Comments or URL for Additional Information				
Jeff Gary Balesca	EH&S Engineer	6328497500	jgtb@cypress.com					
Requester Item Number	Mfr Item Number	Mfr Item Name	Effective Date	Version	Manufacturing Site	Weight *	UOM	Unit Type
LQ56A	QFN 56 (7x7x0.6mm)	QFN 56 (7x7x0.6 mm)	2020-01-20		ASEK	115.6	mg	Each
Alternate Recommendation				Alternate Item Comments	Package QTP No. 192204			

Manufacturing Process Information

Terminal Plating / Grid Array Material	Terminal Base Alloy	J-STD-020 MSL Rating	Peak Process Body Temperature	Max Time at Peak Temperature	Number of Reflow Cycles
Tin (Sn)	CU Alloy	3	260 C	30 seconds	3

Comments

Direct Material Analysis Test Report: Repassivation polyamide (002-29539); Redistribution metal(002-26320,002-27189 &002-24193); mold compound (002-26415); die attach (002-26415)

* Required Field

CAS Registry Number(R) is a Registered Trademark of the American Chemical Society

Form enabled by Adobe

Save the fields in this form to a file	<input type="button" value="Export Data"/>	Import fields from a file into this form	<input type="button" value="Import Data"/>	Clear all of the fields on this form	<input type="button" value="Reset Form"/>	Lock the fields on this form to prevent changes	<input type="button" value="Lock Supplier Fields"/>
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RoHS Material Composition Declaration	Declaration Type *	<input type="button" value="Detailed"/>
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RoHS Directive 2002/95/EC	RoHS Definition: Quantity limit of 0.1% by mass (1000 PPM) in homogeneous material for: Lead (Pb), Mercury, Hexavalent Chromium, Polybrominated Biphenyls (PBB), Polybrominated Diphenyl Ethers (PBDE) and quantity limit of 0.01% by mass (100 PPM) of homogeneous material for Cadmium
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Please indicate whether any homogeneous material (as defined by the RoHS Directive, EU 2002/95/EC and implemented by the laws of the European Union member states) of the part identified on this form contains lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls and/or polybrominated diphenyl ethers (each a "RoHS restricted substance") in excess of the applicable quantity limit identified above. If a homogeneous material within the part contains a RoHS restricted substance in excess of an applicable quantity limit, please indicate below which, if any, RoHS exemption you believe may apply. If the part is an assembly with lower level components, the declaration shall encompass all such components. Supplier certifies that it gathered the information it provides in this form using appropriate methods to ensure its accuracy and that such information is true and correct to the best of its knowledge and belief, as of the date that Supplier completes this form. Supplier acknowledges that Company will rely on this certification in determining the compliance of its products with European Union member state laws that implement the RoHS Directive. Company acknowledges that Supplier may have relied on information provided by others in completing this form, and that Supplier may not have independently verified such information. However, in situations where Supplier has not independently verified information provided by others, Supplier agrees that, at a minimum, its suppliers have provided certifications regarding their contributions to the part, and those certifications are at least as comprehensive as the certification in this paragraph. If the Company and the Supplier enter into a written agreement with respect to the identified part, the terms and conditions of that agreement, including any warranty rights and/or remedies provided as part of that agreement, will be the sole and exclusive source of the Supplier's liability and the Company's remedies for issues that arise regarding information the Supplier provides in this form. In the absence of such written agreement, the warranty rights and/or remedies of Supplier's Standard Terms and Conditions of Sale applicable to such part shall apply.

RoHS Declaration *	1 - Item(s) does not contain RoHS restricted substances per the definition above	Supplier Acceptance *	<input type="button" value="Accepted"/>
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Exemptions: If the declared item does not contain RoHS restricted substances per the definition above except for defined RoHS exemptions, then select the corresponding response in the RoHS Declaration above and choose all applicable exemptions.

Declaration Signature

Instructions: Complete all of the required fields on all pages of this form. Select the "Accepted" on the Supplier Acceptance drop-down. This will display the signature area. Digitally sign the declaration (if required by the Requester) and click on Submit Form to have the form returned to the Requester.

Supplier Digital Signature	Jeff Gary Ballesca	Digitally signed by Jeff Gary Ballesca Date: 2019.11.18 09:11:06 +08'00'
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Homogeneous Material Composition Declaration for Electronic Products

SubItem Instructions: The presence of any JIG Level A or B substances must be declared. [1] indicate the subpart in which the substance is located, [2] provide a description of the homogeneous material [3], enter the weight of the homogeneous material.

Substance Instructions: [A] select the Level (JIG A, JIG B, Requester or Supplier) [B] select the substance category (JIG or Requester) or enter a value (Supplier). [C] select the substance (JIG) or enter the substance and CAS (Other). [D] select a RoHS exemption, if applicable [E] enter the weight of the substance or the PPM concentration [F] Optionally enter the positive (+) and negative (-) tolerance in percent (Note: percent tolerance values are expected to cover a 3 sigma range of distribution unless otherwise noted).

Line Functions: +I Inserts a New Item /SubItem +M Inserts a new Material +C Inserts a new Substance Category +S Inserts a new Substance - Deletes the element line

+I	-I	Item/SubItem Name	+M	-M	Homogeneous Material	Weight	Unit of Measure	Level	Substance Category	Substance	CAS	Exempt	Weight	Unit of Measure	Tolerance		PPM		
															-	+			
+I	-I	Base Material	+M	-M	Leadframe (C70)	45	mg	+C -C	Supplier	Copper	+S -S	Copper	7440-50-8		43.0875	mg			372,60
								+C -C	Supplier	Silver	+S -S	Silver	7440-22-4		0.2115	mg			1,829
								+C -C	B	Nickel (external applic	+S -S	Nickel	7440-02-0		1.341	mg			11,590
								+C -C	Supplier	Silicon	+S -S	Silicon	7440-21-3		0.2925	mg			2,530
								+C -C	Supplier	Magnesium	+S -S	Magnesium	7439-95-4		0.0675	mg			584
+I	-I	External Plating	+M	-M	Leadfinish	0.7999	mg	+C -C	Supplier	Tin	+S -S	Tin	7440-31-5		0.7999	mg			6,919
+I	-I	Adhesive	+M	-M	Die Attach	2.8	mg	+C -C	Supplier	2-Phenoxyethyl Acry	+S -S	2-Phenoxyethyl Acry	48145-04-6		0.21	mg			1,816
								+C -C	Supplier	trimethoxysilane	+S -S	trimethoxysilane	Trade Se		0.042	mg			363
								+C -C	Supplier	Silver	+S -S	Silver	7440-22-4		2.03	mg			17,550
								+C -C	Supplier	epoxidized derivati	+S -S	epoxidized derivative	Trade Se		0.28	mg			2,422
								+C -C	Supplier	Butadiene copolym	+S -S	Butadiene copolymer	Trade Se		0.014	mg			121
								+C -C	Supplier	Bisphenol F diacry	+S -S	Bisphenol F diacrylate	Trade Se		0.21	mg			1,816
								+C -C	Supplier	Peroxy Ketals	+S -S	Peroxy Ketals	Trade Se		0.014	mg			121
+I	-I	Circuit	+M	-M	Die	2.55	mg	+C -C	Supplier	Silicon	+S -S	Silicon	7440-21-3		2.55	mg			40,654
+I	-I	Repassivation Poly	+M	-M	Polyamic Ester	1.4666	mg	+C -C	Supplier	Low Cure PI (LTC93	+S -S	Gamma-Butyrolactone	96-48-0		0.6658	mg			5,759
								+C -C	Supplier	Low Cure PI LTC93	+S -S	Dimethyl Sulfoxide	67-68-5		0.1907	mg			1,649
								+C -C	Supplier	Low Cure PI LTC93	+S -S	Tetraethylene glycol	109-17-1		0.0733	mg			634
								+C -C	Supplier	Low Cure PI LTC93	+S -S	1,2-Octanedione, 1-[4	253585-82-1		0.0176	mg			152
								+C -C	Supplier	Low Cure PI LTC93	+S -S	Polyamic acid ester	Trade Se		0.5192	mg			4,491
+I	-I	Redistribution Meta	+M	-M	Redistribution M	0.6834	mg	+C -C	Supplier	Seed Layer	+S -S	Titanium	7440-32-6		0.0082	mg			71
								+C -C	Supplier	Redistribution Metal	+S -S	Copper	7440-50-8		0.6752	mg			5,841
+I	-I	Interconnect	+M	-M	Wire	0.41	mg	+C -C	Supplier	Copper	+S -S	Copper	7440-50-8		0.3973	mg			3,436
								+C -C	Supplier	Palladium	+S -S	Palladium	7440-05-3		0.0127	mg			110

* Required Field

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+I	-I	Encapsulation	+M	-M	Mold Compound	61.9	mg	+C	-C	Supplier	Epoxy Resin	+S	-S	Epoxy Resin	Trade se		4.952	mg			42,824
								+C	-C	Supplier	Phenol Resin	+S	-S	Phenol Resin	Trade se		2.476	mg			21,417
								+C	-C	Supplier	Carbon Black	+S	-S	Carbon Black	1333-86-4		0.3714	mg			3,213
								+C	-C	Supplier	Silica(Amorphous) A	+S	-S	Silica(Amorphous) A	60676-86-0		49.1486	mg			425,12
								+C	-C	Supplier	Silica(Amorphous) B	+S	-S	Silica(Amorphous) B	7631-86-9		4.952	mg			42,824

* Required Field

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Material Composition Declaration

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This document is a declaration of the substances within the manufacturer listed item. Note: if the item is an assembly with lower level parts, the declaration encompasses all lower level materials for which the manufacturer has engineering responsibility.

Adobe Reader version 7.0.5 is required to complete this declaration.

1752-2 1.1	IPC Web Site for Information on IPC-1752 Standard http://www.ipc.org/IPC-175x	Form Type * Distribute	Declaration Class * Class 6 - RoHS Yes/No, Homogeneous Materials and Mfg Informat
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Supplier Information

Company Name *	Company Unique ID	Unique ID Authority	Response Date *	Response Document ID				
ACypress Semiconductor Co	CY		2020-02-05					
Contact Name *	Title - Contact	Phone - Contact *	Email - Contact *	Duplicate Contact -> Authorized Representative				
Quality Customer Support Group	Quality Customer Support Group	6328497500	Jqacs_team@cypress.com					
Authorized Representative *	Title - Representative	Phone - Representative *	Email - Representative *	Supplier Comments or URL for Additional Information				
Jeff Gary Balesca	EH&S Engineer	6328497500	jgtb@cypress.com					
Requester Item Number	Mfr Item Number	Mfr Item Name	Effective Date	Version	Manufacturing Site	Weight *	UOM	Unit Type
LT48D	LT48D QFN (7X7X0.65mm)	LT48D QFN (7X7X0.65mm)	2020-02-05		ASE Taiwan	115	mg	Each
Alternate Recommendation				Alternate Item Comments	Package QTP No. 192204			

Manufacturing Process Information

Terminal Plating / Grid Array Material	Terminal Base Alloy	J-STD-020 MSL Rating	Peak Process Body Temperature	Max Time at Peak Temperature	Number of Reflow Cycles
Tin (Sn)	CU Alloy	3	260 C	30 seconds	3

Comments

Direct Material Analysis Report - Repassivation polyamide (002-29539); Redistribution metal(002-26320,002-27189 &002-24193); mold compound (002-26415); die attach (001-79

* Required Field

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Save the fields in this form to a file	<input type="button" value="Export Data"/>	Import fields from a file into this form	<input type="button" value="Import Data"/>	Clear all of the fields on this form	<input type="button" value="Reset Form"/>	Lock the fields on this form to prevent changes	<input type="button" value="Lock Supplier Fields"/>
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RoHS Material Composition Declaration	Declaration Type *	<input type="button" value="Detailed"/>
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RoHS Directive 2002/95/EC	RoHS Definition: Quantity limit of 0.1% by mass (1000 PPM) in homogeneous material for: Lead (Pb), Mercury, Hexavalent Chromium, Polybrominated Biphenyls (PBB), Polybrominated Diphenyl Ethers (PBDE) and quantity limit of 0.01% by mass (100 PPM) of homogeneous material for Cadmium
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Please indicate whether any homogeneous material (as defined by the RoHS Directive, EU 2002/95/EC and implemented by the laws of the European Union member states) of the part identified on this form contains lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls and/or polybrominated diphenyl ethers (each a "RoHS restricted substance") in excess of the applicable quantity limit identified above. If a homogeneous material within the part contains a RoHS restricted substance in excess of an applicable quantity limit, please indicate below which, if any, RoHS exemption you believe may apply. If the part is an assembly with lower level components, the declaration shall encompass all such components. Supplier certifies that it gathered the information it provides in this form using appropriate methods to ensure its accuracy and that such information is true and correct to the best of its knowledge and belief, as of the date that Supplier completes this form. Supplier acknowledges that Company will rely on this certification in determining the compliance of its products with European Union member state laws that implement the RoHS Directive. Company acknowledges that Supplier may have relied on information provided by others in completing this form, and that Supplier may not have independently verified such information. However, in situations where Supplier has not independently verified information provided by others, Supplier agrees that, at a minimum, its suppliers have provided certifications regarding their contributions to the part, and those certifications are at least as comprehensive as the certification in this paragraph. If the Company and the Supplier enter into a written agreement with respect to the identified part, the terms and conditions of that agreement, including any warranty rights and/or remedies provided as part of that agreement, will be the sole and exclusive source of the Supplier's liability and the Company's remedies for issues that arise regarding information the Supplier provides in this form. In the absence of such written agreement, the warranty rights and/or remedies of Supplier's Standard Terms and Conditions of Sale applicable to such part shall apply.

RoHS Declaration *	1 - Item(s) does not contain RoHS restricted substances per the definition above	Supplier Acceptance *	<input type="button" value="Accepted"/>
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Exemptions: If the declared item does not contain RoHS restricted substances per the definition above except for defined RoHS exemptions, then select the corresponding response in the RoHS Declaration above and choose all applicable exemptions.

Declaration Signature

Instructions: Complete all of the required fields on all pages of this form. Select the "Accepted" on the Supplier Acceptance drop-down. This will display the signature area. Digitally sign the declaration (if required by the Requester) and click on Submit Form to have the form returned to the Requester.

Supplier Digital Signature	Jeff Gary Ballesca	Digitally signed by Jeff Gary Ballesca Date: 2018.08.23 14:08:14 -07'00'
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Homogeneous Material Composition Declaration for Electronic Products

SubItem Instructions: The presence of any JIG Level A or B substances must be declared. [1] indicate the subpart in which the substance is located, [2] provide a description of the homogeneous material [3], enter the weight of the homogeneous material.

Substance Instructions: [A] select the Level (JIG A, JIG B, Requester or Supplier) [B] select the substance category (JIG or Requester) or enter a value (Supplier). [C] select the substance (JIG) or enter the substance and CAS (Other). [D] select a RoHS exemption, if applicable [E] enter the weight of the substance or the PPM concentration [F] Optionally enter the positive (+) and negative (-) tolerance in percent (Note: percent tolerance values are expected to cover a 3 sigma range of distribution unless otherwise noted).

Line Functions: +I Inserts a New Item /SubItem +M Inserts a new Material +C Inserts a new Substance Category +S Inserts a new Substance - Deletes the element line

+I	-I	Item/SubItem Name	+M	-M	Homogeneous Material	Weight	Unit of Measure	Level	Substance Category	Substance	CAS	Exempt	Weight	Unit of Measure	Tolerance		PPM		
															-	+			
+I	-I	Base Material	+M	-M	Leadframe	45	mg	+C -C	Supplier	Copper (Cu)	+S -S	Copper (Cu)	7440-50-8		43.749	mg			380,44
								+C -C	Supplier	Iron(Fe)	+S -S	Iron(Fe)	7439-89-6		0.9315	mg			8,100
								+C -C	Supplier	Phosphorus(P)	+S -S	Phosphorus(P)	7723-14-0		0.0045	mg			39
								+C -C	Supplier	Zinc(Zn)	+S -S	Zinc(Zn)	7440-66-6		0.036	mg			313
								+C -C	Supplier	Silver(Ag)	+S -S	Silver(Ag)	7440-22-4		0.279	mg			2,426
+I	-I	External Plating	+M	-M	External Plating	0.4	mg	+C -C	Supplier	Tin (Sn)	+S -S	Tin (Sn)	7440-31-5		0.4	mg			3,478
+I	-I	Adhesive	+M	-M	Die Attach	1.6	mg	+C -C	Supplier	2-Phenoxyethyl Acry	+S -S	2-Phenoxyethyl Acry	48145-04		0.12	mg			1,043
								+C -C	Supplier	trimethoxysilane	+S -S	trimethoxysilane	Trade Se		0.024	mg			209
								+C -C	Supplier	Silver	+S -S	Silver	7440-22-4		1.16	mg			10,087
								+C -C	Supplier	epoxidized derivati	+S -S	epoxidized derivative	Trade Se		0.16	mg			1,391
								+C -C	Supplier	Butadiene copolym	+S -S	Butadiene copolymer	Trade Se		0.008	mg			70
								+C -C	Supplier	Bisphenol F diacry	+S -S	Bisphenol F diacrylate	Trade Se		0.12	mg			1,043
								+C -C	Supplier	Peroxy Ketals	+S -S	Peroxy Ketals	Trade Se		0.008	mg			70
+I	-I	Circuit	+M	-M	Die	3.55	mg	+C -C	Supplier	Silicon	+S -S	Silicon	7440-21-3		3.55	mg			30,869
+I	-I	Repassivation poly	+M	-M	Polyamic Ester	1.4666	mg	+C -C	Supplier	Gamma-Butyrolact	+S -S	Gamma-Butyrolactone	96-48-0		0.6658	mg			5,790
								+C -C	Supplier	Dimethyl Sulfoxide	+S -S	Dimethyl Sulfoxide	67-68-5		0.1907	mg			1,658
								+C -C	Supplier	Tetraethylene glyc	+S -S	Tetraethylene glycol	109-17-1		0.0733	mg			638
								+C -C	Supplier	1,2-Octanedione, 1	+S -S	1,2-Octanedione, 1-[4	253585-82		0.0176	mg			153
								+C -C	Supplier	Polyamic acid ester	+S -S	Polyamic acid ester	Trade Se		0.5192	mg			4,515
+I	-I	Redistribution Me	+M	-M	Redistribution	0.6834	mg	+C -C	Supplier	Titanium	+S -S	Titanium	7440-32-6		0.0082	mg			71
								+C -C	Supplier	Copper	+S -S	Copper	7440-50-8		0.6752	mg			5,872
+I	-I	Interconnect	+M	-M	Bonding wire	0.5	mg	+C -C	Supplier	Copper	+S -S	Copper	7440-50-8		0.4845	mg			4,213
								+C -C	Supplier	Palladium	+S -S	Palladium	7440-05-3		0.0155	mg			135

* Required Field

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+I	-I	Encapsulation	+M	-M	Mold Compound	61.8	mg	+C	-C	Supplier	Epoxy Resin	+S	-S	Epoxy Resin	Trade se		4.944	mg			42,994
								+C	-C	Supplier	Phenol Resin	+S	-S	Phenol Resin	Trade se		2.472	mg			21,496
								+C	-C	Supplier	Silica(Amorphous)	+S	-S	Silica(Amorphous) A	60676-86-0		49.0692	mg			426,68
								+C	-C	Supplier	Silica(Amorphous)	+S	-S	Silica(Amorphous) B	7631-86-9		4.944	mg			42,994
								+C	-C	Supplier	Carbon Black	+S	-S	Carbon Black	1333-86-4		0.3708	mg			3,224

* Required Field

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Item	Marketing Part Number	Sample Order Part Number	Sample Status
1	CY27410FLTXI	CY27410FLTXIKG	Subject to leadtime
2	CY27410FLTXIT	CY27410FLTXIKG	Subject to leadtime
3	CY27410LTXI-002	CY27410LTXI-002KG	Subject to leadtime
4	CY27410LTXI-002T	CY27410LTXI-002KG	Subject to leadtime
5	CY27410LTXI-004	CY27410LTXI-004KG	Subject to leadtime
6	CY27410LTXI-004T	CY27410LTXI-004KG	Subject to leadtime
7	CY27410LTXI-007	CY27410LTXI-007KG	Subject to leadtime
8	CY27410LTXI-007T	CY27410LTXI-007KG	Subject to leadtime
9	CY27410LTXI-008	CY27410LTXI-008KG	Subject to leadtime
10	CY27410LTXI-008T	CY27410LTXI-008KG	Subject to leadtime
11	CY27410LTXI-013	CY27410LTXI-013KG	Subject to leadtime
12	CY27410LTXI-013T	CY27410LTXI-013KG	Subject to leadtime
13	CY27410LTXI-015	CY27410LTXI-015KG	Subject to leadtime
14	CY27410LTXI-015T	CY27410LTXI-015KG	Subject to leadtime
15	CY27410LTXI-016	CY27410LTXI-016KG	Subject to leadtime
16	CY27410LTXI-016T	CY27410LTXI-016KG	Subject to leadtime
17	CY27410LTXI-018	CY27410LTXI-018KG	Subject to leadtime
18	CY27410LTXI-018T	CY27410LTXI-018KG	Subject to leadtime
19	CY27410LTXI-020	CY27410LTXI-020KG	Subject to leadtime
20	CY27410LTXI-020T	CY27410LTXI-020KG	Subject to leadtime
21	CY27410LTXI-021	CY27410LTXI-021KG	Subject to leadtime
22	CY27410LTXI-021T	CY27410LTXI-021KG	Subject to leadtime
23	CY27410LTXI-022	CY27410LTXI-022KG	Subject to leadtime
24	CY27410LTXI-022T	CY27410LTXI-022KG	Subject to leadtime
25	CY27410LTXI-023	CY27410LTXI-023KG	Subject to leadtime
26	CY27410LTXI-023T	CY27410LTXI-023KG	Subject to leadtime
27	CY8C4127LQI-BL453	CY8C4127LQI-BL453KG	Subject to leadtime
28	CY8C4127LQI-BL453T	CY8C4127LQI-BL453KG	Subject to leadtime
29	CY8C4127LQI-BL473	CY8C4127LQI-BL473KG	WW1120
30	CY8C4127LQI-BL473T	CY8C4127LQI-BL473KG	WW1120
31	CY8C4127LQI-BL483	CY8C4127LQI-BL483KG	Subject to leadtime
32	CY8C4127LQI-BL483T	CY8C4127LQI-BL483KG	Subject to leadtime
33	CY8C4127LQI-BL493	CY8C4127LQI-BL493KG	Subject to leadtime
34	CY8C4127LQI-BL493T	CY8C4127LQI-BL493KG	Subject to leadtime
35	CY8C4128LQI-BL543	CY8C4128LQI-BL543KG	Subject to leadtime
36	CY8C4128LQI-BL543T	CY8C4128LQI-BL543KG	Subject to leadtime
37	CY8C4128LQI-BL553	CY8C4128LQI-BL553KG	Subject to leadtime
38	CY8C4128LQI-BL553T	CY8C4128LQI-BL553KG	Subject to leadtime
39	CY8C4128LQI-BL563	CY8C4128LQI-BL563KG	WW1120
40	CY8C4128LQI-BL563T	CY8C4128LQI-BL563KG	WW1120
41	CY8C4128LQI-BL573	CY8C4128LQI-BL573KG	Subject to leadtime
42	CY8C4128LQI-BL573T	CY8C4128LQI-BL573KG	Subject to leadtime
43	CY8C4128LQI-BL583	CY8C4128LQI-BL583KG	Subject to leadtime
44	CY8C4128LQI-BL583T	CY8C4128LQI-BL583KG	Subject to leadtime
45	CY8C4128LQI-BL593	CY8C4128LQI-BL593KG	Subject to leadtime
46	CY8C4128LQI-BL593T	CY8C4128LQI-BL593KG	Subject to leadtime

47	CY8C4247LQI-BL453	CY8C4247LQI-BL453KG	WW1020
48	CY8C4247LQI-BL453T	CY8C4247LQI-BL453KG	WW1020
49	CY8C4247LQI-BL463	CY8C4247LQI-BL463KG	Subject to leadtime
50	CY8C4247LQI-BL463T	CY8C4247LQI-BL463KG	Subject to leadtime
51	CY8C4247LQI-BL473	CY8C4247LQI-BL473KG	WW1020
52	CY8C4247LQI-BL473T	CY8C4247LQI-BL473KG	WW1020
53	CY8C4247LQI-BL483	CY8C4247LQI-BL483KG	WW1020
54	CY8C4247LQI-BL483T	CY8C4247LQI-BL483KG	WW1020
55	CY8C4247LQI-BL493	CY8C4247LQI-BL493KG	Subject to leadtime
56	CY8C4247LQI-BL493T	CY8C4247LQI-BL493KG	Subject to leadtime
57	CY8C4247LQQ-BL483	CY8C4247LQQ-BL483KG	Subject to leadtime
58	CY8C4247LQQ-BL483T	CY8C4247LQQ-BL483KG	Subject to leadtime
59	CY8C4248LQI-BL543	CY8C4248LQI-BL543KG	Subject to leadtime
60	CY8C4248LQI-BL543T	CY8C4248LQI-BL543KG	Subject to leadtime
61	CY8C4248LQI-BL553	CY8C4248LQI-BL553KG	Subject to leadtime
62	CY8C4248LQI-BL553T	CY8C4248LQI-BL553KG	Subject to leadtime
63	CY8C4248LQI-BL563	CY8C4248LQI-BL563KG	Subject to leadtime
64	CY8C4248LQI-BL563T	CY8C4248LQI-BL563KG	Subject to leadtime
65	CY8C4248LQI-BL573	CY8C4248LQI-BL573KG	Subject to leadtime
66	CY8C4248LQI-BL573T	CY8C4248LQI-BL573KG	Subject to leadtime
67	CY8C4248LQI-BL583	CY8C4248LQI-BL583KG	WW0720
68	CY8C4248LQI-BL583T	CY8C4248LQI-BL583KG	WW0720
69	CY8C4248LQI-BL593	CY8C4248LQI-BL593KG	Subject to leadtime
70	CY8C4248LQI-BL593T	CY8C4248LQI-BL593KG	Subject to leadtime
71	CY8C4248LQQ-BL583	CY8C4248LQQ-BL583KG	Subject to leadtime
72	CY8C4248LQQ-BL583T	CY8C4248LQQ-BL583KG	Subject to leadtime
73	CG8671AA	CG8671ZA	Subject to leadtime
74	CG8671AAT	CG8671ZA	Subject to leadtime
75	CG8672AA	CG8672ZA	Subject to leadtime
76	CG8672AAT	CG8672ZA	Subject to leadtime
77	CP8928AT	CP8928ZT	Subject to leadtime
78	CP8928ATT	CP8928ZT	Subject to leadtime
79	CS8537AA	CS8537ZA	WW1020
80	CS8537AAT	CS8537ZA	WW1020
81	CS8572AA	CS8572ZA	Subject to leadtime
82	CS8572AAT	CS8572ZA	Subject to leadtime
83	CS8808AM	CS8808ZM	Subject to leadtime
84	CS8808AMT	CS8808ZM	Subject to leadtime