

# Cypress Semiconductor Package Qualification Report

**QTP# 173601 VERSION\*\*  
January 2018**

**44-Lead TQFP (10x10x1.4mm)  
Pure Sn Leadfinish, CuPd Wire  
MSL3, 260°C Reflow  
ASEK-Taiwan (G)**

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

<b>QTP Number</b>	<b>Description of Qualification Purpose</b>	<b>Date</b>
164902	Qualification of 44L-TQFP (10x10x1.4mm) at ASEK-Taiwan (G) using 0.8mil CuPd wire with G631 mold compound, CRM-1076 die attach material, Copper with Ag plating leadframe and Pure Sn leadfinish at MSL3, 260C Reflow Temperature.	Jan 2017
173601	Qualification of 44L-TQFP (10x10x1.4mm) with downbond at ASEK-Taiwan (G) using 0.8mil CuPd wire with G631 mold compound, CRM-1076 die attach material, Copper with Ag plating leadframe and Pure Sn leadfinish at MSL3, 260C Reflow Temperature.	Jan 2018

**MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION**

Package Designation:	AZ44
Package Outline, Type, or Name:	44-Lead TQFP (10x10x1.4mm)
Mold Compound Name/Manufacturer:	G631 / Sumitomo
Mold Compound Flammability Rating:	V-0 per UL 94
Mold Compound Alpha Emission Rate:	N/A
Oxygen Rating Index: >28%	54%
Lead Frame Designation:	FMP
Lead Frame Material:	Copper with Ag plating
Substrate Material:	N/A
Lead Finish, Composition / Thickness:	Pure Sn
Die Backside Preparation Method/Metallization:	Backgrind
Die Separation Method:	Wafer Saw
Die Attach Supplier:	Sumitomo
Die Attach Material:	CRM-1076
Bond Diagram Designation	002-16180 / 002-20529
Wire Bond Method:	Ultrasonic
Wire Material/Size:	CuPd / 0.8mil (20um)
Thermal Resistance Theta JA °C/W:	63deg C/W / 52.06C/W
Package Cross Section Yes/No:	N/A
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-Philippines
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**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
Acoustic Microscopy	J-STD-020 Precondition: JESD22 Moisture Sensitivity Level (192 Hrs., 30 °C, 60% RH, 260°C Reflow)	P
Ball Shear	JESD22-B116, 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
High Accelerated Saturation Test (HAST)	JEDEC STD 22-A110: 130C, 85%RH, 5.5V Precondition: JESD22 Moisture Sensitivity Level (192 Hrs., 30 °C, 60% RH, 260°C Reflow)	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
X-Ray	MIL-STD-883 – 2012	P
Final Visual Inspection	JESD22-B101B	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
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



## Reliability Test Data

### QTP #: 164902

<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>
<b>STRESS: ACOUSTIC, MSL3</b>							
CY8C4125 (8CP41004AB)	3637043	611636501	G-Taiwan	COMP	15	0	
CY8C4146 (8CP41004AB)	3637043	611636502	G-Taiwan	COMP	15	0	
CY8C4146 (8CP41004AB)	3637043	611636503	G-Taiwan	COMP	15	0	
<b>STRESS: BALL SHEAR</b>							
CY8C4125 (8CP41004AB)	3637043	611636501	G-Taiwan	COMP	50	0	
CY8C4146 (8CP41004AB)	3637043	611636502	G-Taiwan	COMP	50	0	
CY8C4146 (8CP41004AB)	3637043	611636503	G-Taiwan	COMP	50	0	
<b>STRESS: BOND PULL</b>							
CY8C4125 (8CP41004AB)	3637043	611636501	G-Taiwan	COMP	100	0	
CY8C4146 (8CP41004AB)	3637043	611636502	G-Taiwan	COMP	100	0	
CY8C4146 (8CP41004AB)	3637043	611636503	G-Taiwan	COMP	100	0	
<b>STRESS: CONSTRUCTIONAL ANALYSIS</b>							
CY8C4125 (8CP41004AB)	3637043	611636501	G-Taiwan	COMP	5	0	
<b>STRESS: CRATER TEST NOMARSKI</b>							
CY8C4125 (8CP41004AB)	3637043	611636501	G-Taiwan	COMP	5	0	
<b>STRESS: DIE SHEAR</b>							
CY8C4125 (8CP41004AB)	3637043	611636501	G-Taiwan	COMP	15	0	
CY8C4146 (8CP41004AB)	3637043	611636502	G-Taiwan	COMP	15	0	
CY8C4146 (8CP41004AB)	3637043	611636503	G-Taiwan	COMP	15	0	
<b>STRESS: HI-ACCEL SATURATION TEST, 130C, 5.5V, 85%RH, PRE COND 192 HR 30C/60%RH, MSL3</b>							
CY8C4125 (8CP41004AB)	3637043	611636501	G-Taiwan	96	30	0	
<b>STRESS: PRESSURE COOKER TEST (121C, 100%RH), 15 Psig, PRE COND 192 HR 30C/60%RH (MSL3)</b>							
CY8C4125 (8CP41004AB)	3637043	611636501	G-Taiwan	168	80	0	



## Reliability Test Data

### QTP #: 164902

<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>
<i>STRESS: TC COND. C -65C TO 150C, PRE COND 192 HR 30C/60%RH, MSL3</i>							
CY8C4125 (8CP41004AB)	3637043	611636501	G-Taiwan	500	80	0	
CY8C4146 (8CP41004AB)	3637043	611636502	G-Taiwan	500	15	0	
CY8C4146 (8CP41004AB)	3637043	611636502	G-Taiwan	1000	80	0	
CY8C4146 (8CP41004AB)	3637043	611636503	G-Taiwan	500	80	0	
CY8C4146 (8CP41004AB)	3637043	611636503	G-Taiwan	1000	80	0	



## Reliability Test Data

### QTP #: 173601

<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>
<b>STRESS: ACOUSTIC, MSL3</b>							
CY8C4127 (8CP43001AB)	3739025	611738642	G-Taiwan	COMP	22	0	
CY8C4127 (8CP43001AB)	3739025	611738643	G-Taiwan	COMP	22	0	
CY8C4127 (8CP43001AB)	3739025	611738644	G-Taiwan	COMP	22	0	
<b>STRESS: BALL SHEAR</b>							
CY8C4127 (8CP43001AB)	3739025	611738642	G-Taiwan	COMP	100	0	
CY8C4127 (8CP43001AB)	3739025	611738643	G-Taiwan	COMP	100	0	
CY8C4127 (8CP43001AB)	3739025	611738644	G-Taiwan	COMP	100	0	
<b>STRESS: BOND PULL</b>							
CY8C4127 (8CP43001AB)	3739025	611738642	G-Taiwan	COMP	100	0	
CY8C4127 (8CP43001AB)	3739025	611738643	G-Taiwan	COMP	100	0	
CY8C4127 (8CP43001AB)	3739025	611738644	G-Taiwan	COMP	100	0	
<b>STRESS: CONSTRUCTIONAL ANALYSIS</b>							
CY8C4127 (8CP43001AB)	3739025	611738642	G-Taiwan	COMP	5	0	
<b>STRESS: DIE SHEAR</b>							
CY8C4127 (8CP43001AB)	3739025	611738642	G-Taiwan	COMP	15	0	
CY8C4127 (8CP43001AB)	3739025	611738643	G-Taiwan	COMP	15	0	
CY8C4127 (8CP43001AB)	3739025	611738644	G-Taiwan	COMP	15	0	
<b>STRESS: DYE PENETRANT</b>							
CY8C4127 (8CP43001AB)	3739025	611738642	G-Taiwan	COMP	15	0	
CY8C4127 (8CP43001AB)	3739025	611738643	G-Taiwan	COMP	15	0	
CY8C4127 (8CP43001AB)	3739025	611738644	G-Taiwan	COMP	15	0	
<b>STRESS: FINAL VISUAL INSPECTION</b>							
CY8C4127 (8CP43001AB)	3739025	611738642	G-Taiwan	COMP	1379	0	
CY8C4127 (8CP43001AB)	3739025	611738643	G-Taiwan	COMP	394	0	
CY8C4127 (8CP43001AB)	3739025	611738644	G-Taiwan	COMP	796	0	
<b>STRESS: HI-ACCEL SATURATION TEST, 130C, 5.5V, 85%RH, PRE COND 192 HR 30C/60%RH, MSL3</b>							
CY8C4127 (8CP43001AB)	3739025	611738642	G-Taiwan	96	77	0	
CY8C4127 (8CP43001AB)	3739025	611738642	G-Taiwan	128	77	0	



## Reliability Test Data

### QTP #: 173601

Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
<b>STRESS: PRESSURE COOKER TEST (121C, 100%RH), 15 Psig, PRE COND 192 HR 30C/60%RH (MSL3)</b>							
CY8C4127 (8CP43001AB)	3739025	611738642	G-Taiwan	96	77	0	
CY8C4127 (8CP43001AB)	3739025	611738642	G-Taiwan	168	76	0	
<b>STRESS: TC COND. C -65C TO 150C, PRE COND 192 HR 30C/60%RH, MSL3</b>							
CY8C4127 (8CP43001AB)	3739025	611738642	G-Taiwan	500	76	0	
CY8C4127 (8CP43001AB)	3739025	611738642	G-Taiwan	1000	76	0	
CY8C4127 (8CP43001AB)	3739025	611738643	G-Taiwan	500	80	0	
CY8C4127 (8CP43001AB)	3739025	611738643	G-Taiwan	1000	80	0	
CY8C4127 (8CP43001AB)	3739025	611738644	G-Taiwan	500	80	0	
CY8C4127 (8CP43001AB)	3739025	611738644	G-Taiwan	1000	80	0	
<b>STRESS: X-RAY</b>							
CY8C4127 (8CP43001AB)	3739025	611738642	G-Taiwan	COMP	15	0	
CY8C4127 (8CP43001AB)	3739025	611738643	G-Taiwan	COMP	15	0	
CY8C4127 (8CP43001AB)	3739025	611738644	G-Taiwan	COMP	15	0	





## Document History Page

Document Title: QTP#173601: 44-Lead TQFP (10x10x1.4mm) Pure Sn Leadfinish, CuPd Wire MSL3, 260C  
Reflow ASEK-Taiwan (G)  
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Rev.	ECN No.	Orig. of Change	Description of Change
**	6043574	HSTO	Initial release.