

# Cypress Semiconductor Package Qualification Report

**QTP# 153305 VERSION \*\*  
April 2016**

**48L TQFP (7x7x1.4mm)  
Pure Sn Leadfinish, CuPd Wire  
MSL3, 260°C Reflow  
OSE-Taiwan (T)**

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

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## PACKAGE QUALIFICATION HISTORY

QTP Number	Description of Qualification Purpose	Date
153305	Qualification of 48L TQFP (7x7x1.4mm) at OSE-Taiwan (G) using 0.8mil CuPd wire with Sumitomo G631 mold compound, CRM-1076 die attach material, CuPd leadframe and Pure Sn leadfinish at MSL3, 260°C reflow temperature	Mar 2016

<b>MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION</b>	
<b>Package Designation:</b>	AZ48
<b>Package Outline, Type, or Name:</b>	48L-Thin Quad Flat Package (7x7x1.4mm)
<b>Mold Compound Name/Manufacturer:</b>	G631/Sumitomo
<b>Mold Compound Flammability Rating:</b>	UL 94 V=0 pass
<b>Mold Compound Alpha Emission Rate:</b>	N/A (not low alpha mold compound)
<b>Oxygen Rating Index:</b>	54% (typical)
<b>Lead Frame Designation:</b>	FMP
<b>Lead Frame Material:</b>	Copper
<b>Lead Finish, Composition / Thickness:</b>	Pure Sn
<b>Die Backside Preparation Method/Metallization:</b>	Backgrind
<b>Die Separation Method:</b>	Wafer saw
<b>Die Attach Supplier:</b>	Sumitomo
<b>Die Attach Material:</b>	CRM1076
<b>Bond Diagram Designation:</b>	001-98723
<b>Wire Bond Method:</b>	Thermosonic
<b>Wire Material/Size:</b>	CuPd / 0.8 mil
<b>Thermal Resistance Theta JA °C/W:</b>	67.28C/W
<b>Package Cross Section Yes/No:</b>	N
<b>Assembly Process Flow:</b>	001-96147M
<b>Name/Location of Assembly (prime) facility:</b>	OSE-Taiwan (T)
<b>MSL Level</b>	3
<b>Reflow Profile</b>	260C

<b>ELECTRICAL TEST / FINISH DESCRIPTION</b>	
<b>Test Location:</b>	CML-RA

**RELIABILITY TESTS PERFORMED PER SPECIFICATION REQUIREMENT**

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	JESD22-B116	P
Constructional Analysis	Criteria: Meet external and internal characteristics of Cypress package	P
Die Shear	MIL-STD-883, Method 2019 Per die size: <ul style="list-style-type: none"> <li>• &lt;3000 sq. mils = 1.2 kgf</li> <li>• 30001-5000 sq. mils = 1.2 kgf</li> <li>• &gt;5001 sq. mils = 1.2 kgf</li> </ul>	P
Dye Penetrant Test	Test to determine the existence and extent of cracks, Criteria: No Package Crack	P
High Accelerated Saturation Test (HAST)	JESD22-A110, 130°C, 3.63V, 85%RH Precondition: JESD22 Moisture Sensitivity Level (192 Hrs., 30°C, 60% RH, 260°C Reflow)	P
High Temperature Storage Life	JESD22-A103, 150°C	P
Internal Visual	MIL-STD-883-2014	P
Pressure Cooker	JESD22-A102, 121°C, 100%RH, 15 Psig Precondition: JESD22 Moisture Sensitivity Level (192 Hrs., 30°C, 60% RH, 260°C Reflow)	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 #: 153305

Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
<b>STRESS: ACOUSTICS</b>							
CY8C4247AZI (8CP42001AC)	4534099	611537783	T-TAIWAN	COMP	15	0	
CY8C4247AZI (8CP42002AC)	4534099	611537781	T-TAIWAN	COMP	15	0	
CY8C4247AZI (8CP42002AC)	4534099	611537782	T-TAIWAN	COMP	15	0	
<b>STRESS: BALL SHEAR</b>							
CY8C4247AZI (8CP42001AC)	4534099	611537783	T-TAIWAN	COMP	100	0	
CY8C4247AZI (8CP42002AC)	4534099	611537781	T-TAIWAN	COMP	100	0	
CY8C4247AZI (8CP42002AC)	4534099	611537782	T-TAIWAN	COMP	100	0	
<b>STRESS: BOND PULL</b>							
CY8C4247AZI (8CP42001AC)	4534099	611537783	T-TAIWAN	COMP	100	0	
CY8C4247AZI (8CP42002AC)	4534099	611537781	T-TAIWAN	COMP	100	0	
CY8C4247AZI (8CP42002AC)	4534099	611537782	T-TAIWAN	COMP	100	0	
<b>STRESS: CONSTRUCTIONAL ANALYSIS</b>							
CY8C4247AZI (8CP42001AC)	4534099	611537783	T-TAIWAN	COMP	15	0	
<b>STRESS: DIE SHEAR</b>							
CY8C4247AZI (8CP42001AC)	4534099	611537783	T-TAIWAN	COMP	15	0	
CY8C4247AZI (8CP42002AC)	4534099	611537781	T-TAIWAN	COMP	15	0	
CY8C4247AZI (8CP42002AC)	4534099	611537782	T-TAIWAN	COMP	15	0	
<b>STRESS: DYE PENETRANT</b>							
CY8C4247AZI (8CP42001AC)	4534099	611537783	T-TAIWAN	COMP	15	0	
CY8C4247AZI (8CP42002AC)	4534099	611537781	T-TAIWAN	COMP	15	0	
CY8C4247AZI (8CP42002AC)	4534099	611537782	T-TAIWAN	COMP	15	0	
<b>STRESS: FINAL VISUAL</b>							
CY8C4247AZI (8CP42001AC)	4534099	611537783	T-TAIWAN	COMP	2278	0	
CY8C4247AZI (8CP42002AC)	4534099	611537781	T-TAIWAN	COMP	2151	0	
CY8C4247AZI (8CP42002AC)	4534099	611537782	T-TAIWAN	COMP	2426	0	



## Reliability Test Data

**QTP #: 153305**

<b>Device</b>	<b>Fab Lot #</b>	<b>Assy Lot #</b>	<b>Assy Loc</b>	<b>Duration</b>	<b>Samp</b>	<b>Rej</b>	<b>Failure Mechanism</b>
<b>STRESS: HI-ACCEL SATURATION TEST, 130C, 85%RH, 3.63V, PRE COND 192 HR 30C/60%RH, MSL3</b>							
CY8C4247AZI (8CP42001AC)	4534099	611537783	T-TAIWAN	96	30	0	
<b>STRESS: HIGH TEMPERATURE STORAGE</b>							
CY8C4247AZI (8CP42001AC)	4534099	611537783	T-TAIWAN	500	80	0	
CY8C4247AZI (8CP42001AC)	4534099	611537783	T-TAIWAN	1000	80	0	
<b>STRESS: INTERNAL VISUAL</b>							
CY8C4247AZI (8CP42001AC)	4534099	611537783	T-TAIWAN	96	30	0	
<b>STRESS: PRESSURE COOKER TEST, 121C, 100%RH, 15 Psig, PRE COND 192 HR 30C/60%RH, MSL3</b>							
CY8C4247AZI (8CP42001AC)	4534099	611537783	T-TAIWAN	168	80	0	
CY8C4247AZI (8CP42001AC)	4534099	611537783	T-TAIWAN	288	80	0	
<b>STRESS: TC COND. C -65C TO 150C, PRE COND 192 HRS 30C/60%RH, MSL3</b>							
CY8C4247AZI (8CP42001AC)	4534099	611537783	T-TAIWAN	500	80	0	
CY8C4247AZI (8CP42001AC)	4534099	611537783	T-TAIWAN	1000	80	0	
CY8C4247AZI (8CP42002AC)	4534099	611537781	T-TAIWAN	500	80	0	
CY8C4247AZI (8CP42002AC)	4534099	611537781	T-TAIWAN	1000	80	0	
CY8C4247AZI (8CP42002AC)	4534099	611537782	T-TAIWAN	500	80	0	
CY8C4247AZI (8CP42002AC)	4534099	611537782	T-TAIWAN	1000	80	0	
<b>STRESS: X-RAY</b>							
CY8C4247AZI (8CP42001AC)	4534099	611537783	T-TAIWAN	COMP	5	0	
CY8C4247AZI (8CP42002AC)	4534099	611537781	T-TAIWAN	COMP	5	0	
CY8C4247AZI (8CP42002AC)	4534099	611537782	T-TAIWAN	COMP	5	0	



## Document History Page

Document Title: QTP#153305: 48L TQFP (7x7x1.4mm) Pure Sn Leadfinish, CuPd Wire MSL3, 260C Reflow  
OSE-Taiwan (T)

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Rev.	ECN No.	Orig. of Change	Description of Change
**	5212950	HSTO	Initial spec release.