

# Cypress Semiconductor Package Qualification Report

**QTP# 180303 VERSION \*\*  
March 2018**

**56-Lead SSOP (300mils)  
Matte Sn Leadfinish, Au / CuPdAu 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

<b>QTP Number</b>	<b>Description of Qualification Purpose</b>	<b>Date</b>
180303	Qualification of 56-lead SSOP (300mils) Package at OSE-Taiwan (T) using 0.8mil Au/CuPdAu wire with G700L mold compound, CRM-1076 die attach material, Copper leadframe and Matte Sn leadfinish at MSL3, 260°C reflow temperature	May 2018

<b>MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION</b>	
<b>Package Designation:</b>	SP56
<b>Package Outline, Type, or Name:</b>	56-Lead SSOP 300mils
<b>Mold Compound Name/Manufacturer:</b>	G700L / Sumitomo
<b>Mold Compound Flammability Rating:</b>	V-0 / UL-94
<b>Mold Compound Alpha Emission Rate:</b>	NA (Non low alpha mold compound)
<b>Oxygen Rating Index:</b>	>28%
<b>Lead Frame Designation:</b>	FMP
<b>Lead Frame Material:</b>	Copper
<b>Lead Finish, Composition / Thickness:</b>	Matte 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>	10-06407 / 002-21809
<b>Wire Bond Method:</b>	Thermosonic
<b>Wire Material/Size:</b>	Au / CuPdAu / 0.8 mil (20um)
<b>Thermal Resistance Theta JA °C/W:</b>	47.7 C/W
<b>Package Cross Section Yes/No:</b>	N
<b>Assembly Process Flow:</b>	49-35999M
<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 / JCET-JT

**RELIABILITY TESTS PERFORMED PER SPECIFICATION REQUIREMENT**

<b>Stress/Test</b>	<b>Test Condition (Temp/Bias)</b>	<b>Result P/F</b>
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
High Accelerated Saturation Test (HAST) – Unbiased	JEDEC STD 22-A110: 130°C, 85%RH Precondition: JESD22 Moisture Sensitivity Level 3 (192 Hrs., 30 °C, 60% RH, 260°C Reflow)	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 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
Electrostatic Discharge Charge Device Model (ESD-CDM)	500V / 1000V / 1250V JESD22-C101	P
High Accelerated Saturation Test (HAST)	JESD22-A110, 130°C, 3.3V, 85%RH Precondition: JESD22 Moisture Sensitivity Level (192 Hrs., 30°C, 60% RH, 260°C Reflow)	P
Physical Dimension	MIL-STD-1835, JESD22-B100	P
Final Visual Inspection	JESD22-B101B	P
Solderability	J-STD-002, JESD22-B102 95% solder coverage minimum	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 #: 180303**

<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: ACOUSTICS</b>							
CY7C68013A (7C682000BC)	4730595	611748990	T-TAIWAN	COMP	22	0	
CG8082AM (7CP682000BC)	4730595	611742073	T-TAIWAN	COMP	22	0	
CY7C64713 (7C682030BC)	4720584	611742074	T-TAIWAN	COMP	22	0	
CY7C68001 (7CP68001EC)	4722153	611748409	T-TAIWAN	COMP	22	0	
<b>STRESS: BALL SHEAR</b>							
CY7C68013A (7C682000BC)	4730595	611748990	T-TAIWAN	COMP	30	0	
CG8082AM (7CP682000BC)	4730595	611742073	T-TAIWAN	COMP	30	0	
CY7C64713 (7C682030BC)	4720584	611742074	T-TAIWAN	COMP	30	0	
CY7C68001 (7CP68001EC)	4722153	611748409	T-TAIWAN	COMP	30	0	
<b>STRESS: BOND PULL</b>							
CY7C68013A (7C682000BC)	4730595	611748990	T-TAIWAN	COMP	30	0	
CG8082AM (7CP682000BC)	4730595	611742073	T-TAIWAN	COMP	30	0	
CY7C64713 (7C682030BC)	4720584	611742074	T-TAIWAN	COMP	30	0	
CY7C68001 (7CP68001EC)	4722153	611748409	T-TAIWAN	COMP	30	0	
<b>STRESS: CONSTRUCTIONAL ANALYSIS</b>							
CY7C68013A (7C682000BC)	4730595	611748990	T-TAIWAN	COMP	5	0	
CG8082AM (7CP682000BC)	4730595	611742073	T-TAIWAN	COMP	5	0	
CY7C64713 (7C682030BC)	4720584	611742074	T-TAIWAN	COMP	5	0	
CY7C68001 (7CP68001EC)	4722153	611748409	T-TAIWAN	COMP	5	0	
<b>STRESS: DIE SHEAR</b>							
CY7C68013A (7C682000BC)	4730595	611748990	T-TAIWAN	COMP	10	0	
CG8082AM (7CP682000BC)	4730595	611742073	T-TAIWAN	COMP	10	0	
CY7C64713 (7C682030BC)	4720584	611742074	T-TAIWAN	COMP	10	0	
CY7C68001 (7CP68001EC)	4722153	611748409	T-TAIWAN	COMP	10	0	
<b>STRESS: DYE PENETRANT</b>							
CY7C68013A (7C682000BC)	4730595	611748990	T-TAIWAN	COMP	15	0	
CG8082AM (7CP682000BC)	4730595	611742073	T-TAIWAN	COMP	15	0	
CY7C64713 (7C682030BC)	4720584	611742074	T-TAIWAN	COMP	15	0	
CY7C68001 (7CP68001EC)	4722153	611748409	T-TAIWAN	COMP	15	0	

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<b>STRESS: ESD-CHARGE DEVICE MODEL</b>							
CY7C68013A (7C682000BC)	4730595	611748990	T-TAIWAN	500	9	0	
CY7C68013A (7C682000BC)	4730595	611748990	T-TAIWAN	1000	3	0	
CY7C68013A (7C682000BC)	4730595	611748990	T-TAIWAN	1250	3	0	
<b>STRESS: FINAL VISUAL</b>							
CY7C68013A (7C682000BC)	4730595	611748990	T-TAIWAN	COMP	1000	0	
CG8082AM (7CP682000BC)	4730595	611742073	T-TAIWAN	COMP	600	0	
CY7C64713 (7C682030BC)	4720584	611742074	T-TAIWAN	COMP	1000	0	
CY7C68001 (7CP68001EC)	4722153	611748409	T-TAIWAN	COMP	1012	0	
<b>STRESS: UNBIASED HAST</b>							
CY7C68013A (7C682000BC)	4730595	611748990	T-TAIWAN	96	77	0	
CY7C68013A (7C682000BC)	4730595	611748990	T-TAIWAN	192	77	0	
CG8082AM (7CP682000BC)	4730595	611742073	T-TAIWAN	96	77	0	
CG8082AM (7CP682000BC)	4730595	611742073	T-TAIWAN	192	75	0	
<b>STRESS: HI-ACCEL SATURATION TEST, 130C, 85%RH, 3.3V, PRE COND 192 HR 30C/60%RH, MSL3</b>							
CY7C68013A (7C682000BC)	4730595	611748990	T-TAIWAN	96	25	0	
CG8082AM (7CP682000BC)	4730595	611742073	T-TAIWAN	96	25	0	
CY7C64713 (7C682030BC)	4720584	611742074	T-TAIWAN	96	25	0	
CY7C68001 (7CP68001EC)	4722153	611748409	T-TAIWAN	96	25	0	
<b>STRESS: PRESSURE COOKER TEST, 121C, 100%RH, 15 Psig, PRE COND 192 HR 30C/60%RH, MSL3</b>							
CY7C68013A (7C682000BC)	4730595	611748990	T-TAIWAN	96	77	0	
CY7C68013A (7C682000BC)	4730595	611748990	T-TAIWAN	168	77	0	
CG8082AM (7CP682000BC)	4730595	611742073	T-TAIWAN	168	77	0	
<b>STRESS: PHYSICAL DIMENSION</b>							
CY7C68013A (7C682000BC)	4730595	611748990	T-TAIWAN	COMP	10	0	
CG8082AM (7CP682000BC)	4730595	611742073	T-TAIWAN	COMP	10	0	
CY7C64713 (7C682030BC)	4720584	611742074	T-TAIWAN	COMP	10	0	
CY7C68001 (7CP68001EC)	4722153	611748409	T-TAIWAN	COMP	10	0	

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<b>STRESS: SOLDERABILITY</b>							
CY7C68013A (7C682000BC)	4730595	611748990	T-TAIWAN	COMP	3	0	
CG8082AM (7CP682000BC)	4730595	611742073	T-TAIWAN	COMP	3	0	
CY7C64713 (7C682030BC)	4720584	611742074	T-TAIWAN	COMP	3	0	
CY7C68001 (7CP68001EC)	4722153	611748409	T-TAIWAN	COMP	3	0	
<b>STRESS: TC COND. C -65C TO 150C, PRE COND 192 HRS 30C/60%RH, MSL3</b>							
CY7C68013A (7C682000BC)	4730595	611748990	T-TAIWAN	500	77	0	
CG8082AM (7CP682000BC)	4730595	611742073	T-TAIWAN	500	77	0	
CY7C64713 (7C682030BC)	4720584	611742074	T-TAIWAN	500	77	0	
CY7C68001 (7CP68001EC)	4722153	611748409	T-TAIWAN	500	77	0	
CY7C68001 (7CP68001EC)	4722153	611748409	T-TAIWAN	1000	77	0	
<b>STRESS: X-RAY</b>							
CY7C68013A (7C682000BC)	4730595	611748990	T-TAIWAN	COMP	15	0	
CG8082AM (7CP682000BC)	4730595	611742073	T-TAIWAN	COMP	15	0	
CY7C64713 (7C682030BC)	4720584	611742074	T-TAIWAN	COMP	15	0	
CY7C68001 (7CP68001EC)	4722153	611748409	T-TAIWAN	COMP	15	0	



## Document History Page

Document Title: QTP#180303: 56-LEAD SSOP (300MILS) MATTE SN LEADFINISH, AU / CUPDAU WIRE MSL3,  
260C REFLOW OSE-TAIWAN (T)  
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Rev.	ECN No.	Orig. of Change	Description of Change
**	6177777	HSTO	Initial spec release.