

# Cypress Semiconductor Package Qualification Report

**QTP# 123003 VERSION \*\*  
September 2017**

**44L/54L TSOP II (400 mils)  
Pure Sn Leadfinish,  
CuPd Wire  
MSL3, 260°C Reflow  
ASE-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>
123003	Qualification of 44L/54L TSOPII Package at ASE-Taiwan using EME-G631H Mold Compound, FH-900 Die Attach Film, Pure Sn Leadfinish,0.8 mil CuPd Wire at MSL3, 260°C Reflow Temperature	Sept. 2017

MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION	
Package Designation:	ZW44A/ZW54A
Package Outline, Type, or Name:	44L/54L TSOP II
Mold Compound Name/Manufacturer:	EME-G631H/Sumitomo
Mold Compound Flammability Rating:	V-0 / UL94
Oxygen Rating Index:	28-54%
Leaframe Material:	Copper
Lead Finish, Composition / Thickness:	Pure Sn
Die Backside Preparation Method/Metallization:	Backgrind
Die Separation Method:	Saw
Die Attach Supplier:	Hitachi
Die Attach Material:	FH-900
Bond Diagram Designation:	001-76498 / 001-89860 (44L TSOP II) 001-89891 / 001-89892 (54L TSOP II)
Wire Bond Method:	Thermosonic
Wire Material/Size:	CuPd, 0.8 mil
Thermal Resistance Theta JA °C/W:	44.6°C/W
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	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, 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
Dye Penetrant Test	Test to determine the existence and extent of cracks, Criteria: No Package Crack	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	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 #: 123003

<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>							
CY14B116N (7CP1456B07A)	4211295	611400645	G-Taiwan	COMP	15	0	
CY14E116N (7CP1456E07A)	4211295	611400646	G-Taiwan	COMP	15	0	
CY14B116L (7CP1456B08A)	4211195	611346792	G-Taiwan	COMP	15	0	
<b>STRESS: BALL SHEAR</b>							
CY14B116N (7CP1456B07A)	4211295	611400645	G-Taiwan	COMP	10	0	
CY14E116N (7CP1456E07A)	4211295	611400646	G-Taiwan	COMP	10	0	
CY14B116L (7CP1456B08A)	4211195	611346792	G-Taiwan	COMP	10	0	
<b>STRESS: BOND PULL</b>							
CY14B116N (7CP1456B07A)	4211295	611400645	G-Taiwan	COMP	10	0	
CY14E116N (7CP1456E07A)	4211295	611400646	G-Taiwan	COMP	10	0	
CY14B116L (7CP1456B08A)	4211195	611346792	G-Taiwan	COMP	10	0	
<b>STRESS: CONSTRUCTIONAL ANALYSIS</b>							
CY14B116N (7CP1456B07A)	4211295	611400645	G-Taiwan	COMP	5	0	
<b>STRESS: DYE PENETRANT TEST</b>							
CY14B116N (7CP1456B07A)	4211295	611400645	G-Taiwan	COMP	15	0	
CY14E116N (7CP1456E07A)	4211295	611400646	G-Taiwan	COMP	15	0	
CY14B116L (7CP1456B08A)	4211195	611346792	G-Taiwan	COMP	15	0	
<b>STRESS: HI-ACCEL SATURATION TEST (130C, 85%RH, 5.5V), PRE COND 192 HR 30C/60%RH (MSL3)</b>							
CY14B116N (7CP1456B07A)	4211295	611400645	G-Taiwan	96	28	0	
CY14E116N (7CP1456E07A)	4211295	611400646	G-Taiwan	96	30	0	
<b>STRESS: HIGH TEMPERATURE STORAGE, PLASTIC, 150C</b>							
CY14B116N (7CP1456B07A)	4211295	611400645	G-Taiwan	500	80	0	
CY14B116N (7CP1456B07A)	4211295	611400645	G-Taiwan	1000	80	0	
<b>STRESS: INTERNAL VISUAL</b>							
CY14B116N (7CP1456B07A)	4211295	611400645	G-Taiwan	COMP	5	0	



## Reliability Test Data

**QTP #: 123003**

<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: PRESSURE COOKER TEST (121C, 100%RH, 15 Psig), PRE COND 192 HR 30C/60%RH (MSL3)</b>							
CY14B116N (7CP1456B07A)	4211295	611400645	G-Taiwan	168	80	0	
CY14B116N (7CP1456B07A)	4211295	611400645	G-Taiwan	288	80	0	
CY14E116N (7CP1456E07A)	4211295	611400646	G-Taiwan	168	79	0	
<b>STRESS: TEMPERATURE CYCLE COND. C -65C TO 150C, PRE COND 192 HRS 30C/60%RH, MSL3</b>							
CY14B116N (7CP1456B07A)	4211295	611400645	G-Taiwan	500	80	0	
CY14B116N (7CP1456B07A)	4211295	611400645	G-Taiwan	1000	80	0	
CY14E116N (7CP1456E07A)	4211295	611400646	G-Taiwan	500	80	0	
CY14E116N (7CP1456E07A)	4211295	611400646	G-Taiwan	1000	80	0	
CY14B116L (7CP1456B08A)	4211195	611346792	G-Taiwan	500	80	0	
CY14B116L (7CP1456B08A)	4211195	611346792	G-Taiwan	1000	80	0	
<b>STRESS: X-RAY</b>							
CY14B116N (7CP1456B07A)	4211295	611400645	G-Taiwan	COMP	15	0	
CY14E116N (7CP1456E07A)	4211295	611400646	G-Taiwan	COMP	15	0	
CY14B116L (7CP1456B08A)	4211195	611346792	G-Taiwan	COMP	15	0	



## Document History Page

Document Title: QTP# 123003: 44L/54L TSOP II , PURE SN LEAD FINISH, CUPD WIRE, MSL3, 260C REFLOW, ASE-TAIWAN (G)  
Document Number: 002-21276

Rev.	ECN No.	Orig. of Change	Description of Change
**	5887457	JYF	Initial spec release.