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# Cypress Semiconductor Package Qualification Report

QTP# 163002 VERSION \*A  
January 2018

**54L TSOP (22.4x11.84x1.0mm)  
Matte Sn leadfinish, Au Wire  
MSL3, 260C Reflow  
Chipmos-Taiwan (GM)**

**FOR ANY QUESTIONS ON THIS REPORT, PLEASE CONTACT  
[reliability@cypress.com](mailto:reliability@cypress.com) or via a CYLINK CRM CASE**

**Prepared By:**  
Honesto Sintos  
Reliability Engineer

**Reviewed By:**  
Lorena Zapanta  
Reliability Manager

**Approved By:**  
David Hoffman  
Reliability Director

**PACKAGE QUALIFICATION HISTORY**

<b>QTP Number</b>	<b>Description of Qualification Purpose</b>	<b>Date</b>
163002	Qualification of 54L-TSOP II (22.4x11.84x1.0mm) Package in Chipmos-Taiwan (GM) using 0.8mil Au wire with Hitachi CEL-9200HF-U mold compound, Nitto EM710 die attach material, Alloy 42 leadframe and Matte Sn leadfinish at MSL3, 260C Reflow Temperature.	Dec 2016

<b>MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION</b>	
Package Designation:	ZW54
Package Outline, Type, or Name:	54L-TSOP II 22.4x11.84x1.0mm
Mold Compound Name/Manufacturer:	CEL-9200HF-U / Hitachi
Mold Compound Flammability Rating:	N/A
Mold Compound Alpha Emission Rate:	max. 0.0050 count/cm2·
Oxygen Rating Index: >28%	N/A
Lead Frame Designation:	Full Metal Pad
Lead Frame Material:	Alloy 42
Substrate Material:	N/A
Lead Finish, Composition / Thickness:	Matte Sn
Die Backside Preparation Method/Metallization:	Wafer Backgrind
Die Separation Method:	Wafer Saw
Die Attach Supplier:	Nitto
Die Attach Material:	EM710
Bond Diagram Designation	002-11719
Wire Bond Method:	Thermosonic
Wire Material/Size:	Au / 20 microns (0.8mil)
Thermal Resistance Theta JA °C/W:	25.6
Package Cross Section Yes/No:	Yes
Assembly Process Flow:	49-77999
Name/Location of Assembly (prime) facility:	Chipmos-Taiwan (GM)
MSL LEVEL	3
REFLOW PROFILE	260C

<b>ELECTRICAL TEST / FINISH DESCRIPTION</b>	
Test Location:	CML-Philippines (R), Chipmos-Taiwan (GO)

**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
High Accelerated Saturation Test (HAST)	JESD22-A110, 130C, 3.3V, 85%RH Precondition: JESD22-A113 Moisture Sensitivity MSL 3 192 Hrs, 30C/60%RH+3IR-Reflow, 260°C+0, -5°C	P
Temperature Cycle	JESD22-A104, -65°C to 150°C Precondition: JESD22-A113 Moisture Sensitivity MSL 3 192 Hrs, 30C/60%RH+3IR-Reflow, 260°C+0, -5°C	P
Pressure Cooker	JESD22-A102, 121C, 100%RH, 15 Psig Precondition: JESD22-A113 Moisture Sensitivity MSL 3 192 Hrs, 30C/60%RH+3IR-Reflow, 260°C+0, -5°C	P
Acoustic	J-STD-020 Precondition: JESD22-A113 Moisture Sensitivity MSL 3 192 Hrs, 30C/60%RH+3IR-Reflow, 260C+0, -5C	P
X-Ray	MIL-STD-883 – 2012	P
Final Visual Inspection	JESD22-B101B	P
Ball Shear	JESD22-B116A	P
Bond Pull	Mil-Std 883, Method 2011	P
Electrostatic Discharge Charge Device Model (ESD-CDM)	500V, JESD22-C101	P
Physical Dimension	MIL-STD-1835, JESD22-B100	P
Constructional Analysis	Criteria: Meet external and internal characteristics of Cypress package	P
High Temperature Storage	JESD22-A103: 150 C, no bias	P
Solderability	JESD22-B102	P



## Reliability Test Data

**QTP #: 163002**

Device	Package	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
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**STRESS: ACOUSTIC, MSL3**

CY14B116N (7CD1456B07)	ZW54	4609532	611623231	GM	COMP	15	0	
CY14B116N (7CD1456B07)	ZW54	4609532	611623232	GM	COMP	15	0	
CY14B116M (7CD1456B02)	ZW54	4521076	611612544	GM	COMP	45	0	

**STRESS: BALL SHEAR**

CY14B116N (7CD1456B07)	ZW54	4609532	611623231	GM	COMP	10	0	
CY14B116N (7CD1456B07)	ZW54	4609532	611623232	GM	COMP	10	0	
CY14B116M (7CD1456B02)	ZW54	4521076	611612544	GM	COMP	10	0	

**STRESS: BOND PULL**

CY14B116N (7CD1456B07)	ZW54	4609532	611623231	GM	COMP	10	0	
CY14B116N (7CD1456B07)	ZW54	4609532	611623232	GM	COMP	10	0	
CY14B116M (7CD1456B02)	ZW54	4521076	611612544	GM	COMP	10	0	

**STRESS: CONSTRUCTIONAL ANALYSIS**

CY14B116N (7CD1456B07)	ZW54	4609532	611623231	GM	COMP	5	0	
CY14B116N (7CD1456B07)	ZW54	4609532	611623232	GM	COMP	5	0	
CY14B116M (7CD1456B02)	ZW54	4521076	611612544	GM	COMP	5	0	

**STRESS: DIE SHEAR**

CY14B116N (7CD1456B07)	ZW54	4609532	611623231	GM	COMP	10	0	
CY14B116N (7CD1456B07)	ZW54	4609532	611623232	GM	COMP	10	0	
CY14B116M (7CD1456B02)	ZW54	4521076	611612544	GM	COMP	10	0	

**STRESS: DYE PENETRANT**

CY14B116N (7CD1456B07)	ZW54	4609532	611623231	GM	COMP	15	0	
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**STRESS: ESD-CDM**

CY14B116N (7CD1456B07)	ZW54	4609532	611623231	GM	500	9	0	
CY14B116N (7CD1456B07)	ZW54	4609532	611623231	GM	1000	3	0	
CY14B116N (7CD1456B07)	ZW54	4609532	611623231	GM	1250	3	0	

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**QTP #: 163002**

Device	Package	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
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**STRESS: FINAL VISUAL INSPECTION**

CY14B116N (7CD1456B07)	ZW54	4609532	611623231	GM	COMP	606	0	
CY14B116N (7CD1456B07)	ZW54	4609532	611623232	GM	COMP	607	0	
CY14B116M (7CD1456B02)	ZW54	4521076	611612544	GM	COMP	624	0	

**STRESS: HI-ACCEL SATURATION TEST, 130C, 3.3V, 85%RH, PRE COND 192 HR 30C/60%RH, MSL3**

CY14B116N (7CD1456B07)	ZW54	4609532	611623231	GM	96	30	0	
CY14B116N (7CD1456B07)	ZW54	4609532	611623232	GM	96	30	0	
CY14B116M (7CD1456B02)	ZW54	4521076	611612544	GM	96	25	0	

**STRESS: HIGH TEMPERATURE STORAGE**

CY14B116N (7CD1456B07)	ZW54	4609532	611623231	GM	500	45	0	
CY14B116N (7CD1456B07)	ZW54	4609532	611623231	GM	1000	45	0	

**STRESS: PRESSURE COOKER TEST**

CY14B116N (7CD1456B07)	ZW54	4609532	611623231	GM	168	80	0	
CY14B116M (7CD1456B02)	ZW54	4521076	611612544	GM	168	45	0	
CY14B116M (7CD1456B02)	ZW54	4521076	611612544	GM	288	45	0	

**STRESS: PHYSICAL DIMENSION**

CY14B116N (7CD1456B07)	ZW54	4609532	611623231	GM	COMP	5	0	
CY14B116N (7CD1456B07)	ZW54	4609532	611623232	GM	COMP	5	0	
CY14B116M (7CD1456B02)	ZW54	4521076	611612544	GM	COMP	5	0	

**STRESS: SOLDERABILITY**

CY14B116N (7CD1456B07)	ZW54	4609532	611623231	GM	COMP	3	0	
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**STRESS: TC COND. C -65C TO 150C, PRECONDITION 192 HRS 30C/60%RH**

CY14B116N (7CD1456B07)	ZW54	4609532	611623231	GM	500	80	0	
CY14B116N (7CD1456B07)	ZW54	4609532	611623231	GM	1000	80	0	
CY14B116N (7CD1456B07)	ZW54	4609532	611623232	GM	500	80	0	
CY14B116N (7CD1456B07)	ZW54	4609532	611623232	GM	1000	80	0	
CY14B116M (7CD1456B02)	ZW54	4521076	611612544	GM	500	45	0	
CY14B116M (7CD1456B02)	ZW54	4521076	611612544	GM	1000	45	0	



## Reliability Test Data

**QTP #: 163002**

<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>
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**STRESS: X-RAY**

CY14B116N (7CD1456B07)	ZW54	4609532	611623231	GM	COMP	15	0	
CY14B116N (7CD1456B07)	ZW54	4609532	611623232	GM	COMP	15	0	
CY14B116M (7CD1456B02)	ZW54	4521076	611612544	GM	COMP	15	0	





## Document History Page

Document Title:QTP#163002: 54L TSOP (22.4x11.84x1.0mm) Matte Sn leadfinish, Au Wire MSL3, 260C Reflow  
Chipmos-Taiwan (GM)  
Document Number: 002-18227

Rev.	ECN No.	Orig. of Change	Description of Change
**	5557186	HSTO	Initial spec release
*A	6034802	HSTO	Update Cypress logo Update Reliability Manager contact person Added High Temperature Storage 1000hours result