

Cypress Semiconductor Package Qualification Report

**QTP#171002 VERSION **
November 2017**

**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
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PACKAGE QUALIFICATION HISTORY

QTP Number	Description of Qualification Purpose	Date
171002	Qualifications of 54L-TSOP II (22.4x11.84x1mm) Package in Chipmos-Taiwan (GM) using 0.7mil Au wire with Hitachi CEL-9200HF-U mold compound, Nitto EM710/ Hitachi EN4900 die attach material, Copper/ Alloy42 leadframe and Matte Sn leadfinish at MSL3, 260C Reflow Temperature.	Jun 2017

MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION	
Package Designation:	ZW54 (CY7C1061AV33)
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/cm ²
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 / 0.7 mil
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

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

Note: Please contact a Cypress Representative for other package availability.

MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION	
Package Designation:	ZW54 (CY7C1069DV33)
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:	Copper
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:	Hitachi
Die Attach Material:	EN4900
Bond Diagram Designation	002-12014
Wire Bond Method:	Thermosonic
Wire Material/Size:	Au / 0.7 mil
Thermal Resistance Theta JA °C/W:	36.7 for 7C14104C 40.1 for 7C17165A
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

ELECTRICAL TEST / FINISH DESCRIPTION	
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
Solderability	JESD22-B102	P



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>
STRESS: ACOUSTIC, MSL3								
CY14B116N (7CD1456B07)	ZW54	4609532	611623231	GM	COMP	15	0	
CY7C1061AV (7C1061AC)	ZW54	4608040	611627048	GM	COMP	15	0	
CY7C1069DV (7C1069NC)	ZW54	4609910	611627925	GM	COMP	15	0	
STRESS: BALL SHEAR								
CY14B116N (7CD1456B07)	ZW54	4609532	611623231	GM	COMP	10	0	
CY7C1061AV (7C1061AC)	ZW54	4608040	611627048	GM	COMP	10	0	
CY7C1069DV (7C1069NC)	ZW54	4609910	611627925	GM	COMP	10	0	
STRESS: BOND PULL								
CY14B116N (7CD1456B07)	ZW54	4609532	611623231	GM	COMP	10	0	
CY7C1061AV (7C1061AC)	ZW54	4608040	611627048	GM	COMP	10	0	
CY7C1069DV (7C1069NC)	ZW54	4609910	611627925	GM	COMP	10	0	
STRESS: CONSTRUCTIONAL ANALYSIS								
CY14B116N (7CD1456B07)	ZW54	4609532	611623231	GM	COMP	5	0	
CY7C1061AV (7C1061AC)	ZW54	4608040	611627048	GM	COMP	5	0	
CY7C1069DV (7C1069NC)	ZW54	4609910	611627925	GM	COMP	5	0	
STRESS: DIE SHEAR								
CY14B116N (7CD1456B07)	ZW54	4609532	611623231	GM	COMP	10	0	
CY7C1061AV (7C1061AC)	ZW54	4608040	611627048	GM	COMP	10	0	
CY7C1069DV (7C1069NC)	ZW54	4609910	611627925	GM	COMP	10	0	
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	
STRESS: FINAL VISUAL INSPECTION								
CY14B116N (7CD1456B07)	ZW54	4609532	611623231	GM	COMP	606	0	
CY7C1061AV (7C1061AC)	ZW54	4608040	611627048	GM	COMP	420	0	
CY7C1069DV (7C1069NC)	ZW54	4609910	611627925	GM	COMP	1202	0	



Reliability Test Data

QTP #: 171002

Device Package Fab Lot # Assy Lot # Assy Loc Duration Samp Rej Failure Mechanism

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
CY7C1061AV (7C1061AC)	ZW54	4608040	611627048	GM	96	30	0
CY7C1069DV (7C1069NC)	ZW54	4609910	611627925	GM	96	30	0

STRESS: PRESSURE COOKER TEST

CY14B116N (7CD1456B07)	ZW54	4609532	611623231	GM	168	80	0
CY14B116N (7CD1456B07)	ZW54	4609532	611623231	GM	288	80	0

STRESS: PHYSICAL DIMENSION

CY14B116N (7CD1456B07)	ZW54	4609532	611623231	GM	COMP	5	0
CY7C1061AV (7C1061AC)	ZW54	4608040	611627048	GM	COMP	10	0
CY7C1069DV (7C1069NC)	ZW54	4609910	611627925	GM	COMP	10	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
CY7C1061AV (7C1061AC)	ZW54	4608040	611627048	GM	500	80	0
CY7C1069DV (7C1069NC)	ZW54	4609910	611627925	GM	500	80	0

STRESS: X-RAY

CY14B116N (7CD1456B07)	ZW54	4609532	611623231	GM	COMP	15	0
CY7C1061AV (7C1061AC)	ZW54	4608040	611627048	GM	COMP	15	0
CY7C1069DV (7C1069NC)	ZW54	4609910	611627925	GM	COMP	15	0



Document History Page

Document Title:QTP#171002: 54L TSOP (22.4x11.84x1.0mm) Matte Sn leadfinish, Au Wire MSL3, 260C Reflow
Chipmos-Taiwan (GM)
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Rev.	ECN No.	Orig. of Change	Description of Change
**	5966124	HSTO	Initial spec release