

Cypress Semiconductor Package Qualification Report

**QTP# 171001 VERSION **
March 2017**

**48L TSOP I (12 x18.4x1mm)
Pure Sn Leadfinish,
Cu Wire
MSL3, 260°C Reflow
Bangkok-Thailand (SB)**

FOR ANY QUESTIONS ON THIS REPORT, PLEASE CONTACT
reliability@cypress.com or via a CYLINK CRM CASE

Prepared By:
Josephine F. Pineda (JYF)
Staff Reliability Engineer

Reviewed By:
Rene Rodgers (RT)
Sr. MTS Reliability Engineer

Approved By:
David Hoffman (DHH)
Reliability Director

PACKAGE QUALIFICATION HISTORY

QTP Number	Description of Qualification Purpose	Date
171001	Qualification of 48L TSOP I Package at Cypress Bangkok, Thailand (SB) using Cel9200HF10-U Mold Compound, Ablestik 8340, Pure Sn Lead Finish, 0.9 mil Cu Wire at MSL3, 260C Reflow Temperature	March 2017

MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION	
Package Designation:	ZT48A
Package Outline, Type, or Name:	48L TSOP I (12 x18.4x1mm)
Mold Compound Name/Manufacturer:	Cel9200HF10-U
Mold Compound Flammability Rating:	V-0 / UL94
Oxygen Rating Index:	28%
Leaframe Material:	Copper
Lead Finish, Composition / Thickness:	Pure Sn
Die Backside Preparation Method/Metallization:	Backgrind
Die Separation Method:	Saw
Die Attach Supplier:	Ablestik
Die Attach Material:	8340
Bond Diagram Designation:	002-15806
Wire Bond Method:	Thermosonic
Wire Material/Size:	Cu, 0.9 mil
Thermal Resistance Theta JA °C/W:	68.15°C/W
Package Cross Section Yes/No:	Yes
Assembly Process Flow:	001-97055
Name/Location of Assembly (prime) facility:	Bangkok-Thailand (SB)
MSL Level	3
Reflow Profile	260C

ELECTRICAL TEST / FINISH DESCRIPTION	
Test Location:	Chipmos-Taiwan (GO)

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
Die Shear	MIL-STD-883, Method 2019 Per die size: <ul style="list-style-type: none"> • <3000 sq. mils = 1.2 kgf • 30001-5000 sq. mils = 1.2 kgf • >5001 sq. mils = 1.2 kgf 	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/1,000V/1,250V JESD22-C101	P
Final Visual	JESD22-B101	P
High Accelerated Saturation Test (HAST)	JEDEC STD 22-A110: 130°C, 85% RH, 3.65V 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
Physical Dimension	MIL-STD-1835, JESD22-B100	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
Solderability	J-STD-002, JESD22-B102	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 #: 171001

<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>
STRESS: ACOUSTIC, MSL3							
CY7C1061G30 (7AC171061AO) 9537003	611631113	611631113	SB-Thailand	COMP	22	0	
CY7C1061G30 (7AC171061AO) 9537003	611631112	611631112	SB-Thailand	COMP	22	0	
CY7C1061G30 (7AC171061AO) 9518009	611631251	611631251	SB-Thailand	COMP	22	0	
STRESS: BALL SHEAR							
CY7C1061G30 (7AC171061AO) 9537003	611631113	611631113	SB-Thailand	COMP	5	0	
CY7C1061G30 (7AC171061AO) 9537003	611631112	611631112	SB-Thailand	COMP	5	0	
CY7C1061G30 (7AC171061AO) 9518009	611631251	611631251	SB-Thailand	COMP	5	0	
STRESS: BOND PULL							
CY7C1061G30 (7AC171061AO) 9537003	611631113	611631113	SB-Thailand	COMP	5	0	
CY7C1061G30 (7AC171061AO) 9537003	611631112	611631112	SB-Thailand	COMP	5	0	
CY7C1061G30 (7AC171061AO) 9518009	611631251	611631251	SB-Thailand	COMP	5	0	
STRESS: CONSTRUCTIONAL ANALYSIS							
CY7C1061G30 (7AC171061AO) 9537003	611631113	611631113	SB-Thailand	COMP	5	0	
CY7C1061G30 (7AC171061AO) 9537003	611631112	611631112	SB-Thailand	COMP	5	0	
CY7C1061G30 (7AC171061AO) 9518009	611631251	611631251	SB-Thailand	COMP	5	0	
STRESS: DIE SHEAR							
CY7C1061G30 (7AC171061AO) 9537003	611631113	611631113	SB-Thailand	COMP	10	0	
CY7C1061G30 (7AC171061AO) 9537003	611631112	611631112	SB-Thailand	COMP	10	0	
CY7C1061G30 (7AC171061AO) 9518009	611631251	611631251	SB-Thailand	COMP	10	0	
STRESS: DYE PENETRANT TEST							
CY7C1061G30 (7AC171061AO) 9537003	611631112	611631112	SB-Thailand	COMP	15	0	
STRESS: ESD-CHARGE DEVICE MODEL							
CY7C1061G30 (7AC171061AO) 9537003	611631113	611631113	SB-Thailand	500	9	0	
CY7C1061G30 (7AC171061AO) 9537003	611631113	611631113	SB-Thailand	1000	3	0	
CY7C1061G30 (7AC171061AO) 9537003	611631113	611631113	SB-Thailand	1250	3	0	



Reliability Test Data

QTP #: 171001

<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>
---------------	------------------	-------------------	-----------------	-----------------	-------------	------------	--------------------------

STRESS: FINAL VISUAL

CY7C1061G30 (7AC171061AO) 9537003	611631113	611631113	SB-Thailand	COMP	795	0	
CY7C1061G30 (7AC171061AO) 9537003	611631112	611631112	SB-Thailand	COMP	1553	0	
CY7C1061G30 (7AC171061AO) 9518009	611631251	611631251	SB-Thailand	COMP	1551	0	

STRESS: HI-ACCEL SATURATION TEST (130C, 85%RH, 3.65V), PRE COND 192 HR 30C/60%RH (MSL3)

CY7C1061G30 (7AC171061AO) 9537003	611631113	611631113	SB-Thailand	96	80	0	
CY7C1061G30 (7AC171061AO) 9537003	611631112	611631112	SB-Thailand	96	80	0	
CY7C1061G30 (7AC171061AO) 9537003	611631112	611631112	SB-Thailand	192	79	0	
CY7C1061G30 (7AC171061AO) 9518009	611631251	611631251	SB-Thailand	96	80	0	
CY7C1061G30 (7AC171061AO) 9518009	611631251	611631251	SB-Thailand	192	80	0	

STRESS: HIGH TEMPERATURE STORAGE, PLASTIC, 150C

CY7C1061G30 (7AC171061AO) 9537003	611631113	611631113	SB-Thailand	800	50	0	
-----------------------------------	-----------	-----------	-------------	-----	----	---	--

STRESS: INTERNAL VISUAL

CY7C1061G30 (7AC171061AO) 9537003	611631113	611631113	SB-Thailand	COMP	5	0	
CY7C1061G30 (7AC171061AO) 9537003	611631112	611631112	SB-Thailand	COMP	5	0	
CY7C1061G30 (7AC171061AO) 9518009	611631251	611631251	SB-Thailand	COMP	5	0	

STRESS: PHYSICAL DIMENSION

CY7C1061G30 (7AC171061AO) 9537003	611631113	611631113	SB-Thailand	COMP	10	0	
CY7C1061G30 (7AC171061AO) 9537003	611631112	611631112	SB-Thailand	COMP	10	0	
CY7C1061G30 (7AC171061AO) 9518009	611631251	611631251	SB-Thailand	COMP	10	0	

STRESS: PRESSURE COOKER TEST (121C, 100%RH, 15 Psig), PRE COND 192 HR 30C/60%RH (MSL3)

CY7C1061G30 (7AC171061AO) 9537003	611631112	611631112	SB-Thailand	96	80	0	
CY7C1061G30 (7AC171061AO) 9537003	611631112	611631112	SB-Thailand	168	80	0	

STRESS: SOLDERABILITY TEST

CY7C1061G30 (7AC171061AO) 9537003	611631113	611631113	SB-Thailand	COMP	15	0	
-----------------------------------	-----------	-----------	-------------	------	----	---	--



Reliability Test Data

QTP #: 171001

<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>
STRESS: TEMPERATURE CYCLE COND. C -65C TO 150C, PRE COND 192 HRS 30C/60%RH, MSL3							
CY7C1061G30 (7AC171061AO) 9537003	611631113	611631113	SB-Thailand	500	85	0	
CY7C1061G30 (7AC171061AO) 9537003	611631112	611631112	SB-Thailand	500	79	0	
CY7C1061G30 (7AC171061AO) 9537003	611631112	611631112	SB-Thailand	1000	79	0	
CY7C1061G30 (7AC171061AO) 9518009	611631251	611631251	SB-Thailand	500	80	0	
CY7C1061G30 (7AC171061AO) 9518009	611631251	611631251	SB-Thailand	1000	79	0	
STRESS: X-RAY							
CY7C1061G30 (7AC171061AO) 9537003	611631113	611631113	SB-Thailand	COMP	25	0	
CY7C1061G30 (7AC171061AO) 9537003	611631112	611631112	SB-Thailand	COMP	25	0	
CY7C1061G30 (7AC171061AO) 9518009	611631251	611631251	SB-Thailand	COMP	25	0	



Document History Page

Document Title: QTP# 171001: 48L TSOP I (12x18.4x1MM), PURE SN LEADFINISH, CU WIRE, MSL3, 260C
REFLOW, BANGKOK-THAILAND (SB)
Document Number: 002-19142

Rev.	ECN No.	Orig. of Change	Description of Change
**	5660777	JYF	Initial spec release.