

Cypress Semiconductor Package Qualification Report

QTP# 112107 VERSION*C
July, 2014

**48 QFN (7X7X1.0 mm)
NiPdAu, MSL3, 260°C Reflow
ASEK-Taiwan (G)**

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

Prepared By:
Josephine Pineda
Reliability Engineer

Reviewed By:
Rene Rodgers
Reliability Manager

Approved By:
Richard Oshiro
Reliability Director

PACKAGE QUALIFICATION HISTORY

QTP Number	Description of Qualification Purpose	Date
112107	Qualification of 48QFN 7x7x1mm (LT48A, LT48C and LT48D) package dimensions at ASEKH (G) using G631 mold compound and EN-4900 epoxy	Jun 2011

MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION	
Package Designation:	LT48A/ LT48C/LT48D
Package Outline, Type, or Name:	48 Quad Flat No-Lead (7x7x1.0mm)
Mold Compound Name/Manufacturer:	G631 / Sumitomo
Mold Compound Flammability Rating:	V-0 / UL94
Mold Compound Alpha Emission Rate:	N/A
Oxygen Rating Index: >28%	54 (typical) / 28 (Min. value)
Lead Frame Designation:	Full Metal Pad
Lead Frame Material:	Copper /PPF
Substrate Material:	N/A
Lead Finish, Composition / Thickness:	NiPdAu
Die Backside Preparation Method/Metallization:	Backgrind
Die Separation Method:	SAW Process
Die Attach Supplier:	Hitachi
Die Attach Material:	EN-4900
Bond Diagram Designation	001-69182 / 001-69181
Wire Bond Method:	Thermosonic
Wire Material/Size:	0.8mil / Au
Thermal Resistance Theta JA °C/W:	28 °C/W / 26.5 °C/W
Package Cross Section Yes/No:	Yes
Assembly Process Flow:	49-41999
Name/Location of Assembly (prime) facility:	G-ASEK Taiwan
MSL LEVEL	3
REFLOW PROFILE	260C

ELECTRICAL TEST / FINISH DESCRIPTION	
Test Location:	CML-R

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)	JEDEC STD 22-A110, 130 C, 85%RH, 3.63V Precondition: JESD22 Moisture Sensitivity Level (192 Hrs., 30 C°, 60% RH, 260C Reflow)	P
Pressure Cooker Test	JESD22-A102, 121 C, 100%RH, 15 PSIG Precondition: JESD22 Moisture Sensitivity Level (192 Hrs., 30 C°, 60% RH, 260C 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, 260C Reflow)	P
High Temp Storage	JESD22-A103, 150 C, no bias	P
Electrostatic Discharge Human Body Model (ESD-HBM)	(2200V) JEDEC EIA/JESD22-A114	P
Electrostatic Discharge Charge Device Model (ESD-CDM)	(500V) JESD22-C101	P
Acoustic Microscopy	J-STD-020 Precondition: JESD22 Moisture Sensitivity Level (192 Hrs., 30 C°, 60% RH, 260C Reflow)	P
Ball Shear	JESD22-B116, Cpk : 1.33, Ppk : 1.66	P
Bond Pull	MIL-STD-883 – Method 2011, Cpk : 1.33, Ppk : 1.66	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
Internal Visual	MIL-STD-883-2014	P
Final Visual Inspection	JESD22-B101	P
Physical Dimension	MIL-STD-1835, JESD22-B100	P
Thermal Shock	MIL-STD-883, Method 1011, Condition B, -55 C to 125C and JESD22-A106, Condition C, -55 C to 125C	P
Solderability, Steam Aged	J-STD-002, JESD22-B102 95% solder coverage minimum	P
X-Ray	MIL-STD-883 - 2012	P



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<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							
CY8CLED16 (8C296662A)	4002605	611120871	G-TAIWAN	COMP	15	0	
CYWUSB6934 (7B6934B)	4038996	611120872	G-TAIWAN	COMP	15	0	
CY8C3866LTI (8C386612C)	4107346	611121241	G-TAIWAN	COMP	15	0	
STRESS: BALL SHEAR							
CY8CLED16 (8C296662A)	4002605	611120871	G-TAIWAN	COMP	10	0	
CYWUSB6934 (7B6934B)	4038996	611120872	G-TAIWAN	COMP	10	0	
CY8C3866LTI (8C386612C)	4107346	611121241	G-TAIWAN	COMP	10	0	
STRESS: BOND PULL							
CY8CLED16 (8C296662A)	4002605	611120871	G-TAIWAN	COMP	10	0	
CYWUSB6934 (7B6934B)	4038996	611120872	G-TAIWAN	COMP	10	0	
CY8C3866LTI (8C386612C)	4107346	611121241	G-TAIWAN	COMP	10	0	
STRESS: CONSTRUCTIONAL ANALYSIS							
CY8CLED16 (8C296662A)	4002605	611120871	G-TAIWAN	COMP	5	0	
CYWUSB6934 (7B6934B)	4038996	611120872	G-TAIWAN	COMP	5	0	
CY8C3866LTI (8C386612C)	4107346	611121241	G-TAIWAN	COMP	5	0	
STRESS: DYE PENETRATION TEST							
CY8CLED16 (8C296662A)	4002605	611120871	G-TAIWAN	COMP	15	0	
CYWUSB6934 (7B6934B)	4038996	611120872	G-TAIWAN	COMP	15	0	
CY8C3866LTI (8C386612C)	4107346	611121241	G-TAIWAN	COMP	15	0	
STRESS: DIE SHEAR							
CY8CLED16 (8C296662A)	4002605	611120871	G-TAIWAN	COMP	15	0	
CYWUSB6934 (7B6934B)	4038996	611120872	G-TAIWAN	COMP	15	0	
CY8C3866LTI (8C386612C)	4107346	611121241	G-TAIWAN	COMP	15	0	
STRESS: ESD-CHARGE DEVICE MODEL, (500V)							
CY8CLED16 (8C296662A)	4002605	611120871	G-TAIWAN	COMP	9	0	
STRESS: ESD-HUMAN BODY CIRCUIT PER JESD22, METHOD A114, 2,200V							
CY8CLED16 (8C296662A)	4002605	611120871	G-TAIWAN	COMP	8	0	



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STRESS: HI-ACCEL SATURATION TEST, 130C, 3.63V, 85%RH, PRE COND 192 HR 30C/60%RH, MSL3							
CYWUSB6934 (7B6934B)	4038996	611120872	G-TAIWAN	128	77	0	
STRESS: HIGH TEMP STORAGE, 150C							
CY7C60323 (8C214340A)	4008254	611114333	G-TAIWAN	500	80	0	
CY7C60323 (8C214340A)	4008254	611114333	G-TAIWAN	1000	80	0	
STRESS: INTERNAL VISUAL							
CY8CLED16 (8C296662A)	4002605	611120871	G-TAIWAN	COMP	5	0	
CYWUSB6934 (7B6934B)	4038996	611120872	G-TAIWAN	COMP	5	0	
CY8C3866LTI (8C386612C)	4107346	611121241	G-TAIWAN	COMP	5	0	
STRESS: PRESSURE COOKER TEST (121C, 100%RH), 15 Psig, PRE COND 192 HR 30C/60%RH (MSL3)							
CYWUSB6934 (7B6934B)	4038996	611120872	G-TAIWAN	168	77	0	
CY8C3866LTI (8C386612C)	4107346	611121241	G-TAIWAN	168	80	0	
STRESS: PHYSICAL DIMENSION							
CY8CLED16 (8C296662A)	4002605	611120871	G-TAIWAN	COMP	30	0	
CYWUSB6934 (7B6934B)	4038996	611120872	G-TAIWAN	COMP	30	0	
CY8C3866LTI (8C386612C)	4107346	611121241	G-TAIWAN	COMP	30	0	
STRESS: SOLDERABILITY							
CY8CLED16 (8C296662A)	4002605	611120871	G-TAIWAN	COMP	3	0	
CYWUSB6934 (7B6934B)	4038996	611120872	G-TAIWAN	COMP	3	0	
CY8C3866LTI (8C386612C)	4107346	611121241	G-TAIWAN	COMP	3	0	
STRESS: TC COND. C -65C TO 150C, PRE COND 192 HR 30C/60%RH, MSL3							
CY8CLED16 (8C296662A)	4002605	611120871	G-TAIWAN	500	80	0	
CY8CLED16 (8C296662A)	4002605	611120871	G-TAIWAN	1000	80	0	
CYWUSB6934 (7B6934B)	4038996	611120872	G-TAIWAN	500	77	0	
CY8C3866LTI (8C386612C)	4107346	611121241	G-TAIWAN	500	80	0	
CY8C3866LTI (8C386612C)	4107346	611121241	G-TAIWAN	1000	80	0	
STRESS: THERMAL SHOCK							
CY8CLED16 (8C296662A)	4002605	611120871	G-TAIWAN	200	80	0	
CY8CLED16 (8C296662A)	4002605	611120871	G-TAIWAN	1000	80	0	

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STRESS: X-RAY							
CY8CLED16 (8C296662A)	4002605	611120871	G-TAIWAN	COMP	15	0	
CYWUSB6934 (7B6934B)	4038996	611120872	G-TAIWAN	COMP	15	0	
CY8C3866LTI (8C386612C)	4107346	611121241	G-TAIWAN	COMP	15	0	



Document History Page

Document Title: QTP 112107: 48QFN 7X7X1MM (LT48A, LT48C AND LT48D), NIPDAU, MSL3 260C REFLOW
ASEK- TAIWAN
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Rev.	ECN No.	Orig. of Change	Description of Change
**	3283659	NSR	Initial spec release
*A	3657926	NSR	Sunset Review. Remove the reference Cypress specs on the reliability test conditions and replace with the industry standards. Added TCT1000 Cycles robustness readpoints. Remove version 1.0 in the QTP# in title page.
*B	4055318	JYF	Sunset Review: Deleted obsolete spec 001-69249 in Major Package Information table; Deleted revisions of ref. Jedec/Military standards in Reliability Tests Performed table. Revision changes from time to time.
*C	4450627	JYF	Sunset Review: Updated QTP title page for template alignment.

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