

# Cypress Semiconductor Package Qualification Report

**QTP# 112108 VERSION \*C  
July 2014**

**24 QFN (4x4x0.6mm)  
NiPdAu, MSL3, 260°C Reflow  
ASEK-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>
112108	Qualification of 24QFN 4x4x0.6mm (LQ24A) package dimensions at ASEKH (G) using G631 mold compound and EN-4900 epoxy	Jun 2011

<b>MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION</b>	
Package Designation:	LQ24A
Package Outline, Type, or Name:	24 Quad Flat No-Lead (4X4X0.6mm)
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	001-69159
Wire Bond Method:	Thermosonic
Wire Material/Size:	0.8mil / Au
Thermal Resistance Theta JA °C/W:	35 °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

<b>ELECTRICAL TEST / FINISH DESCRIPTION</b>	
Test Location:	CML-R, KYEC, ASE-G

**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, 5.5V 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-883C, 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-B	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-B116A, 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"> <li>• &lt;3000 sq. mils = 1.2 kgf</li> <li>• 30001-5000 sq. mils = 1.2 kgf</li> <li>• &gt;5001 sq. mils = 1.2 kgf</li> </ul>	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-B101B	P
Physical Dimension	MIL-STD-1835, JESD22-B100	P
Thermal Shock	MIL-STD-883C, Method 1011, Condition B, -55 C to 125C and JESD22-A106B, 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



## Reliability Test Data

**QTP #: 112108**

<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>							
CY7C68003 (7C68330B)	4036298	611119485	G-TAIWAN	COMP	15	0	
CY7C68003 (7C68330B)	4036298	611119484	G-TAIWAN	COMP	15	0	
CY7C68003 (7C68330B)	4036298	611119483	G-TAIWAN	COMP	15	0	
<b>STRESS: BALL SHEAR</b>							
CY7C68003 (7C68330B)	4036298	611119485	G-TAIWAN	COMP	10	0	
CY7C68003 (7C68330B)	4036298	611119484	G-TAIWAN	COMP	10	0	
CY7C68003 (7C68330B)	4036298	611119483	G-TAIWAN	COMP	10	0	
<b>STRESS: BOND PULL</b>							
CY7C68003 (7C68330B)	4036298	611119485	G-TAIWAN	COMP	10	0	
CY7C68003 (7C68330B)	4036298	611119484	G-TAIWAN	COMP	10	0	
CY7C68003 (7C68330B)	4036298	611119483	G-TAIWAN	COMP	10	0	
<b>STRESS: CONSTRUCTIONAL ANALYSIS</b>							
CY7C68003 (7C68330B)	4036298	611119485	G-TAIWAN	COMP	5	0	
<b>STRESS: DYE PENETRATION TEST</b>							
CY7C68003 (7C68330B)	4036298	611119485	G-TAIWAN	COMP	15	0	
CY7C68003 (7C68330B)	4036298	611119484	G-TAIWAN	COMP	15	0	
CY7C68003 (7C68330B)	4036298	611119483	G-TAIWAN	COMP	15	0	
<b>STRESS: DIE SHEAR</b>							
CY7C68003 (7C68330B)	4036298	611119485	G-TAIWAN	COMP	15	0	
CY7C68003 (7C68330B)	4036298	611119484	G-TAIWAN	COMP	15	0	
CY7C68003 (7C68330B)	4036298	611119483	G-TAIWAN	COMP	15	0	
<b>STRESS: ESD-CHARGE DEVICE MODEL, (500V)</b>							
CY7C68003 (7C68330B)	4036298	611119484	G-TAIWAN	COMP	9	0	
<b>STRESS: ESD-HUMAN BODY CIRCUIT PER JESD22, METHOD A114-E, 2,200V</b>							
CY7C68003 (7C68330B)	4036298	611119484	G-TAIWAN	COMP	8	0	
<b>STRESS: HI-ACCEL SATURATION TEST, 130C, 5.5V, 85%RH, PRE COND 192 HR 30C/60%RH, MSL3</b>							
CY8CTMA340 (8C20322D)	4103513	611119447	G-TAIWAN	128	79	0	

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## Reliability Test Data

**QTP #: 112108**

<b>Device</b>	<b>Fab Lot #</b>	<b>Assy Lot #</b>	<b>Assy Loc</b>	<b>Duration</b>	<b>Samp</b>	<b>Rej</b>	<b>Failure Mechanism</b>
<b>STRESS: HIGH TEMP STORAGE, 150C</b>							
CY7C60323 (8C214340A)	4008254	611114333	G-TAIWAN	500	80	0	
CY7C60323 (8C214340A)	4008254	611114333	G-TAIWAN	1000	80	0	
<b>STRESS: INTERNAL VISUAL</b>							
CY7C68003 (7C68330B)	4036298	611119485	G-TAIWAN	COMP	5	0	
<b>STRESS: PRESSURE COOKER TEST (121C, 100%RH), 15 Psig, PRE COND 192 HR 30C/60%RH (MSL3)</b>							
CY7C68003 (7C68330B)	4036298	611119485	G-TAIWAN	168	80	0	
<b>STRESS: PHYSICAL DIMENSION</b>							
CY7C68003 (7C68330B)	4036298	611119485	G-TAIWAN	COMP	30	0	
CY7C68003 (7C68330B)	4036298	611119484	G-TAIWAN	COMP	30	0	
CY7C68003 (7C68330B)	4036298	611119483	G-TAIWAN	COMP	30	0	
<b>STRESS: SOLDERABILITY</b>							
CY7C68003 (7C68330B)	4036298	611119485	G-TAIWAN	COMP	3	0	
CY7C68003 (7C68330B)	4036298	611119484	G-TAIWAN	COMP	3	0	
CY7C68003 (7C68330B)	4036298	611119483	G-TAIWAN	COMP	3	0	
<b>STRESS: TC COND. C -65C TO 150C, PRE COND 192 HR 30C/60%RH, MSL3</b>							
CY7C68003 (7C68330B)	4036298	611119485	G-TAIWAN	500	80	0	
CY7C68003 (7C68330B)	4036298	611119484	G-TAIWAN	500	80	0	
CY7C68003 (7C68330B)	4036298	611119483	G-TAIWAN	500	80	0	
<b>STRESS: THERMAL SHOCK</b>							
CY7C68003 (7C68330B)	4036298	611119485	G-TAIWAN	200	80	0	
CY7C68003 (7C68330B)	4036298	611119485	G-TAIWAN	1000	80	0	
<b>STRESS: X-RAY</b>							
CY7C68003 (7C68330B)	4036298	611119485	G-TAIWAN	COMP	15	0	
CY7C68003 (7C68330B)	4036298	611119484	G-TAIWAN	COMP	15	0	



## Document History Page

Document Title: QTP 112108: 24 QFN (4X4X0.6MM), 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. Remove version 1.0 in the QTP# in title page.
*B	4056777	HSTO	Sunset Review Updated test location facility based on current qualified test site.
*C	4450632	HSTO	Align qualification report based on the new template in the front page

Distribution: WEB

Posting: None