

Cypress Semiconductor Package Qualification Report

**QTP# 112603 VERSION*B
September, 2014**

**16 QFN (3x3x0.6mm)
NiPdAu-Ag, MSL3, 260°C Reflow
ASEK-Taiwan (G)**

FOR ANY QUESTIONS ON THIS REPORT, PLEASE CONTACT
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PACKAGE QUALIFICATION HISTORY

QTP Number	Description of Qualification Purpose	Date
112603	Qualification of 16QFN 3x3x0.6mm (LG16AA) package dimensions at ASEKH (G) using G631 mold compound and FH900 epoxy	Jul 2011

MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION	
Package Designation:	LG16AA
Package Outline, Type, or Name:	16 Quad Flat No-Lead/ Chip on Lead (3X3X0.6mm)
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-Ag
Die Backside Preparation Method/Metallization:	Backgrind
Die Separation Method:	SAW Process
Die Attach Supplier:	Hitachi
Die Attach Material:	FH-900
Bond Diagram Designation	001-69245
Wire Bond Method:	Thermosonic
Wire Material/Size:	0.8mil / Au
Thermal Resistance Theta JA °C/W:	32.69 °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, 5.25V 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	150 C, no bias JESD22-A103	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	P
Bond Pull	MIL-STD-883 – Method 2011	P
Constructional Analysis	Criteria: Meet external and internal characteristics of Cypress package	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



Reliability Test Data

QTP #: 112603

Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: ACOUSTIC, MSL3							
CY8C20236A (8C202662B)	5049067	611123647	G-TAIWAN	COMP	15	0	
CY8C20236A (8C202662B)	5049067	611123648	G-TAIWAN	COMP	15	0	
CY8C20236A (8C202662B)	5049067	611123646	G-TAIWAN	COMP	15	0	
STRESS: BALL SHEAR							
CY8C20236A (8C202662B)	5049067	611123647	G-TAIWAN	COMP	10	0	
CY8C20236A (8C202662B)	5049067	611123648	G-TAIWAN	COMP	10	0	
CY8C20236A (8C202662B)	5049067	611123646	G-TAIWAN	COMP	10	0	
STRESS: BOND PULL							
CY8C20236A (8C202662B)	5049067	611123647	G-TAIWAN	COMP	10	0	
CY8C20236A (8C202662B)	5049067	611123648	G-TAIWAN	COMP	10	0	
CY8C20236A (8C202662B)	5049067	611123646	G-TAIWAN	COMP	10	0	
STRESS: CONSTRUCTIONAL ANALYSIS							
CY8C20236A (8C202662B)	5049067	611123647	G-TAIWAN	COMP	5	0	
CY8C20236A (8C202662B)	5049067	611123648	G-TAIWAN	COMP	5	0	
CY8C20236A (8C202662B)	5049067	611123646	G-TAIWAN	COMP	5	0	
STRESS: DYE PENETRATION TEST							
CY8C20236A (8C202662B)	5049067	611123647	G-TAIWAN	COMP	15	0	
CY8C20236A (8C202662B)	5049067	611123648	G-TAIWAN	COMP	15	0	
CY8C20236A (8C202662B)	5049067	611123646	G-TAIWAN	COMP	15	0	
STRESS: ESD-CHARGE DEVICE MODEL, (500V)							
CY8C20236A (8C202662B)	5049067	611123647	G-TAIWAN	COMP	9	0	
STRESS: ESD-HUMAN BODY CIRCUIT PER JESD22, METHOD A114, 2,200V							
CY8C20236A (8C202662B)	5049067	611123647	G-TAIWAN	COMP	8	0	
STRESS: HI-ACCEL SATURATION TEST, 130C, 5.25V, 85%RH, PRE COND 192 HR 30C/60%RH, MSL3							
CY8C20236A (8C202662B)	5049067	611123647	G-TAIWAN	128	79	0	



Reliability Test Data

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Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
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							
CY8C20236A (8C202662B)	5049067	611123647	G-TAIWAN	COMP	5	0	
CY8C20236A (8C202662B)	5049067	611123648	G-TAIWAN	COMP	5	0	
CY8C20236A (8C202662B)	5049067	611123646	G-TAIWAN	COMP	5	0	
STRESS: PRESSURE COOKER TEST (121C, 100%RH), 15 Psig, PRE COND 192 HR 30C/60%RH (MSL3)							
CY8C20236A (8C202662B)	5049067	611123647	G-TAIWAN	168	80	0	
STRESS: PHYSICAL DIMENSION							
CY8C20236A (8C202662B)	5049067	611123647	G-TAIWAN	COMP	30	0	
CY8C20236A (8C202662B)	5049067	611123648	G-TAIWAN	COMP	30	0	
CY8C20236A (8C202662B)	5049067	611123646	G-TAIWAN	COMP	30	0	
STRESS: SOLDERABILITY							
CY8C20236A (8C202662B)	5049067	611123647	G-TAIWAN	COMP	3	0	
CY8C20236A (8C202662B)	5049067	611123648	G-TAIWAN	COMP	3	0	
CY8C20236A (8C202662B)	5049067	611123646	G-TAIWAN	COMP	3	0	
STRESS: TC COND. C -65C TO 150C, PRE COND 192 HR 30C/60%RH, MSL3							
CY8C20236A (8C202662B)	5049067	611123647	G-TAIWAN	500	80	0	
CY8C20236A (8C202662B)	5049067	611123648	G-TAIWAN	500	80	0	
CY8C20236A (8C202662B)	5049067	611123646	G-TAIWAN	500	80	0	
STRESS: THERMAL SHOCK							
CY8C20236A (8C202662B)	5049067	611123647	G-TAIWAN	200	80	0	
CY8C20236A (8C202662B)	5049067	611123647	G-TAIWAN	1000	80	0	
STRESS: X-RAY							
CY8C20236A (8C202662B)	5049067	611123647	G-TAIWAN	COMP	15	0	
CY8C20236A (8C202662B)	5049067	611123648	G-TAIWAN	COMP	15	0	
CY8C20236A (8C202662B)	5049067	611123646	G-TAIWAN	COMP	15	0	



Document History Page

Document Title: QTP 112603: 16 QFN (3X3X0.6MM), NIPDAU-AG, MSL3 260C REFLOW ASEK- TAIWAN
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Rev.	ECN No.	Orig. of Change	Description of Change
**	3240851	NSR	Initial spec release
*A	4105770	JYF	Sunset Spec Review: Deleted Version 1.0 in QTP title page; Deleted Cypress' referenced specs in Reliability Tests Performed Table and replaced with industry standards;
*B	4490355	JYF	Sunset Review: Updated QTP title page for template alignment.

Distribution: WEB

Posting: None