

Cypress Semiconductor Package Qualification Report

**QTP# 083907 VERSION *B
August 2016**

**32L QFN (5x5x1) Saw Type
NiPdAu-Ag, MSL3, 260°C Reflow
Amkor-Philippines (P3)**

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

QUAL REPORT	DESCRIPTION OF QUALIFICATION PURPOSE	DATE COMP.
083907	Qualify 32L Saw Type QFN 5x5x1mm Pb-Free Package Using Nitto Nitto 7470-LA Mold Compound, AMK-06 Epoxy, NiPdAu-Ag plating at MSL3/260°C Solder Reflow at Amkor- Philippines (P3)	Nov 08

MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION

Package Designation:	LT32B
Package Outline, Type, or Name:	32 Quad Flat No Lead (QFN)
Mold Compound Name/Manufacturer:	Nitto 7470-LA
Mold Compound Flammability Rating:	V-0 UL-94
Oxygen Rating Index:	N/A
Lead Finish, Composition / Thickness:	NiPdAu-Ag
Die Backside Preparation Method/Metallization:	Backgrind
Die Separation Method:	Saw
Die Attach Supplier:	Henkel
Die Attach Material:	AMK-06
Die Attach Method:	Epoxy
Wire Bond Method:	Thermosonic
Wire Material/Size:	Au/ 0.8 mil
Thermal Resistance Theta JA °C/W :	22°C /W
Package Cross Section Yes/No:	N/A
Assembly Process Flow:	001-20659
Name/Location of Assembly (prime) facility:	Amkor-Philippines (P3)
MSL Level:	3
Reflow Profile:	260C

ELECTRICAL TEST / FINISH DESCRIPTION

Test Location:	CML-RA, KYEC, ASE-G
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RELIABILITY TESTS PERFORMED PER SPECIFICATION REQUIREMENTS

Stress/Test	Test Condition (Temp/Bias)	Result P/F
Acoustic Microscopy Test	J-STD-020	P
High Accelerated Saturation Test (HAST)	130°C, 5.25V, 85%RH Precondition: JESD22 Moisture Sensitivity Level 3 192 Hrs, 30C/60%RH+3IR-Reflow, 260°C+0, -5°C	P
Pressure Cooker Test	121°C, 100%RH, 15 Psig Precondition: JESD22 Moisture Sensitivity Level 3 192 Hrs, 30C/60%RH+3IR-Reflow, 260°C+0, -5°C	P
Temperature Cycle	MIL-STD-883C, Method 1010, Condition C, -65°C to 150°C Precondition: JESD22 Moisture Sensitivity Level 3 192 Hrs, 30C/60%RH+3IR-Reflow, 260°C+0, -5°C	P
Electrostatic Discharge Human Body Model (ESD-HBM)	2,200V MIL-STD-883, Method 3015.7	P
Electrostatic Discharge Charge Device Model (ESD-CDM)	500V/1000V/1250V JESD22-C101	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
X-Ray	MIL-STD-883-2012	P
Ball Shear	JESD22-B116A	P
Bond Pull	MIL-STD-883 – Method 2011,	P
Die Shear	MIL-STD-883, Method 2019	P
Final Visual Inspection	JESD22-B101B	P
Internal Visual	MIL-STD-883-2014	P
Physical Dimension	MIL-STD-1835, JESD22-B100	P
Solderability	J-STD-002, JESD22-B102	P
Thermal Shock	MIL-STD-883C, Method 1011	P



Reliability Test Data

QTP #: 083907

Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: ACOUSTIC, MSL3							
CY8C21434 (8C214345AK)	5821006	610841287	M-PHILIPPINES	COMP	15	0	
CY8C21434 (8C214345AK)	5821006	610841288	M-PHILIPPINES	COMP	15	0	
CY8C21434 (8C214345AK)	5821006	610841289	M-PHILIPPINES	COMP	15	0	
STRESS: BALL SHEAR							
CY8C21434 (8C214345AK)	5821006	610841287	M-PHILIPPINES	COMP	10	0	
STRESS: BOND PULL							
CY8C21434 (8C214345AK)	5821006	610841287	M-PHILIPPINES	COMP	10	0	
STRESS: CONSTRUCTIONAL ANALYSIS							
CY8C21434 (8C214345AK)	5821006	610841287	M-PHILIPPINES	COMP	5	0	
STRESS: DIE SHEAR							
CY8C21434 (8C214345AK)	5821006	610841287	M-PHILIPPINES	COMP	15	0	
CY8C21434 (8C214345AK)	5821006	610841288	M-PHILIPPINES	COMP	15	0	
STRESS: DYE PENETRANT TEST							
CY8C21434 (8C214345AK)	5821006	610841287	M-PHILIPPINES	COMP	15	0	
CY8C21434 (8C214345AK)	5821006	610841288	M-PHILIPPINES	COMP	15	0	
CY8C21434 (8C214345AK)	5821006	610841289	M-PHILIPPINES	COMP	15	0	
STRESS: ESD-CHARGE DEVICE MODEL, 500V							
CY8C21434 (8C214345AK)	5821006	610841287	M-PHILIPPINES	COMP	9	0	
STRESS: ESD-HUMAN BODY CIRCUIT PER JESD22, METHOD A114-B, 2,200V							
CY8C21434 (8C214345AK)	5821006	610841287	M-PHILIPPINES	COMP	8	0	
STRESS: FINAL VISUAL INSPECTION							
CY8C21434 (8C214345AK)	5821006	610841287	M-PHILIPPINES	COMP	2009	0	
STRESS: HI-ACCEL SATURATION TEST, (130C, 5.25), 85%RH, PRE COND 192 HR 30C/60%RH, MSL3							
CY8C21434 (8C214345AK)	5821006	610841287	M-PHILIPPINES	128	77	0	
CY8C21434 (8C214345AK)	5821006	610841288	M-PHILIPPINES	128	77	0	
STRESS: INTERNAL VISUAL							
CY8C21434 (8C214345AK)	5821006	610841287	M-PHILIPPINES	COMP	5	0	
CY8C21434 (8C214345AK)	5821006	610841288	M-PHILIPPINES	COMP	5	0	
CY8C21434 (8C214345AK)	5821006	610841289	M-PHILIPPINES	COMP	5	0	

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Reliability Test Data

QTP #: 083907

Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanis
STRESS: PHYSICAL DIMENSIONS							
CY8C21434 (8C214345AK)	5821006	610841287	M-PHILIPPINES	COMP	30	0	
CY8C21434 (8C214345AK)	5821006	610841288	M-PHILIPPINES	COMP	30	0	
CY8C21434 (8C214345AK)	5821006	610841289	M-PHILIPPINES	COMP	30	0	
STRESS: PRESSURE COOKER TEST (121C, 100%RH), PRE COND 192HRS 30C/60%RH, MSL3							
CY8C21434 (8C214345AK)	5821006	610841287	M-PHILIPPINES	168	80	0	
CY8C21434 (8C214345AK)	5821006	610841288	M-PHILIPPINES	168	80	0	
STRESS: SOLDERABILITY							
CY8C21434 (8C214345AK)	5821006	610841287	M-PHILIPPINES	COMP	3	0	
CY8C21434 (8C214345AK)	5821006	610841288	M-PHILIPPINES	COMP	3	0	
CY8C21434 (8C214345AK)	5821006	610841289	M-PHILIPPINES	COMP	3	0	
STRESS: TC COND. C -65C TO 150C PRE COND 192 HR 30C/60%RH, MSL3							
CY8C21434 (8C214345AK)	5821006	610841287	M-PHILIPPINES	500	80	0	
CY8C21434 (8C214345AK)	5821006	610841288	M-PHILIPPINES	500	80	0	
CY8C21434 (8C214345AK)	5821006	610841289	M-PHILIPPINES	500	80	0	
STRESS: THERMAL SHOCK							
CY8C21434 (8C214345AK)	5821006	610841287	M-PHILIPPINES	200	80	0	
CY8C21434 (8C214345AK)	5821006	610841287	M-PHILIPPINES	1000	80	0	
STRESS: X-RAY							
CY8C21434 (8C214345AK)	5821006	610841287	M-PHILIPPINES	500	10	0	
CY8C21434 (8C214345AK)	5821006	610841288	M-PHILIPPINES	500	10	0	
CY8C21434 (8C214345AK)	5821006	610841289	M-PHILIPPINES	500	10	0	

Document History Page

Document Title: QTP#083907: 32L QFN (5x5x1) Saw Type NiPdAu-Ag, MSL3, 260C Reflow Amkor-Philippines (P3)
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Rev.	ECN No.	Orig. of Change	Description of Change
**	4064100	HSTO	Initial Spec Release Qualification report published on Cypress.com is documented on memo HGA-1028 and was transferred to qualification report spec template.
*A	4462875	HSTO	Align qualification report based on the new template in the front page
*B	5384677	HSTO	Updated Reliability Director contact person Deleted obsolete specs
		MQJ	Updated Cypress logo with the new tagline, and removed Distribution: WEB and Posting: None in the document history page.