

Cypress Semiconductor Package Qualification Report

**QTP# 094101 VERSION*A
October, 2014**

**56-Lead QFN (Quad Flat No-Lead)
(8 x 8 x 1.0 mm)
NiPdAu-Ag, MSL3, 260 °C Reflow,
Amkor- Philippines (MB)**

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

QTP Number	Description of Qualification Purpose	Date
094101	Qualify 56 QFN 8x8x1.0mm Saw Type Pb-Free using AMK-06 Epoxy, Nitto 7470-LA Mold Compound and NiPdAu-Ag Lead Finish at MSL3/260 °C Reflow Temperature.	Apr 10

MAJOR PACKAGE INFORMATION FOR THIS QUALIFICATION	
Package Designation:	LT56
Package Outline, Type, or Name:	56-Lead QFN
Mold Compound Name/Manufacturer:	Nitto 7470-LA
Mold Compound Flammability Rating:	UL-94
Oxygen Rating Index:	NA
Lead Frame Material:	Copper
Lead Finish, Composition / Thickness:	NiPdAu-Ag
Die Backside Preparation Method/Metallization:	Backgrind
Die Separation Method:	Sawing
Die Attach Supplier:	Henkel
Die Attach Material:	AMK-06
Die Attach Method:	Epoxy
Bond Diagram Designation:	001-47984
Wire Bond Method:	Thermosonic
Wire Material/Size:	Au/0.8 mil
Thermal Resistance Theta JA °C/W:	23.27 °C/W
Package Cross Section Yes/No:	N/A
Assembly Process Flow:	001-20659
Name/Location of Assembly (prime) facility:	Amkor-Philippines (MB)
MSL Level	3
Reflow Profile	260C

ELECTRICAL TEST/FINISH DESCRIPTION	
Test Location	CML-R

Note: Please contact a Cypress Representative for other packages availability.

RELIABILITY TESTS PERFORMED PER SPECIFICATION REQUIREMENTS

Stress/Test	Test Condition (Temp/Bias)	Result P/F
Acoustic Microscopy	J-STD-020 Precondition: JESD22 Moisture Sensitivity MSL3 192 Hrs, 30 °C/60%RH+ Reflow, 260 °C+0, -5 °C	P
Ball Shear	JESD22-B116, Cpk : 1.33, Ppk : 1.66	P
Bond Pull	MIL-STD-883 – Method 2011, 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 Penetration	Test to determine the existence and extent of cracks, Criteria: No Package Crack	P
Electrostatic Discharge Charge Device Model (ESD-CDM)	500V JESD22-C101	P
Electrostatic Discharge Human Body Model (ESD-HBM)	2,200V JEDEC EIA/JESD22-A114	P
High Accelerated Saturation Test (HAST)	JEDEC STD 22-A110: 130 °C, 5.0V, 85% RH Precondition: JESD22 Moisture Sensitivity MSL3 192 Hrs, 30 °C/60%RH+ Reflow, 260 °C+0, -5 °C	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 MSL3 192 Hrs, 30 °C/60%RH+ Reflow, 260 °C+0, -5 °C	P
Solderability, Steam Aged	J-STD-002, JESD22-B102 95% solder coverage minimum	P
Temperature Cycle	MIL-STD-883, Method 1010, Condition C, -65 C to 150 C Precondition: JESD22 Moisture Sensitivity MSL3 192 Hrs, 30 °C/60%RH+ Reflow, 260 °C+0, -5 °C	P
Thermal Shock	MIL-STD-883, Method 1011, Condition B, -55 C to 125C and JESD22-A106, Condition C, -55 C to 125C	P
X-Ray	MIL-STD-883 2012	P



Reliability Test Data

QTP #:094101

<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							
CY7C65640A (7C65642EC)	4823626	610841281	MB-Phil	COMP	15	0	
CY7C65640A (7C65642EC)	4823626	610841285	MB-Phil	COMP	15	0	
CYWUSB6934 (7B6934BC)	4803351	610839924	MB-Phil	COMP	15	0	
STRESS: BALL SHEAR							
CY7C65640A (7C65642EC)	4823626	610841281	MB-Phil	COMP	10	0	
CY7C65640A (7C65642EC)	4823626	610841285	MB-Phil	COMP	10	0	
STRESS: BOND PULL							
CY7C65640A (7C65642EC)	4823626	610841281	MB-Phil	COMP	10	0	
STRESS: CONSTRUCTIONAL ANALYSIS							
CY7C65640A (7C65642EC)	4823626	610841281	MB-Phil	COMP	5	0	
STRESS: DIE SHEAR							
CY7C65640A (7C65642EC)	4823626	610841281	MB-Phil	COMP	10	0	
CY7C65640A (7C65642EC)	4823626	610841285	MB-Phil	COMP	10	0	
STRESS: DYE PENETRANT TEST							
CY7C65640A (7C65642EC)	4823626	610841281	MB-Phil	COMP	15	0	
CY7C65640A (7C65642EC)	4823626	610841285	MB-Phil	COMP	15	0	
CYWUSB6934 (7B6934BC)	4803351	610839924	MB-Phil	COMP	15	0	
STRESS: ESD-CHARGE DEVICE MODEL, 500V							
CY7C65640A (7C65642EC)	4846647	0	MB-Phil	COMP	9	0	
CY7C65640A (7C65642EC)	4846647	0	MB-Phil	COMP	9	0	
STRESS: ESD-HUMAN BODY MODEL PER JESD22, METHOD A114, (2,200V)							
CY7C65640A (7C65642EC)	4823626	610841281	MB-Phil	COMP	8	0	
STRESS: HI-ACCEL SATURATION TEST, 130C, 5.0V, 60%RH, PRE COND 192 HR 30C/60%RH, MSL3							
CY7C65640A (7C65642EC)	4823626	610841281	MB-Phil	128	77	0	
CYWUSB6934 (7B6934BC)	4803351	610839924	MB-Phil	128	77	0	



Reliability Test Data

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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: INTERNAL VISUAL							
CY7C65640A (7C65642EC)	4823626	610841281	MB-Phil	COMP	5	0	
STRESS: PRESSURE COOKER TEST, 121C, 100%RH, 15 Psig, PRE COND 192 HR 30C/60%RH, MSL3							
CY7C65640A (7C65642EC)	4823626	610841281	MB-Phil	168	77	0	
CYWUSB6934 (7B6934BC)	4803351	610839924	MB-Phil	168	77	0	
STRESS: PHYSICAL DIMENSION							
CY7C65640A (7C65642EC)	4823626	610841281	MB-Phil	COMP	30	0	
CY7C65640A (7C65642EC)	4823626	610841285	MB-Phil	COMP	30	0	
CYWUSB6934 (7B6934BC)	4803351	610839924	MB-Phil	COMP	30	0	
STRESS: SOLDERABILITY							
CY7C65640A (7C65642EC)	4823626	610841281	MB-Phil	COMP	5	0	
CY7C65640A (7C65642EC)	4823626	610841285	MB-Phil	COMP	5	0	
CYWUSB6934 (7B6934BC)	4803351	610839924	MB-Phil	COMP	5	0	
STRESS: TC COND. C -65C TO 150C, PRE COND 192 HR 30C/60%RH, MSL3							
CY7C65640A (7C65642EC)	4823626	610841281	MB-Phil	500	77	0	
CY7C65640A (7C65642EC)	4823626	610841281	MB-Phil	1000	77	0	
CY7C65640A (7C65642EC)	4823626	610841285	MB-Phil	500	77	0	
CY7C65640A (7C65642EC)	4823626	610841285	MB-Phil	1000	77	0	
CYWUSB6934 (7B6934BC)	4803351	610839924	MB-Phil	500	77	0	
CYWUSB6934 (7B6934BC)	4803351	610839924	MB-Phil	1000	77	0	
STRESS: THERMAL SHOCK							
CY7C65640A (7C65642EC)	4823626	610841281	MB-Phil	200	77	0	
CY7C65640A (7C65642EC)	4823626	610841281	MB-Phil	1000	77	0	
STRESS: X-RAY							
CY7C65640A (7C65642EC)	4823626	610841281	MB-Phil	COMP	15	0	
CY7C65640A (7C65642EC)	4823626	610841285	MB-Phil	COMP	15	0	



Document History Page

Document Title: QTP# 094101: 56-LEAD QFN (QUAD FLAT NO-LEAD) (8X8X1.0MM),NIPDAU-AG, MSL3, 260C, AMKOR-PHILIPPINES (MB)
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Rev.	ECN No.	Orig. of Change	Description of Change
**	4149321	JYF	Initial Spec Release.
*A	4535020	JYF	Updated QTP title page for template alignment.

Distribution: WEB

Posting: None