

Cypress Semiconductor Package Qualification Report

**QTP# 073701 VERSION 1.0
November 2007**

**QFN 56L (8 x 8 x 0.9mm)
Saw- Type
NiPdAu, MSL3, 260°C Reflow
AIT-Indonesia**

CYPRESS TECHNICAL CONTACT FOR QUALIFICATION DATA:

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PACKAGE QUALIFICATION HISTORY

QUAL REPORT	DESCRIPTION OF QUALIFICATION PURPOSE	DATE COMP.
072603	QFN 68L (8 x 8 x 0.9mm), Saw Type Pb-Free, using Ablebond CRM 1064L Epoxy, EME-G770 Mold Compound, NiPdAu, MSL3, 260C Reflow Assembled at AIT-Indonesia	Aug 07
073701	Qualify QFN 56L (8 x 8 x 0.9mm), Saw Type Pb-Free, using Ablebond CRM 1064L Epoxy, EME-G770 Mold Compound, NiPdAu, MSL3, 260C Reflow Assembled at AIT-Indonesia	Oct 07

MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION	
Package Designation:	LT56 (Saw Type QFN)
Package Outline, Type, or Name:	56L Quad Flat No-Lead (QFN)
Mold Compound Name/Manufacturer:	EME-G770H
Mold Compound Flammability Rating:	V-0 per UL94
Oxygen Rating Index:	N/A
Substrate Material:	N/A
Lead Finish, Composition / Thickness:	NiPdAu
Die Backside Preparation Method/Metallization:	Backgrind
Die Separation Method:	100% Saw
Die Attach Supplier:	Sumitomo
Die Attach Material:	CRM 1064L
Die Attach Method:	Epoxy
Bond Diagram Designation:	001-16444
Wire Bond Method:	Thermosonic
Wire Material/Size:	1.0mil
Thermal Resistance Theta JA C/W:	25.6/20.6 °C/W
Package Cross Section Yes/No:	N/A
Assembly Process Flow:	001-08480
Name/Location of Assembly (prime) facility:	AT-Indonesia
MSL Level	3
Reflow Profile	260C

ELECTRICAL TEST / FINISH DESCRIPTION	
Test Location:	CML

RELIABILITY TESTS PERFORMED PER SPECIFICATION REQUIREMENTS

Stress/Test	Test Condition (Temp/Bias)	Result P/F
High Accelerated Saturation Test (HAST)	130°C, 1.32V, 85%RH Precondition: JESD22 Moisture Sensitivity MSL3 192 Hrs 30°C/60%RH+3IR-Reflow, 260°C+0, -5°C	P
Pressure Cooker Test	121°C, 100%RH, 15 Psig Precondition: JESD22 Moisture Sensitivity MSL3 192 Hrs 30°C/60%RH+3IR-Reflow, 260°C+0, -5°C	P
Temperature Cycle	MIL-STD-883C, Method 1010, Condition C, -65°C to 150C Precondition: JESD22 Moisture Sensitivity MSL3 192 Hrs 30°C/60%RH+3IR-Reflow, 260°C+0, -5°C	P
Electrostatic Discharge Charge Device Model (ESD-CDM)	500V Cypress Spec. 25-00020	P
Electrostatic Discharge Human Body Model (ESD-HBM)	2,200V JESD-22 Method A114-B	P
Acoustic Microscopy	Cypress Spec. 25-00104	P
Ball Shear	Cypress Spec. 24-00018	P
Bond Pull	Cypress Spec. 12-00292	P
Constructional Analysis	Cypress Spec. 25-20035	P
Die Shear	Cypress Spec. 12-00215	P
Dye Penetration	Cypress Spec. 25-00046	P
External Visual	Cypress Spec. 12-00292/12-00103	P
High Temperature Storage	150C, no bias	P
Internal Visual	Cypress Spec. 25-00017	P
Physical Dimension	Cypress Spec. 25-00031	P
Solderability	Cypress Spec. 25-00018	P
Thermal Shock	Cypress Spec. 25-00014	P
X-ray	MIL-STD-883-2012	P

Reliability Test Data

QTP #: 072603

<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							
CY8C24494A (8C24994AC)	4631625	610662242	AT-INDNS	COMP	15	0	
CY8C24494A (8C24994AC)	4631625	610662243	AT-INDNS	COMP	15	0	
CY8C24494A (8C24994AC)	4631625	610662244	AT-INDNS	COMP	15	0	
STRESS: BALL SHEAR							
CY8C24494A (8C24994AC)	4631625	610662242	AT-INDNS	COMP	10	0	
CY8C24494A (8C24994AC)	4631625	610662244	AT-INDNS	COMP	10	0	
STRESS: BOND PULL							
CY8C24494A (8C24994AC)	4631625	610662242	AT-INDNS	COMP	10	0	
CY8C24494A (8C24994AC)	4631625	610662244	AT-INDNS	COMP	10	0	
STRESS: CONSTRUCTIONAL ANALYSIS							
CY8C24494A (8C24994AC)	4631625	610662243	AT-INDNS	COMP	5	0	
STRESS: DIE SHEAR							
CY8C24494A (8C24994AC)	4631625	610662242	AT-INDNS	COMP	15	0	
CY8C24494A (8C24994AC)	4631625	610662244	AT-INDNS	COMP	15	0	
STRESS: DYE PENETRATION							
CY8C24494A (8C24994AC)	4631625	610662242	AT-INDNS	COMP	15	0	
CY8C24494A (8C24994AC)	4631625	610662243	AT-INDNS	COMP	15	0	
CY8C24494A (8C24994AC)	4631625	610662244	AT-INDNS	COMP	15	0	
STRESS: EXTERNAL VISUAL							
CY8C24494A (8C24994AC)	4631625	610662242	AT-INDNS	COMP	15	0	
CY8C24494A (8C24994AC)	4631625	610662243	AT-INDNS	COMP	15	0	
CY8C24494A (8C24994AC)	4631625	610662244	AT-INDNS	COMP	15	0	
STRESS: ESD- CHARGE DEVICE MODEL (500V)							
CY8C24494A (8C24994AC)	4631625	610662242	AT-INDNS	COMP	14	0	
STRESS: ESD- HUMAN BODY CIRCUIT PER JESD22, METHOD A114-B, 2,200V							
CY8C24494A (8C24994AC)	4631625	610662242	AT-INDNS	COMP	15	0	
STRESS: HIGH TEMPERATURE STORAGE, 150C, NO BIAS							
CY8C24494A (8C24994AC)	4631625	610662242	AT-INDNS	500	50	0	
CY8C24494A (8C24994AC)	4631625	610662242	AT-INDNS	1000	49	0	
STRESS: PHYSICAL DIMENSIONS							
CY8C24494A (8C24994AC)	4631625	610662242	AT-INDNS	COMP	30	0	

Reliability Test Data

QTP #: 072603

<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							
CY8C24494A (8C24994AC)	4631625	610662242	AT-INDNS	COMP	5	0	
STRESS: PRESSURE COOKER TEST (121C, 100%RH) PRE COND 192 HR 30C/60%RH, MSL3							
CY8C24494A (8C24994AC)	4631625	610662243	AT-INDNS	168	77	0	
STRESS: HI-ACCEL SATURATION TEST, 130C, 1.32V, 85%RH, PRE COND 192 HR 30C/60%RH, MSL3							
CY8C24494A (8C24994AC)	4631625	610662243	AT-INDNS	128	77	0	
STRESS: TC COND. C -65C TO 150C PRE COND 192 HR 30C/60%RH, MSL3							
CY8C24494A (8C24994AC)	4631625	610662242	AT-INDNS	500	76	0	
CY8C24494A (8C24994AC)	4631625	610662242	AT-INDNS	1000	76	0	
CY8C24494A (8C24994AC)	4631625	610662243	AT-INDNS	500	77	0	
CY8C24494A (8C24994AC)	4631625	610662243	AT-INDNS	1000	77	0	
CY8C24494A (8C24994AC)	4631625	610662244	AT-INDNS	500	77	0	
STRESS: THERMAL SHOCK							
CY8C24494A (8C24994AC)	4631625	610662243	AT-INDNS	100	77	0	
CY8C24494A (8C24994AC)	4631625	610662243	AT-INDNS	200	77	0	
CY8C24494A (8C24994AC)	4631625	610662243	AT-INDNS	1000	77	0	
STRESS: SOLDERABILITY							
CY8C24494A (8C24994AC)	4631625	610662242	AT-INDNS	COMP	3	0	
CY8C24494A (8C24994AC)	4631625	610662243	AT-INDNS	COMP	3	0	
CY8C24494A (8C24994AC)	4631625	610662244	AT-INDNS	COMP	3	0	
STRESS: X-RAY							
CY8C24494A (8C24994AC)	4631625	610662242	AT-INDNS	COMP	15	0	
CY8C24494A (8C24994AC)	4631625	610662244	AT-INDNS	COMP	15	0	

Reliability Test Data

QTP #: 073701

<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)	4722618	610737608	AT-INDNS	COMP	15	0	
CY7C65640A (7C65642EC)	4722618	610737607	AT-INDNS	COMP	15	0	
CY7C65640A (7C65642EC)	4722618	610737606	AT-INDNS	COMP	15	0	
STRESS: BALL SHEAR							
CY7C65640A (7C65642EC)	4722618	610737608	AT-INDNS	COMP	10	0	
STRESS: BOND PULL							
CY7C65640A (7C65642EC)	4722618	610737608	AT-INDNS	COMP	10	0	
STRESS: CONSTRUCTIONAL ANALYSIS							
CY7C65640A (7C65642EC)	4722618	610737608	AT-INDNS	COMP	15	0	
CY7C65640A (7C65642EC)	4722618	610737607	AT-INDNS	COMP	5	0	
CY7C65640A (7C65642EC)	4722618	610737606	AT-INDNS	COMP	5	0	
STRESS: DIE SHEAR							
CY7C65640A (7C65642EC)	4722618	610737608	AT-INDNS	COMP	15	0	
STRESS: DYE PENETRATION							
CY7C65640A (7C65642EC)	4722618	610737608	AT-INDNS	COMP	500	0	
CY7C65640A (7C65642EC)	4722618	610737607	AT-INDNS	COMP	500	0	
CY7C65640A (7C65642EC)	4722618	610737606	AT-INDNS	COMP	500	0	
STRESS: EXTERNAL VISUAL							
CY7C65640A (7C65642EC)	4722618	610737608	AT-INDNS	COMP	695	0	
CY7C65640A (7C65642EC)	4722618	610737607	AT-INDNS	COMP	604	0	
CY7C65640A (7C65642EC)	4722618	610737606	AT-INDNS	COMP	600	0	
STRESS: INTERNAL VISUAL							
CY7C65640A (7C65642EC)	4722618	610737608	AT-INDNS	COMP	5	0	
CY7C65640A (7C65642EC)	4722618	610737607	AT-INDNS	COMP	5	0	
STRESS: PHYSICAL DIMENSIONS							
CY7C65640A (7C65642EC)	4722618	610737608	AT-INDNS	COMP	30	0	
STRESS: SOLDERABILITY							
CY7C65640A (7C65642EC)	4722618	610737608	AT-INDNS	COMP	3	0	
CY7C65640A (7C65642EC)	4722618	610737607	AT-INDNS	COMP	3	0	
CY7C65640A (7C65642EC)	4722618	610737606	AT-INDNS	COMP	3	0	
STRESS: TC COND. C -65C TO 150C PRE COND 192 HR 30C/60%RH, MSL3							
CY7C65640A (7C65642EC)	4722618	610737608	AT-INDNS	500	77	0	
CY7C65640A (7C65642EC)	4722618	610737607	AT-INDNS	500	76	0	
CY7C65640A (7C65642EC)	4722618	610737606	AT-INDNS	500	77	0	
STRESS: X-RAY							
CY7C65640A (7C65642EC)	4722618	610737608	AT-INDNS	COMP	15	0	