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Cypress Semiconductor
Package Qualification Report

QTP# 104810 VERSION *B
September 2014

48/56-Lead SSOP (300 mils)
NiPdAu, MSL3, 235°C Reflow
JCET-China (JT)

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

QTP Number	Description of Qualification Purpose	Date
104802	Qualify New Assembly Site (JCET) Qual – for 48L/56L SSOP 300 mils, **Pb-Free** Package Using KE G3000, QMI-509, 0.9 mil Gold Wire and NiPdAu Lead Finish	Apr 2011
104810	Qualify New Assembly Site (JCET) Qual – for 48L/56L SSOP 300 mils, **Standard** Package Using KE G3000, QMI-509, 0.9 mil Gold Wire and NiPdAu Lead Finish	Apr 2011

MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION	
Package Designation:	SP48 / SPP56
Package Outline, Type, or Name:	48L/56L SSOP
Mold Compound Name/Manufacturer:	KEG3000 / Kyocera
Mold Compound Flammability Rating:	V-O per UL94
Mold Compound Alpha Emission Rate:	0.002 CPH/cm2
Oxygen Rating Index: >28%	N/A
Lead Frame Designation:	Reduced Metal Pad
Lead Frame Material:	Copper
Substrate Material:	N/A
Lead Finish, Composition / Thickness:	NiPdAu
Die Backside Preparation Method/Metallization:	Backgrind
Die Separation Method:	Wafersaw
Die Attach Supplier:	Henkel
Die Attach Material:	QMI 509
Bond Diagram Designation	001-34919, 001-34922, 001-51388
Wire Bond Method:	Thermosonic
Wire Material/Size:	0.9mil / Au
Thermal Resistance Theta JA °C/W:	11.3 °C/W
Package Cross Section Yes/No:	Yes
Assembly Process Flow:	001-64159
Name/Location of Assembly (prime) facility:	JT-JCET China
MSL LEVEL	3
REFLOW PROFILE	235C

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)	130 C, 85%RH, 3.3V Precondition: JESD22 Moisture Sensitivity Level (192 Hrs., 30 C°, 60% RH, 260C Reflow) Precondition: JESD22 Moisture Sensitivity Level (192 Hrs., 30 C°, 60% RH, 235C Reflow)	P
Pressure Cooker Test	121 C, 100%RH, 15 PSIG Precondition: JESD22 Moisture Sensitivity Level (192 Hrs., 30 C°, 60% RH, 260C Reflow) Precondition: JESD22 Moisture Sensitivity Level (192 Hrs., 30 C°, 60% RH, 235C 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) Precondition: JESD22 Moisture Sensitivity Level (192 Hrs., 30 C°, 60% RH, 235C Reflow)	P
High Temp Storage	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: • <3000 sq. mils = 1.2 kgf • 30001-5000 sq. mils = 1.2 kgf • >5001 sq. mils = 1.2 kgf	P
Dye Penetrant Test	Criteria: No Package Crack	P
Internal Visual	MIL-STD-883-2014	P
Final Visual Inspection	JESD22-B101B	P
Lead Integrity	JESD22-B105, MIL STD 883	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

Stress/Test	Test Condition (Temp/Bias)	Result P/F
Solderability, Steam Aged	J-STD-002, JESD22-B102 95% solder coverage minimum	P
X-Ray	MIL-STD-883 - 2012	P

Reliability Test Data

QTP #: 104802

Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: ACOUSTIC, MSL3							
CY7C68001 (7C68001E)	4032514	611104378	JT-CHINA	COMP	15	0	
CY14B101KA (7C1401B1C)	4029851	611104380	JT-CHINA	COMP	15	0	
CY7C68013A (7C682000B)	4034603	611104379	JT-CHINA	COMP	15	0	
STRESS: BALL SHEAR							
CY7C68001 (7C68001E)	4032514	611104378	JT-CHINA	COMP	10	0	
CY14B101KA (7C1401B1C)	4029851	611104380	JT-CHINA	COMP	10	0	
CY7C68013A (7C682000B)	4034603	611104379	JT-CHINA	COMP	10	0	
STRESS: BOND PULL							
CY7C68001 (7C68001E)	4032514	611104378	JT-CHINA	COMP	10	0	
CY14B101KA (7C1401B1C)	4029851	611104380	JT-CHINA	COMP	10	0	
CY7C68013A (7C682000B)	4034603	611104379	JT-CHINA	COMP	10	0	
STRESS: CONSTRUCTIONAL ANALYIS							
CY7C68001 (7C68001E)	4032514	611104378	JT-CHINA	COMP	5	0	
CY14B101KA (7C1401B1C)	4029851	611104380	JT-CHINA	COMP	5	0	
CY7C68013A (7C682000B)	4034603	611104379	JT-CHINA	COMP	5	0	
STRESS: DYE PENETRATION TEST							
CY7C68001 (7C68001E)	4032514	611104378	JT-CHINA	COMP	15	0	
CY14B101KA (7C1401B1C)	4029851	611104380	JT-CHINA	COMP	15	0	
CY7C68013A (7C682000B)	4034603	611104379	JT-CHINA	COMP	15	0	
STRESS: DIE SHEAR							
CY7C68001 (7C68001E)	4032514	611104378	JT-CHINA	COMP	15	0	
CY14B101KA (7C1401B1C)	4029851	611104380	JT-CHINA	COMP	15	0	
CY7C68013A (7C682000B)	4034603	611104379	JT-CHINA	COMP	15	0	
STRESS: ESD-CHARGE DEVICE MODEL, (500V)							
CY7C68001 (7C68001E)	4032514	611104378	JT-CHINA	COMP	9	0	
STRESS: ESD-HUMAN BODY CIRCUIT PER JESD22, METHOD A114-E, 2,200V							
CY7C68001 (7C68001E)	4032514	611104378	JT-CHINA	COMP	8	0	

Reliability Test Data

QTP #: 104802

Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: FINAL VISUAL INSPECTION							
CY7C68001 (7C68001E)	4032514	611104378	JT-CHINA	COMP	1012	0	
CY14B101KA (7C1401B1C)	4029851	611104380	JT-CHINA	COMP	1517	0	
CY7C68013A (7C682000B)	4034603	611104379	JT-CHINA	COMP	3007	0	
STRESS: HI-ACCEL SATURATION TEST, 130C, 3.3V, 85%RH, PRE COND 192 HR 30C/60%RH, MSL3							
CY14B101KA (7C1401B1C)	4029851	611104380	JT-CHINA	128	79	0	
STRESS: HIGH TEMP STORAGE, 150C							
CY14B101KA (7C1401B1C)	4029851	611104380	JT-CHINA	500	80	0	
STRESS: INTERNAL VISUAL							
CY7C68001 (7C68001E)	4032514	611104378	JT-CHINA	COMP	5	0	
CY14B101KA (7C1401B1C)	4029851	611104380	JT-CHINA	COMP	5	0	
CY7C68013A (7C682000B)	4034603	611104379	JT-CHINA	COMP	5	0	
STRESS: LEAD INTEGRITY							
CY7C68001 (7C68001E)	4032514	611104378	JT-CHINA	COMP	5	0	
CY14B101KA (7C1401B1C)	4029851	611104380	JT-CHINA	COMP	5	0	
CY7C68013A (7C682000B)	4034603	611104379	JT-CHINA	COMP	5	0	
STRESS: PRESSURE COOKER TEST (121C, 100%RH), 15 Psig, PRE COND 192 HR 30C/60%RH (MSL3)							
CY7C68001 (7C68001E)	4032514	611104378	JT-CHINA	168	80	0	
CY7C68001 (7C68001E)	4032514	611104378	JT-CHINA	288	80	0	
CY14B101KA (7C1401B1C)	4029851	611104380	JT-CHINA	168	76	0	
CY14B101KA (7C1401B1C)	4029851	611104380	JT-CHINA	288	76	0	
STRESS: PHYSICAL DIMENSION							
CY7C68001 (7C68001E)	4032514	611104378	JT-CHINA	COMP	30	0	
CY14B101KA (7C1401B1C)	4029851	611104380	JT-CHINA	COMP	30	0	
CY7C68013A (7C682000B)	4034603	611104379	JT-CHINA	COMP	30	0	
STRESS: SOLDERABILITY							
CY7C68001 (7C68001E)	4032514	611104378	JT-CHINA	COMP	3	0	
CY14B101KA (7C1401B1C)	4029851	611104380	JT-CHINA	COMP	3	0	
CY7C68013A (7C682000B)	4034603	611104379	JT-CHINA	COMP	3	0	

Reliability Test Data

QTP #: 104802

Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: TC COND. C –65C TO 150C, PRE COND 192 HR 30C/60%RH, MSL3							
CY7C68001 (7C68001E)	4032514	611104378	JT-CHINA	500	80	0	
CY7C68001 (7C68001E)	4032514	611104378	JT-CHINA	1000	80	0	
CY14B101KA (7C1401B1C)	4029851	611104380	JT-CHINA	500	80	0	
CY14B101KA (7C1401B1C)	4029851	611104380	JT-CHINA	1000	80	0	
CY7C68013A (7C682000B)	4034603	611104379	JT-CHINA	500	80	0	
CY7C68013A (7C682000B)	4034603	611104379	JT-CHINA	1000	80	0	
STRESS: THERMAL SHOCK							
CY14B101KA (7C1401B1C)	4029851	611104380	JT-CHINA	200	78	0	
CY14B101KA (7C1401B1C)	4029851	611104380	JT-CHINA	1000	77	0	
STRESS: X-RAY							
CY7C68001 (7C68001E)	4032514	611104378	JT-CHINA	COMP	15	0	
CY14B101KA (7C1401B1C)	4029851	611104380	JT-CHINA	COMP	15	0	
CY7C68013A (7C682000B)	4034603	611104379	JT-CHINA	COMP	15	0	

Document History Page

Document Title: QTP 104810:48L/56L SSOP (300 MILS), NIPDAU, MSL3 235C REFLOW JCET- CHINA (JT)
Document Number: 001-68942

Rev.	ECN No.	Orig. of Change	Description of Change
**	3221509	NSR	Initial spec release
*A	4352343	RT	Sunset Review- Align spec with current qual report template. Corrected assembly process flow spec number
*B	4493998	HSTO	Updated Reliability Test Performed Table: Deleted Cypress' referenced specs 25-00104, 12-00292, 25-20035, 25-20027, 25-00031, 25-00018 and retained/replaced with industry standards Added Final Visual Inspection data as per memo REYD-18/REYD-35

Distribution: WEB

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