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Cypress Semiconductor
Package Qualification Report

QTP# 104809 VERSION*B
March, 2014

32-Lead SOJ (400 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
104805	Qualify New Assembly Site (JCET) – for SOJ 32L, 400 mils **Pb Free** (KEG6000, QMI509, 0.9 mil, NiPdAu)	Feb 2011
104809	Qualify New Assembly Site (JCET) – for SOJ 32L, 400 mils **Standard** (KEG6000, QMI509, 0.9 mil, NiPdAu)	Feb 2011

MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION	
Package Designation:	VZ324
Package Outline, Type, or Name:	32L SOJ (400 mils)
Mold Compound Name/Manufacturer:	KEG6000 / 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:	QMI509
Bond Diagram Designation	001-00325, 10-06226, 10-06788
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 Temperature Operating Life Latent Failure Rate	Dynamic Operating Condition, 150°C, 2.3V JESD22-A108	P
High Accelerated Saturation Test (HAST)	JEDEC STD 22-A110: 130°C, 85%RH, 3.3V Precondition: JESD22 Moisture Sensitivity MSL 3 192 Hrs, 30°C /60%RH+Reflow, 260°C +0, -5°C Precondition: JESD22 Moisture Sensitivity MSL 3 192 Hrs, 30°C /60%RH+Reflow, 235°C +0, -5°C	P
Pressure Cooker Test	JESD22-A102: 121°C, 100%RH, 15 PSIG Precondition: JESD22 Moisture Sensitivity MSL 3 192 Hrs, 30°C /60%RH+Reflow, 260°C +0, -5°C Precondition: JESD22 Moisture Sensitivity MSL 3 192 Hrs, 30°C /60%RH+Reflow, 235°C +0, -5°C	P
Temperature Cycle	MIL-STD-883, Method 1010, Condition C, -65°C to 150°C Precondition: JESD22 Moisture Sensitivity MSL 3 192 Hrs, 30°C /60%RH+Reflow, 260°C +0, -5°C Precondition: JESD22 Moisture Sensitivity MSL 3 192 Hrs, 30°C /60%RH+Reflow, 235°C +0, -5°C	P
High Temp Storage	JESD22-A103: 150°C, no bias	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 MSL 3 192 Hrs, 30°C /60%RH+Reflow, 260°C +0, -5°C Precondition: JESD22 Moisture Sensitivity MSL 3 192 Hrs, 30°C /60%RH+Reflow, 235°C +0, -5°C	P
Ball Shear	JESD22-B116, 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
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
Lead Integrity	JESD22-B105, MIL STD 883	P
Physical Dimension	MIL-STD-1835, JESD22-B100	P
Thermal Shock	MIL-STD-883, Method 1011, Condition B, -55°C to 125°C and JESD22-A106, Condition C, -55°C to 125°C	P
Solderability, Steam Aged	Cypress Spec. 25-00018, J-STD-002, JESD22-B102 95% solder coverage minimum	P
X-Ray	MIL-STD-883 - 2012	P

Reliability Test Data

QTP #: 104805

Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: ACOUSTIC, MSL3							
CY7C1046D (7C1546NC)	4946935	611056815	JT-CHINA	COMP	15	0	
CY7C1019CV33 (7C1319GC)	4006764	611058420	JT-CHINA	COMP	15	0	
CY7C109D (7C109NC)	4035330	611056816	JT-CHINA	COMP	15	0	
STRESS: BALL SHEAR							
CY7C1046D (7C1546NC)	4946935	611056815	JT-CHINA	COMP	30	0	
CY7C1019CV33 (7C1319GC)	4006764	611058420	JT-CHINA	COMP	30	0	
CY7C109D (7C109NC)	4035330	611056816	JT-CHINA	COMP	30	0	
STRESS: BOND PULL							
CY7C1046D (7C1546NC)	4946935	611056815	JT-CHINA	COMP	30	0	
CY7C1019CV33 (7C1319GC)	4006764	611058420	JT-CHINA	COMP	30	0	
CY7C109D (7C109NC)	4035330	611056816	JT-CHINA	COMP	30	0	
STRESS: CONSTRUCTIONAL ANALYIS							
CY7C1046D (7C1546NC)	4946935	611056815	JT-CHINA	COMP	5	0	
CY7C1019CV33 (7C1319GC)	4006764	611058420	JT-CHINA	COMP	5	0	
CY7C109D (7C109NC)	4035330	611056816	JT-CHINA	COMP	5	0	
STRESS: DYE PENETRATION TEST							
CY7C1046D (7C1546NC)	4946935	611056815	JT-CHINA	COMP	15	0	
CY7C1019CV33 (7C1319GC)	4006764	611058420	JT-CHINA	COMP	15	0	
CY7C109D (7C109NC)	4035330	611056816	JT-CHINA	COMP	15	0	
STRESS: ESD-CHARGE DEVICE MODEL, (500V)							
CY7C1046D (7C1546NC)	4946935	611056815	JT-CHINA	COMP	9	0	
STRESS: ESD-HUMAN BODY CIRCUIT PER JESD22, METHOD A114, 2,200V							
CY7C1046D (7C1546NC)	4946935	611056815	JT-CHINA	COMP	8	0	
STRESS: HIGH TEMP DYNAMIC OPERATING LIFE-EARLY FAILURE RATE, 150C, 2.3V, Vcc Core							
CY7C1019CV33 (7C1319GC)	4006764	611058420	JT-CHINA	80	116	0	
CY7C1019CV33 (7C1319GC)	4006764	611058420	JT-CHINA	500	116	0	

Reliability Test Data

QTP #: 104805

Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: HI-ACCEL SATURATION TEST, 130C, 3.30V, 85%RH, PRE COND 192 HR 30C/60%RH, MSL3							
CY7C1046D (7C1546NC)	4946935	611056815	JT-CHINA	128	70	0	
CY7C1019CV33 (7C1319GC)	4006764	611058420	JT-CHINA	128	77	0	
STRESS: HIGH TEMP STORAGE							
CY7C1046D (7C1546NC)	4946935	611056815	JT-CHINA	500	77	0	
CY7C1046D (7C1546NC)	4946935	611056815	JT-CHINA	1000	77	0	
STRESS: INTERNAL VISUAL							
CY7C1046D (7C1546NC)	4946935	611056815	JT-CHINA	COMP	5	0	
CY7C1019CV33 (7C1319GC)	4006764	611058420	JT-CHINA	COMP	5	0	
CY7C109D (7C109NC)	4035330	611056816	JT-CHINA	COMP	5	0	
STRESS: LEAD INTEGRITY							
CY7C1046D (7C1546NC)	4946935	611056815	JT-CHINA	COMP	5	0	
CY7C1019CV33 (7C1319GC)	4006764	611058420	JT-CHINA	COMP	5	0	
CY7C109D (7C109NC)	4035330	611056816	JT-CHINA	COMP	5	0	
STRESS: PRESSURE COOKER TEST (121C, 100%RH), 15 Psig, PRE COND 192 HR 30C/60%RH (MSL3)							
CY7C1046D (7C1546NC)	4946935	611056815	JT-CHINA	168	76	0	
CY7C1019CV33 (7C1319GC)	4006764	611058420	JT-CHINA	168	77	0	
STRESS: PHYSICAL DIMENSION							
CY7C1046D (7C1546NC)	4946935	611056815	JT-CHINA	COMP	30	0	
CY7C1019CV33 (7C1319GC)	4006764	611058420	JT-CHINA	COMP	30	0	
CY7C109D (7C109NC)	4035330	611056816	JT-CHINA	COMP	30	0	
STRESS: SOLDERABILITY							
CY7C1046D (7C1546NC)	4946935	611056815	JT-CHINA	COMP	3	0	
CY7C1019CV33 (7C1319GC)	4006764	611058420	JT-CHINA	COMP	3	0	
CY7C109D (7C109NC)	4035330	611056816	JT-CHINA	COMP	3	0	
STRESS: THERMAL SHOCK							
CY7C1019CV33 (7C1319GC)	4006764	611058420	JT-CHINA	200	80	0	
CY7C1019CV33 (7C1319GC)	4006764	611058420	JT-CHINA	1000	69	0	

Reliability Test Data

QTP #: 104805

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							
CY7C1046D (7C1546NC)	4946935	611056815	JT-CHINA	500	77	0	
CY7C1019CV33 (7C1319GC)	4006764	611058420	JT-CHINA	500	80	0	
CY7C109D (7C109NC)	4035330	611056816	JT-CHINA	500	80	0	
CY7C1046D (7C1546NC)	4946935	611056815	JT-CHINA	1000	77	0	
CY7C1019CV33 (7C1319GC)	4006764	611058420	JT-CHINA	1000	80	0	
STRESS: X-RAY							
CY7C1046D (7C1546NC)	4946935	611056815	JT-CHINA	COMP	15	0	
CY7C1019CV33 (7C1319GC)	4006764	611058420	JT-CHINA	COMP	15	0	
CY7C109D (7C109NC)	4035330	611056816	JT-CHINA	COMP	15	0	

Document History Page

Document Title: QTP 104809: 32L SOJ (400 mils) NiPdAu, MSL3 235C Reflow JCET- China (JT)
Document Number: 001-67039

Rev.	ECN No.	Orig. of Change	Description of Change
**	3157998	NRG	Initial spec release
*A	3186813	NRG	Updated the mold compound and die attach using complete material name.
*B	4310956	JYF	Alignment of QTP title page and Reliability Tests Performed table to standard template.

Distribution: WEB

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