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Cypress Semiconductor
Package Qualification Report

QTP# 104813 VERSION *F
July 2014

44-Lead TSOPII

NiPdAu, MSL3, 260°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
104813	Qualify New Assembly Site (JCET) Qual – for TSOPII 44L Pb-Free (KEG6000, QMI 509, 0.9 mil, NiPdAu)	Feb 2011

MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION	
Package Designation:	ZW44
Package Outline, Type, or Name:	44L TSOPII
Mold Compound Name/Manufacturer:	KEG6000
Mold Compound Flammability Rating:	V-O per UL94
Mold Compound Alpha Emission Rate:	N/A
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	10-06506 , 10-06664, 001-55882, 001-20539
Wire Bond Method:	Thermosonic
Wire Material/Size:	0.9mil / Au
Thermal Resistance Theta JA °C/W:	50.66 °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	260C

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, Vcc = 3.80V, 150 C	P
High Accelerated Saturation Test (HAST)	130 C, 85%RH, 3.65V Precondition: JESD22 Moisture Sensitivity Level (192 Hrs., 30 C°, 60% RH, 260C Reflow)	P
Pressure Cooker Test	121 C, 100%RH, 15 PSIG Precondition: JESD22 Moisture Sensitivity Level (192 Hrs., 30 C°, 60% RH, 260C 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)	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	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
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
Solderability, Steam Aged	J-STD-002, JESD22-B102 95% solder coverage minimum	P
X-Ray	MIL-STD-883 - 2012	P

Reliability Test Data

QTP #: 104813

Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: ACOUSTIC, MSL3							
CY7C1041BN (7C1541SCC)	4025433	611056820	JT-CHINA	COMP	15	0	
CY7C1021DV33 (7C1321NC)	4035330	611057647	JT-CHINA	COMP	15	0	
CY14B256LA (7C1418B8CC)	4029851	611056814	JT-CHINA	COMP	15	0	
CY7C1010DV33 (7C13492NC)	4031009	611057350	JT-CHINA	COMP	15	0	
STRESS: BALL SHEAR							
CY7C1041BN (7C1541SCC)	4025433	611056820	JT-CHINA	COMP	30	0	
CY7C1021DV33 (7C1321NC)	4035330	611057647	JT-CHINA	COMP	30	0	
CY14B256LA (7C1418B8CC)	4029851	611056814	JT-CHINA	COMP	30	0	
CY7C1010DV33 (7C13492NC)	4031009	611057350	JT-CHINA	COMP	30	0	
STRESS: BOND PULL							
CY7C1041BN (7C1541SCC)	4025433	611056820	JT-CHINA	COMP	30	0	
CY7C1021DV33 (7C1321NC)	4035330	611057647	JT-CHINA	COMP	30	0	
CY14B256LA (7C1418B8CC)	4029851	611056814	JT-CHINA	COMP	30	0	
CY7C1010DV33 (7C13492NC)	4031009	611057350	JT-CHINA	COMP	30	0	
STRESS: CONSTRUCTIONAL ANALYIS							
CY7C1041BN (7C1541SCC)	4025433	611056820	JT-CHINA	COMP	5	0	
CY7C1021DV33 (7C1321NC)	4035330	611057647	JT-CHINA	COMP	5	0	
CY14B256LA (7C1418B8CC)	4029851	611056814	JT-CHINA	COMP	5	0	
CY7C1010DV33 (7C13492NC)	4031009	611057350	JT-CHINA	COMP	5	0	
STRESS: DYE PENETRATION TEST							
CY7C1041BN (7C1541SCC)	4025433	611056820	JT-CHINA	COMP	15	0	
CY7C1021DV33 (7C1321NC)	4035330	611057647	JT-CHINA	COMP	15	0	
CY14B256LA (7C1418B8CC)	4029851	611056814	JT-CHINA	COMP	15	0	
CY7C1010DV33 (7C13492NC)	4031009	611057350	JT-CHINA	COMP	15	0	
STRESS: ESD-CHARGE DEVICE MODEL, (500V)							
CY7C1041BN (7C1541SCC)	4025433	611056820	JT-CHINA	COMP	9	0	
STRESS: ESD-HUMAN BODY CIRCUIT PER JESD22, METHOD A114-E, 2,200V							
CY7C1041BN (7C1541SCC)	4025433	611056820	JT-CHINA	COMP	8	0	

Reliability Test Data

QTP #: 104813

Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: HIGH TEMP DYNAMIC OPERATING LIFE-EARLY FAILURE RATE, 150C, 3.80V, Vcc Core							
CY7C1041BN (7C1541SCC)	4025433	611056820	JT-CHINA	80	114	0	
CY7C1041BN (7C1541SCC)	4025433	611056820	JT-CHINA	500	114	0	
CY7C1021DV33 (7C1321NC)	4035330	611057647	JT-CHINA	80	116	0	
CY7C1021DV33 (7C1321NC)	4035330	611057647	JT-CHINA	500	116	0	
STRESS: HI-ACCEL SATURATION TEST, 130C, 3.65V, 85%RH, PRE COND 192 HR 30C/60%RH, MSL3							
CY7C1041BN (7C1541SCC)	4025433	611056820	JT-CHINA	128	77	0	
CY7C1021DV33 (7C1321NC)	4035330	611057647	JT-CHINA	128	77	0	
STRESS: HIGH TEMP STORAGE							
CY7C1041BN (7C1541SCC)	4025433	611056820	JT-CHINA	500	80	0	
CY7C1041BN (7C1541SCC)	4025433	611056820	JT-CHINA	1000	80	0	
STRESS: INTERNAL VISUAL							
CY7C1041BN (7C1541SCC)	4025433	611056820	JT-CHINA	COMP	5	0	
CY7C1021DV33 (7C1321NC)	4035330	611057647	JT-CHINA	COMP	5	0	
CY14B256LA (7C1418B8CC)	4029851	611056814	JT-CHINA	COMP	5	0	
CY7C1010DV33 (7C13492NC)	4031009	611057350	JT-CHINA	COMP	5	0	
STRESS: LEAD INTEGRITY							
CY7C1041BN (7C1541SCC)	4025433	611056820	JT-CHINA	COMP	5	0	
CY7C1021DV33 (7C1321NC)	4035330	611057647	JT-CHINA	COMP	5	0	
CY14B256LA (7C1418B8CC)	4029851	611056814	JT-CHINA	COMP	5	0	
CY7C1010DV33 (7C13492NC)	4031009	611057350	JT-CHINA	COMP	5	0	
STRESS: PRESSURE COOKER TEST (121C, 100%RH), 15 Psig, PRE COND 192 HR 30C/60%RH (MSL3)							
CY7C1041BN (7C1541SCC)	4025433	611056820	JT-CHINA	168	77	0	
CY14B256LA (7C1418B8CC)	4029851	611056814	JT-CHINA	168	76	0	
STRESS: PHYSICAL DIMENSION							
CY7C1041BN (7C1541SCC)	4025433	611056820	JT-CHINA	COMP	30	0	
CY7C1021DV33 (7C1321NC)	4035330	611057647	JT-CHINA	COMP	30	0	
CY14B256LA (7C1418B8CC)	4029851	611056814	JT-CHINA	COMP	30	0	
CY7C1010DV33 (7C13492NC)	4031009	611057350	JT-CHINA	COMP	30	0	

Reliability Test Data

QTP #: 104813

Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: SOLDERABILITY							
CY7C1041BN (7C1541SCC)	4025433	611056820	JT-CHINA	COMP	3	0	
CY7C1021DV33 (7C1321NC)	4035330	611057647	JT-CHINA	COMP	3	0	
CY14B256LA (7C1418B8CC)	4029851	611056814	JT-CHINA	COMP	3	0	
CY7C1010DV33 (7C13492NC)	4031009	611057350	JT-CHINA	COMP	3	0	
STRESS: TC COND. C –65C TO 150C, PRE COND 192 HR 30C/60%RH, MSL3							
CY7C1041BN (7C1541SCC)	4025433	611056820	JT-CHINA	500	77	0	
CY7C1041BN (7C1541SCC)	4025433	611056820	JT-CHINA	1000	77	0	
CY7C1021DV33 (7C1321NC)	4035330	611057647	JT-CHINA	500	77	0	
CY7C1021DV33 (7C1321NC)	4035330	611057647	JT-CHINA	1000	76	0	
CY14B256LA (7C1418B8CC)	4029851	611056814	JT-CHINA	500	77	0	
CY14B256LA (7C1418B8CC)	4029851	611056814	JT-CHINA	1000	77	0	
CY7C1010DV33 (7C13492NC)	4031009	611057350	JT-CHINA	500	75	0	
CY7C1010DV33 (7C13492NC)	4031009	611057350	JT-CHINA	1000	75	0	
STRESS: THERMAL SHOCK							
CY7C1041BN (7C1541SCC)	4025433	611056820	JT-CHINA	200	77	0	
CY7C1041BN (7C1541SCC)	4025433	611056820	JT-CHINA	1000	77	0	
CY7C1021DV33 (7C1321NC)	4035330	611057647	JT-CHINA	200	76	0	
CY7C1021DV33 (7C1321NC)	4035330	611057647	JT-CHINA	1000	75	0	
STRESS: X-RAY							
CY7C1041BN (7C1541SCC)	4025433	611056820	JT-CHINA	COMP	15	0	
CY7C1021DV33 (7C1321NC)	4035330	611057647	JT-CHINA	COMP	15	0	
CY14B256LA (7C1418B8CC)	4029851	611056814	JT-CHINA	COMP	15	0	
CY7C1010DV33 (7C13492NC)	4031009	611057350	JT-CHINA	COMP	15	0	

Document History Page

Document Title: QTP 104813: 44-Lead TSOPII NiPdAu, MSL3 260C Reflow JCET- China (JT)
Document Number: 001-67416

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	3224002	RT	Revised the Mold Compound name to reflect correct number
*C	3225468	RT	Revised DA Epoxy number from in-house to external number
*D	3288428	ILZ	Corrected Theta JA from 11.3 to 50.66^{0}C/W:
*E	4305104	HSTO	Align qualification report based on the new template on the front page Deleted Cypress reference specs 25-00104,12-00292,25-20035, 25-20027, 25-00031, 25-00014, 25-00018 and retained/replaced with industry standard.
*F	4427491	HSTO	Corrected %RH parameter from 60% to 85% in “HI-ACCEL SATURATION TEST” stress at page6.

Distribution: WEB

Posting: None