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Cypress Semiconductor
Package : Customer Specific Qualification Report

QTP# 110909
February 2014

100-Lead TQFP (14x14x1.4 mils)
100Ld / 128Ld TQFP (14x20x1.4 mils)
Standard and Pb-free
NiPdAu, MSL3, 260°C Reflow
JCET-China (JT)

FOR ANY QUESTIONS ON THIS REPORT PLEASE CONTACT reliability@cypress.com :
OR VIA LINK A CYLINK CRM CASE

Approved By
Richard Oshiro
Reliability Director

Approved By
Rene Rodgers
Reliability Engineer, MTS

PACKAGE QUALIFICATION HISTORY

QTP Number	Description of Qualification Purpose	Date
110909	Qualify New Assembly Site (JCET) Qual – for 100/128L TQFP (14x14/20x1.4), Standard and Pb-Free Package Using KEG6000, QMI-509, 0.9 mil Gold Wire and NiPdAu Lead Finish	Apr 2011
132506	TQFP 100 14x20 LFA100RUPD and LFA100RYPD with Capton Tape Qualification	Jan 2014

MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION	
Package Designation:	AZ0AA
Package Outline, Type, or Name:	100L TQFP
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:	QMI 509
Bond Diagram Designation	001-14561, 001-33059, 001-30701 /10-06475
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 / 001-64160M
Name/Location of Assembly (prime) facility:	JT-JCET China
MSL LEVEL	3
REFLOW PROFILE	260C

ELECTRICAL TEST / FINISH DESCRIPTION	
Test Location:	CML-R, KYEC-Taiwan, G-Taiwan

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)	JEDEC STD 22-A110: 130 C, 85%RH, 3.60V Precondition: JESD22 Moisture Sensitivity Level (192 Hrs., 30 C°, 60% RH, 260C/235C Reflow)	P
Pressure Cooker Test	JESD22-A102: 121 C, 100%RH, 15 PSIG Precondition: JESD22 Moisture Sensitivity Level (192 Hrs., 30 C°, 60% RH, 260C/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/235 Reflow)	P
High Temp Storage	JESD22-A103, 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
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	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-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 #: 110909

Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: ACOUSTIC, MSL3							
CY7C1470BV25 (7C14702B)	4037529	611105083	JT-CHINA	COMP	15	0	
7C13540XC	4041765	611105085	JT-CHINA	COMP	15	0	
CY7C68013A (7C682001B)	4041783	611105084	JT-CHINA	COMP	15	0	
STRESS: BALL SHEAR							
CY7C1470BV25 (7C14702B)	4037529	611105083	JT-CHINA	COMP	10	0	
7C13540XC	4041765	611105085	JT-CHINA	COMP	10	0	
CY7C68013A (7C682001B)	4041783	611105084	JT-CHINA	COMP	10	0	
STRESS: BOND PULL							
CY7C1470BV25 (7C14702B)	4037529	611105083	JT-CHINA	COMP	10	0	
7C13540XC	4041765	611105085	JT-CHINA	COMP	10	0	
CY7C68013A (7C682001B)	4041783	611105084	JT-CHINA	COMP	10	0	
STRESS: CONSTRUCTIONAL ANALYIS							
CY7C1470BV25 (7C14702B)	4037529	611105083	JT-CHINA	COMP	5	0	
7C13540XC	4041765	611105085	JT-CHINA	COMP	5	0	
CY7C68013A (7C682001B)	4041783	611105084	JT-CHINA	COMP	5	0	
STRESS: DYE PENETRATION TEST							
CY7C1470BV25 (7C14702B)	4037529	611105083	JT-CHINA	COMP	15	0	
7C13540XC	4041765	611105085	JT-CHINA	COMP	15	0	
CY7C68013A (7C682001B)	4041783	611105084	JT-CHINA	COMP	15	0	
STRESS: DIE SHEAR							
CY7C1470BV25 (7C14702B)	4037529	611105083	JT-CHINA	COMP	15	0	
7C13540XC	4041765	611105085	JT-CHINA	COMP	15	0	
CY7C68013A (7C682001B)	4041783	611105084	JT-CHINA	COMP	15	0	
STRESS: ESD-CHARGE DEVICE MODEL, (500V)							
CY7C1470BV25 (7C14702B)	4037529	611105083	JT-CHINA	COMP	9	0	
STRESS: ESD-HUMAN BODY CIRCUIT PER JESD22, METHOD A114-E, 2,200V							
CY7C1470BV25 (7C14702B)	4037529	611105083	JT-CHINA	COMP	8	0	

Reliability Test Data

QTP #: 110909

Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: HI-ACCEL SATURATION TEST, 130C, 3.60V, 85%RH, PRE COND 192 HR 30C/60%RH, MSL3							
CY7C1470BV25 (7C14702B)	4037529	611105083	JT-CHINA	128	80	0	
STRESS: HIGH TEMP STORAGE, 150C							
CY7C1470BV25 (7C14702B)	4037529	611105083	JT-CHINA	500	80	0	
STRESS: INTERNAL VISUAL							
CY7C1470BV25 (7C14702B)	4037529	611105083	JT-CHINA	COMP	5	0	
7C13540XC	4041765	611105085	JT-CHINA	COMP	5	0	
CY7C68013A (7C682001B)	4041783	611105084	JT-CHINA	COMP	5	0	
STRESS: PRESSURE COOKER TEST (121C, 100%RH), 15 Psig, PRE COND 192 HR 30C/60%RH (MSL3)							
CY7C1470BV25 (7C14702B)	4037529	611105083	JT-CHINA	168	80	0	
CY7C1470BV25 (7C14702B)	4037529	611105083	JT-CHINA	288	80	0	
STRESS: PHYSICAL DIMENSION							
CY7C1470BV25 (7C14702B)	4037529	611105083	JT-CHINA	COMP	30	0	
7C13540XC	4041765	611105085	JT-CHINA	COMP	30	0	
CY7C68013A (7C682001B)	4041783	611105084	JT-CHINA	COMP	30	0	
STRESS: SOLDERABILITY							
CY7C1470BV25 (7C14702B)	4037529	611105083	JT-CHINA	COMP	3	0	
7C13540XC	4041765	611105085	JT-CHINA	COMP	3	0	
CY7C68013A (7C682001B)	4041783	611105084	JT-CHINA	COMP	3	0	
STRESS: TC COND. C –65C TO 150C, PRE COND 192 HR 30C/60%RH, MSL3							
CY7C1470BV25 (7C14702B)	4037529	611105083	JT-CHINA	500	72	0	
7C13540XC	4041765	611105085	JT-CHINA	500	79	0	
CY7C68013A (7C682001B)	4041783	611105084	JT-CHINA	500	80	0	
STRESS: THERMAL SHOCK							
CY7C1470BV25 (7C14702B)	4037529	611105083	JT-CHINA	200	80	0	
CY7C1470BV25 (7C14702B)	4037529	611105083	JT-CHINA	1000	79	0	
STRESS: X-RAY							
CY7C1470BV25 (7C14702B)	4037529	611105083	JT-CHINA	COMP	15	0	
7C13540XC	4041765	611105085	JT-CHINA	COMP	15	0	
CY7C68013A (7C682001B)	4041783	611105084	JT-CHINA	COMP	15	0	

Reliability Test Data

QTP #: 132506

Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: ACOUSTIC							
CY7C1363C (7C13630XC)	4247007	611319797	JCET-JT	COMP	22	0	
CY7C1363C (7C13630XC)	4247007	611319798	JCET-JT	COMP	22	0	
CY7C1363C (7C13630XC)	4247007	611319799	JCET-JT	COMP	22	0	
STRESS: BALL SHEAR							
CY7C1363C (7C13630XC)	4247007	611319797	JCET-JT	COMP	100	0	
CY7C1363C (7C13630XC)	4247007	611319798	JCET-JT	COMP	100	0	
CY7C1363C (7C13630XC)	4247007	611319799	JCET-JT	COMP	100	0	
STRESS: BOND PULL							
CY7C1363C (7C13630XC)	4247007	611319797	JCET-JT	COMP	100	0	
CY7C1363C (7C13630XC)	4247007	611319798	JCET-JT	COMP	100	0	
CY7C1363C (7C13630XC)	4247007	611319799	JCET-JT	COMP	100	0	
STRESS: CONSTRUCTIONAL ANALYSIS							
CY7C1363C (7C13630XC)	4247007	611319797	JCET-JT	COMP	5	0	
STRESS: HAST							
CY7C1363C (7C13630XC)	4247007	611319797	JCET-JT	136	80	0	
STRESS: HIGH TEMPERATIRE STORAGE							
CY7C1363C (7C13630XC)	4247007	611319797	JCET-JT	500	80	0	
STRESS: PRESSURE COOKER TEST							
CY7C1363C (7C13630XC)	4247007	611319797	JCET-JT	176	80	0	
CY7C1363C (7C13630XC)	4247007	611319797	JCET-JT	288	80	0	
STRESS: SOLDERABILITY							
CY7C1363C (7C13630XC)	4247007	611319797	JCET-JT	COMP	15	0	
STRESS: TEMPERATURE CYCLE TESTING							
CY7C1363C (7C13630XC)	4247007	611319797	JCET-JT	500	80	0	
CY7C1363C (7C13630XC)	4247007	611319797	JCET-JT	1000	80	0	
CY7C1363C (7C13630XC)	4247007	611319798	JCET-JT	500	79	0	
CY7C1363C (7C13630XC)	4247007	611319798	JCET-JT	1000	79	0	
CY7C1363C (7C13630XC)	4247007	611319799	JCET-JT	500	80	0	
CY7C1363C (7C13630XC)	4247007	611319799	JCET-JT	1000	80	0	

Document History Page

Document Title: QTP 110909:100-Lead TQFP (14x14x1.4 mils),100Ld / 128Ld TQFP (14x20x1.4 mils) NIPDAU, MSL3 260C REFLOW JCET- CHINA (JT)
Document Number: 001-68913

Rev.	ECN No.	Orig. of Change	Description of Change
**	3218981	NSR	Initial spec release
*A	4046089	NSR	Removed VERSION 1.0 in the title page. Update electrical test location. Removed reference Cypress specs and replaced with reference industry standards in reliability tests performed table. Corrected HAST %RH from 60% to 85%.
*B	4267109	HSTO	Added QTP#132506 qualification data to the QTP report.
*C	4277894	HSTO	Updated qualification report template in front page. Change category of Qualification report to Customer Specific Added LFA100RYPD in page 2 Deleted package code AZ100 in page7

Distribution: WEB

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