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Cypress Semiconductor
Package Qualification Report

QTP# 101703 VERSION *B
August 2014

32-Lead TQFP

7x7x1.0mm Exposed Pad

Matte Sn, MSL3, 260°C Reflow

Amkor-Korea (L)

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

QTP Number	Description of Qualification Purpose	Date
101703	Qualification of 32 lead 7x7x1.0mm exposed pad TQFP package at Amkor Korea using G700 M/C, 3230 Epoxy and Matte Sn Lead Finish at MSL3, 260C Reflow	Dec 2010

MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION	
Package Designation:	AE32
Package Outline, Type, or Name:	Lead – Thin Quad Flat Package Exposed Pad (TQFP)
Mold Compound Name/Manufacturer:	G700 / Sumitomo
Mold Compound Flammability Rating:	V-O per UL94
Mold Compound Alpha Emission Rate:	<0.1
Oxygen Rating Index: >28%	N/A
Lead Frame Designation:	Full Metal Pad
Lead Frame Material:	Copper
Substrate Material:	N/A
Lead Finish, Composition / Thickness:	Matte Sn
Die Backside Preparation Method/Metallization:	Backgrind
Die Separation Method:	Wafersaw
Die Attach Supplier:	Ablestik
Die Attach Material:	3230
Bond Diagram Designation	001-58702
Wire Bond Method:	Thermosonic
Wire Material/Size:	1.0mil / Au
Thermal Resistance Theta JA °C/W:	24 °C/W
Package Cross Section Yes/No:	Yes
Assembly Process Flow:	001-04159
Name/Location of Assembly (prime) facility:	L-Korea
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 Accelerated Saturation Test (HAST)	130 C, 85%RH, 3.63V 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	P
Bond Pull	MIL-STD-883 – Method 2011,	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
Final Visual Inspection	JESD22-B101B	P
Physical Dimension	MIL-STD-1835, JESD22-B100	P
Thermal Shock	MIL-STD-883C, Method 1011	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 #: 101703

Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: ACOUSTIC, MSL3							
CY2DP1510AXC (7C85500A)	4007704	611030676	L-KOREA	COMP	15	0	
CY2DP1510AXC (7C85500A)	4007704	611030677	L-KOREA	COMP	15	0	
CY2DP1510AXC (7C85500A)	4007704	611030678	L-KOREA	COMP	15	0	
STRESS: BALL SHEAR							
CY2DP1510AXC (7C85500A)	4007704	611030676	L-KOREA	COMP	10	0	
STRESS: BOND PULL							
CY2DP1510AXC (7C85500A)	4007704	611030676	L-KOREA	COMP	10	0	
STRESS: CONSTRUCTIONAL ANALYIS							
CY2DP1510AXC (7C85500A)	4007704	611030676	L-KOREA	COMP	5	0	
STRESS: DYE PENETRATION TEST							
CY2DP1510AXC (7C85500A)	4007704	611030676	L-KOREA	COMP	15	0	
CY2DP1510AXC (7C85500A)	4007704	611030677	L-KOREA	COMP	15	0	
CY2DP1510AXC (7C85500A)	4007704	611030678	L-KOREA	COMP	15	0	
STRESS: DIE SHEAR							
CY2DP1510AXC (7C85500A)	4007704	611030676	L-KOREA	COMP	15	0	
STRESS: ESD-CHARGE DEVICE MODEL, (500V)							
CY2DP1510AXC (7C85500A)	4007704	611030676	L-KOREA	COMP	9	0	
STRESS: ESD-HUMAN BODY CIRCUIT PER JESD22, METHOD A114-E, 2,200V							
CY2DP1510AXC (7C85500A)	4007704	611030676	L-KOREA	COMP	8	0	
STRESS: HI-ACCEL SATURATION TEST, 130C, 3.63V, 85%RH, PRE COND 192 HR 30C/60%RH, MSL3							
CY2DP1510AXC (7C85500A)	4007704	611030676	L-KOREA	128	95	0	
STRESS: HIGH TEMP STORAGE, 150C							
CY2DP1510AXC (7C85500A)	4007704	611030676	L-KOREA	500	77	0	
CY2DP1510AXC (7C85500A)	4007704	611030676	L-KOREA	1000	77	0	
CY2DP1510AXC (7C85500A)	4007704	611030676	L-KOREA	1500	77	0	
STRESS: PRESSURE COOKER TEST (121C, 100%RH), 15 Psig, PRE COND 192 HR 30C/60%RH (MSL3)							
CY2DP1510AXC (7C85500A)	4007704	611030676	L-KOREA	168	80	0	
CY2DP1510AXC (7C85500A)	4007704	611030676	L-KOREA	288	80	0	

Reliability Test Data

QTP #: 101703

Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: PHYSICAL DIMENSION							
CY2DP1510AXC (7C85500A)	4007704	611030676	L-KOREA	COMP	30	0	
STRESS: SOLDERABILITY							
CY2DP1510AXC (7C85500A)	4007704	611030676	L-KOREA	COMP	3	0	
CY2DP1510AXC (7C85500A)	4007704	611030677	L-KOREA	COMP	3	0	
CY2DP1510AXC (7C85500A)	4007704	611030678	L-KOREA	COMP	3	0	
STRESS: TC COND. C –65C TO 150C, PRE COND 192 HR 30C/60%RH, MSL3							
CY2DP1510AXC (7C85500A)	4007704	611030676	L-KOREA	500	78	0	
CY2DP1510AXC (7C85500A)	4007704	611030676	L-KOREA	1000	78	0	
CY2DP1510AXC (7C85500A)	4007704	611030677	L-KOREA	500	77	0	
CY2DP1510AXC (7C85500A)	4007704	611030677	L-KOREA	1000	77	0	
CY2DP1510AXC (7C85500A)	4007704	611030678	L-KOREA	500	77	0	
CY2DP1510AXC (7C85500A)	4007704	611030678	L-KOREA	1000	77	0	
STRESS: THERMAL SHOCK							
CY2DP1510AXC (7C85500A)	4007704	611030676	L-KOREA	200	80	0	
CY2DP1510AXC (7C85500A)	4007704	611030676	L-KOREA	1000	80	0	
STRESS: X-RAY							
CY2DP1510AXC (7C85500A)	4007704	611030676	L-KOREA	COMP	15	0	

Document History Page

Document Title: QTP 101703: 32-LEAD TQFP 7X7X1.0MM EXPOSED PAD MATTE SN, MSL3, 260C REFLOW AMKOR-KOREA (L)
Document Number: 001-71989

Rev.	ECN No.	Orig. of Change	Description of Change
**	3337837	NSR	Initial spec release
*A	4092655	HSTO	Sunset Review Removed version 1.0 in front page Added reference Industry standards in reliability tests performed and removed all the reference Cypress specs.
*B	4475040	HSTO	Align qualification report based on the new template in the front page

Distribution: WEB

Posting: None