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Cypress Semiconductor
Package Qualification Report

QTP# 065003
July 2013

≤60-Ball FBGA

(8 x 20 x 1.2mm)

Pb-Free, MSL3, 260C Reflow

ASE-Taiwan (G)

CYPRESS TECHNICAL CONTACT FOR QUALIFICATION DATA:

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PACKAGE QUALIFICATION HISTORY

Qual Report		Description of Qualification Purpose		Date Comp
045101		48-Ball FBGA (Stacked Die) (8 x 9.5 x 1.2mm), Pb-Free, MSL3, 260C Reflow assembled at ASE-Taiwan		Dec 05
065003		60-Ball FBGA (8 x 20 x 1.2mm), Pb-Free, MSL3, 260C Reflow, assembled at ASE-Taiwan		Jan 07

MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION	
Package Designation:	BK60
Package Outline, Type, or Name:	60-Ball FBGA
Mold Compound Name/Manufacturer:	KE-G-2270/Kyocera
Mold Compound Flammability Rating:	UL-94
Oxygen Rating Index:	None
Substrate Material:	BT Resin
Lead Finish, Composition / Thickness:	SnAgCu
Die Backside Preparation Method/Metallization:	Backgrinding
Die Separation Method:	Saw Singulation
Die Attach Supplier:	Ablestik
Die Attach Material:	2025D
Die Attach Method:	Epoxy
Bond Diagram Designation:	10-07098
Wire Bond Method:	Thermosonic
Wire Material/Size:	Au. 1.0 mil
Thermal Resistance Theta JA °C/W:	34.1 °C/W
Package Cross Section Yes/No:	N/A
Assembly Process Flow:	49-41020
Name/Location of Assembly (prime) facility:	ASE-Taiwan (G)
MSL Level	3
Reflow Profile	260C

ELECTRICAL TEST / FINISH DESCRIPTION	
Test Location:	CML-R, GO-CHIPMOS

RELIABILITY TESTS PERFORMED PER SPECIFICATION REQUIREMENTS

Stress/Test	Test Condition (Temp/Bias)	Result P/F
Temperature Cycle	MIL-STD-883C, Method 1010, Condition C, -65°C to 150°C Precondition: JESD22 Moisture Sensitivity MSL3 192 Hrs 30°C/60%RH+3IR-Reflow, 260°C+0, -5°C	P
Pressure Cooker Test	121°C, 100%RH, 15 Psig Precondition: JESD22 Moisture Sensitivity MSL3 192 Hrs 30°C/60%RH+3IR-Reflow, 260°C+0, -5°C	P
High Accelerated Saturation Test (HAST)	130°C, 3.63V, 85%RH Precondition: JESD22 Moisture Sensitivity MSL3 192 Hrs 30°C/60%RH+3IR-Reflow, 260°C+0, -5°C	P
Electrostatic Discharge Human Body Model (ESD-HBM)	2,200V JESD22, Method A114-B	P
Electrostatic Discharge Human Body Model (ESD-HBM)	2,200V MIL-STD-883, Method 3015.7	P
Electrostatic Discharge Charge Device Model (ESD-CDM)	500V JESD22-C101	P
Acoustics Microscopy	J-STD-020	P
Thermal Shock	MIL-STD-883C, Method 1011, Condition B, -55 C to 125C and JESD22-A106B, Condition C, -55 C to 125C	P
High Temperature Storage	150C, No Bias	P
Internal Visual	MIL-STD-883-2014	P
X-ray	MIL-STD-883 - 2012	P
Die Shear	MIL-STD-883, Method 2019	P
Ball Shear	JESD22-B116A	P
External Visual	MIL-PRF-38535, MILSTD-883, METHOD 2009	P
Bond Pull	MIL-STD-883 – Method 2011	P
Physical Dimension	MIL-STD-1835, JESD22-B100	P

Reliability Test Data

QTP #: 045101

Device	Fab Lot #	Assy Lot #	Ass Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: ACOUSTIC, MSL3							
CY62177DV30L (7C62172D)	4447832	610503960	TAIWAN-G	COMP	15	0	
CY62177DV30L (7C62172D)	4447832	610504454	TAIWAN-G	COMP	15	0	
CY62177DV30L (7C62172D)	4447832	610504720	TAIWAN-G	COMP	15	0	
STRESS: BALL SHEAR							
CY62177DV30L (7C62172D)	4447832	610504454	TAIWAN-G	COMP	15	0	
STRESS: BOND PULL							
CY62177DV30L (7C62172D)	4447832	610504454	TAIWAN-G	COMP	10	0	
STRESS: DIE SHEAR							
CY62177DV30L (7C62172D)	4504324	610517374	TAIWAN-G	COMP	15	0	
STRESS: ESD-CHARGE DEVICE MODEL, 500V							
CY62177DV30L (7C62172D)	4447832	610503960	TAIWAN-G	COMP	9	0	
STRESS: ESD-HUMAN BODY CIRCUIT PER JESD22, METHOD A114-B, 2,200V							
CY62177DV30L (7C62172D)	4447832	610503960	TAIWAN-G	COMP	9	0	
STRESS: ESD-HUMAN BODY CIRCUIT PER MIL STD 883, METHOD 3015, 2,200V							
CY62177DV30L (7C62172D)	4447832	610503960	TAIWAN-G	COMP	3	0	
STRESS: EXTERNAL VISUAL							
CY62177DV30L (7C62172D)	4447832	610504454	TAIWAN-G	COMP	15	0	
STRESS: HI-ACCEL SATURATION TEST, 130C, 3.63V, 85%RH, PRE COND 192 HR 30C/60%RH, MSL3							
CY62177DV30L (7C62172D)	4447832	610504454	TAIWAN-G	128	45	0	
STRESS: HIGH TEMPERATURE STORAGE							
CY62177DV30L (7C62172D)	4447832	610503960	TAIWAN-G	500	45	0	
CY62177DV30L (7C62172D)	4447832	610503960	TAIWAN-G	1000	45	0	
STRESS: INTERNAL VISUAL							
CY62177DV30L (7C62172D)	4447832	610504454	TAIWAN-G	COMP	5	0	
STRESS: PRESSURE COOKER TEST, 121C, 100%RH, 15 Psig, PRE COND 192H 30C/60%RH, MSL3							
CY62177DV30L (7C62172D)	4447832	610504454	TAIWAN-G	168	45	0	
STRESS: PHYSICAL DIMENSION							
CY62177DV30L (7C62172D)	4504324	610517374	TAIWAN-G	COMP	5	0	

Reliability Test Data

QTP #: 045101

Device	Fab Lot #	Assy Lot #	Ass Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: TC COND. C –65C TO 150C, PRE COND 192 HR 30C/60%RH, MSL3							
CY62177DV30L (7C62172D)	4447832	610503960	TAIWAN-G	300	45	0	
CY62177DV30L (7C62172D)	4447832	610503960	TAIWAN-G	500	45	0	
CY62177DV30L (7C62172D)	4447832	610503960	TAIWAN-G	500	43	0	
CY62177DV30L (7C62172D)	4447832	610504454	TAIWAN-G	300	44	0	
CY62177DV30L (7C62172D)	4447832	610504454	TAIWAN-G	500	43	0	
CY62177DV30L (7C62172D)	4447832	610504454	TAIWAN-G	1000	42	0	
CY62177DV30L (7C62172D)	4447832	610504720	TAIWAN-G	300	45	0	
CY62177DV30L (7C62172D)	4447832	610504720	TAIWAN-G	500	44	0	
CY62177DV30L (7C62172D)	4447832	610504720	TAIWAN-G	1000	44	0	
STRESS: THERMAL SHOCK COND. B – 55C TO 125C							
CY62177DV30L (7C62172D)	4447832	610504454	TAIWAN-G	100	45	0	
CY62177DV30L (7C62172D)	4447832	610504454	TAIWAN-G	200	45	0	
STRESS: X-RAY							
CY62177DV30L (7C62172D)	4504324	610517374	TAIWAN-G	COMP	15	0	

Reliability Test Data

QTP #: 065003

Device	Fab Lot #	Assy Lot #	Ass Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: ACOUSTIC, MSL3							
CY7C1061AV33 (7C1061A)	4513666	610528771	TAIWAN-G	COMP	15	0	
CY7C1061AV33 (7C1061A)	4513666	610528772	TAIWAN-G	COMP	15	0	
CY7C1061AV33 (7C1061A)	4513666	610528769	TAIWAN-G	COMP	15	0	
STRESS: EXTERNAL VISUAL							
CY7C1061AV33 (7C1061A)	4513666	610528771	TAIWAN-G	COMP	15	0	
CY7C1061AV33 (7C1061A)	4513666	610528769	TAIWAN-G	COMP	15	0	
STRESS: INTERNAL VISUAL							
CY7C1061AV33 (7C1061A)	4513666	610528771	TAIWAN-G	COMP	15	0	
CY7C1061AV33 (7C1061A)	4513666	610528769	TAIWAN-G	COMP	15	0	
CY7C1061AV33 (7C1061A)	4514991	610528837	TAIWAN-G	COMP	15	0	
STRESS: PHYSICAL DIMENSION							
CY7C1061AV33 (7C1061A)	4513666	610528771	TAIWAN-G	COMP	10	0	
CY7C1061AV33 (7C1061A)	4513666	610528769	TAIWAN-G	COMP	10	0	
CY7C1061AV33 (7C1061A)	4514991	610528837	TAIWAN-G	COMP	10	0	
STRESS: HI-ACCEL SATURATION TEST, 130C, 3.63V, 85%RH, PRE COND 192 HR 30C/60%RH, MSL3							
CY7C1061AV33 (7C1061A)	4513666	610528772	TAIWAN-G	128	46	0	
STRESS: PRESSURE COOKER TEST, 121C, 100%RH, 15 Psig, PRE COND 192H 30C/60%RH, MSL3							
CY7C1061AV33 (7C1061A)	4513666	610528771	TAIWAN-G	168	49	0	
STRESS: TC COND. C –65C TO 150C, PRE COND 192 HR 30C/60%RH, MSL3							
CY7C1061AV33 (7C1061A)	4513666	610528771	TAIWAN-G	300	50	0	
CY7C1061AV33 (7C1061A)	4513666	610528771	TAIWAN-G	500	50	0	
CY7C1061AV33 (7C1061A)	4513666	610528772	TAIWAN-G	300	50	0	
CY7C1061AV33 (7C1061A)	4513666	610528772	TAIWAN-G	500	49	0	
CY7C1061AV33 (7C1061A)	4513666	610528769	TAIWAN-G	300	49	0	
CY7C1061AV33 (7C1061A)	4513666	610528769	TAIWAN-G	500	49	0	
STRESS: SOLDER BALL SHEAR							
CY7C1061AV33 (7C1061A)	4513666	610528771	TAIWAN-G	COMP	15	0	
CY7C1061AV33 (7C1061A)	4513666	610528769	TAIWAN-G	COMP	15	0	
CY7C1061AV33 (7C1061A)	4514991	610528837	TAIWAN-G	COMP	15	0	

Reliability Test Data

QTP #: RR133002

Device	Fab Lot #	Assy Lot #	Ass Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: SOLDERABILITY							
CY14B104NA (7C1404B6C)	4242879	611302645	TAIWAN-G	COMP	4	0	

Document History Page

Document Title: QTP# 065003: <60-BALL FBGA (8 X 20 X 1.2MM) PB-FREE, MSL3, 260C REFLOW ASE-TAIWAN (G)
Document Number: 001-88339

Rev.	ECN No.	Orig. of Change	Description of Change
**	4051089	NSR	Initial spec release. Converted qual report to spec format.
*A	4057885	NSR	Added RR133002 Solderability Test data

Distribution: WEB

Posting: None