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Cypress Semiconductor
Package Qualification Report

QTP# 150701 VERSION **
October 2016

100-Ball VFBGA (6x6x1mm)
SAC 105 Solder Ball Finish, CuPd Wire
MSL3, 260°C Reflow
ASE-Taiwan (G)

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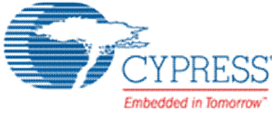
PACKAGE QUALIFICATION HISTORY

QTP Number	Description of Qualification Purpose	Date
150701	Qualification of 100-Ball VFBGA (6x6x1mm) at ASE-Taiwan using 1+2+1 Substrate, KE-G2250LKDS Mold Compound, ABL 2025D Die Attach Epoxy, SAC 105 Solder Ball Finish, 0.8 mil CuPd Wire at MSL3, 260C Reflow Temperature	Feb. 2015

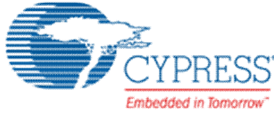


MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION	
Package Designation:	BZ100
Package Outline, Type, or Name:	100-Ball VFBGA (Very Fine Ball Grid Array)
Mold Compound Name/Manufacturer:	KE-G2250LKDS/Kyocera
Mold Compound Flammability Rating:	V-0 / UL94
Oxygen Rating Index:	54%
Substrate Material:	BT/Cu
Lead Finish, Composition / Thickness:	Sn/Ag/Cu (SAC 105)
Die Backside Preparation Method/Metallization:	Backgrind
Die Separation Method:	Saw
Die Attach Supplier:	Henkel
Die Attach Material:	ABL 2025D
Bond Diagram Designation:	001-93791
Wire Bond Method:	Thermosonic
Wire Material/Size:	CuPd, 0.8 mil
Thermal Resistance Theta JA °C/W:	35°C/W
Package Cross Section Yes/No:	No
Assembly Process Flow:	49-41999
Name/Location of Assembly (prime) facility:	ASE-Taiwan (G)
MSL Level	3
Reflow Profile	260C

ELECTRICAL TEST / FINISH DESCRIPTION	
Test Location:	ASE-Taiwan (G)

RELIABILITY TESTS PERFORMED PER SPECIFICATION REQUIREMENTS

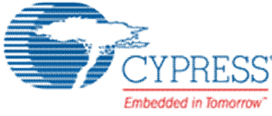
Stress/Test	Test Condition (Temp/Bias)	Result P/F
Acoustic Microscopy	J-STD-020 Precondition: JESD22 Moisture Sensitivity Level (192 Hrs., 30°C, 60% RH, 260°C Reflow)	P
Ball Shear	JESD22-B116	P
Bond Pull	MIL-STD-883 – Method 2011	P
Constructional Analysis	Criteria: Meet external and internal characteristics of Cypress package	P
Dye Penetrant Test	Test to determine the existence and extent of cracks, Criteria: No Package Crack	P
High Accelerated Saturation Test (HAST)	JEDEC STD 22-A110: 110°C, 85% RH, 3.63V Precondition: JESD22 Moisture Sensitivity Level (192 Hrs., 30 °C, 60% RH, 260°C Reflow)	P
Pressure Cooker	JESD22-A102:121°C /100%RH, 15 PSIG Precondition: JESD22 Moisture Sensitivity Level (192 Hrs., 30 °C, 60% RH, 260°C Reflow)	P
Solder Ball Shear	JESD22-B117	P
Temperature Cycle	MIL-STD-883, Method 1010, Condition C, -65°C to 150°C Precondition: JESD22 Moisture Sensitivity Level (192 Hrs., 30°C, 60% RH, 260°C Reflow)	P
X-Ray	MIL-STD-883 - 2012	P



Reliability Test Data

QTP #: 150701

Device	Fab Lot #	Assy Lot #	Ass Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: ACOUSTIC, MSL3							
CYUSB3304 (7CP07502C)	9416001	611433562	G-Taiwan	COMP	15	0	
CYUSB3328 (7CP07502C)	9416001	611433563	G-Taiwan	COMP	15	0	
CYUSB3314 (7CP07502C)	9416001	611433564	G-Taiwan	COMP	15	0	
STRESS: BALL SHEAR							
CYUSB3304 (7CP07502C)	9416001	611433562	G-Taiwan	COMP	10	0	
CYUSB3328 (7CP07502C)	9416001	611433563	G-Taiwan	COMP	10	0	
CYUSB3314 (7CP07502C)	9416001	611433564	G-Taiwan	COMP	10	0	
STRESS: BOND PULL							
CYUSB3304 (7CP07502C)	9416001	611433562	G-Taiwan	COMP	12	0	
CYUSB3328 (7CP07502C)	9416001	611433563	G-Taiwan	COMP	12	0	
CYUSB3314 (7CP07502C)	9416001	611433564	G-Taiwan	COMP	12	0	
STRESS: CONSTRUCTIONAL ANALYSIS							
CYUSB3304 (7CP07502C)	9416001	611433562	G-Taiwan	COMP	5	0	
STRESS: DYE PENETRANT TEST							
CYUSB3304 (7CP07502C)	9416001	611433562	G-Taiwan	COMP	15	0	
CYUSB3328 (7CP07502C)	9416001	611433563	G-Taiwan	COMP	15	0	
CYUSB3314 (7CP07502C)	9416001	611433564	G-Taiwan	COMP	15	0	
STRESS: HI-ACCEL SATURATION TEST (110C, 85%RH, 3.63V), PRE COND 192 HR 30C/60%RH (MSL3)							
CYUSB3014 (7C07201A)	8123000	611204860	G-Taiwan	264	80	0	
STRESS: PRESSURE COOKER TEST (121C, 100%RH, 15 Psig), PRE COND 192 HR 30C/60%RH (MSL3)							
CYUSB3304 (7CP07502C)	9416001	611433562	G-Taiwan	168	80	0	
CYUSB3328 (7CP07502C)	9416001	611433563	G-Taiwan	168	80	0	
STRESS: SOLDER BALL SHEAR							
CYUSB3064 (7C03064A)	9315010	611328378	G-Taiwan	COMP	30	0	
CYUSB3065 (7C03065A)	9315010	611328882	G-Taiwan	COMP	30	0	
CYUSB3065 (7C03065A)	9315010	611332768	G-Taiwan	COMP	30	0	



Reliability Test Data

QTP #: 150701

Device	Fab Lot #	Assy Lot #	Ass Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: TEMPERATURE CYCLE COND. C -65C TO 150C, PRE COND 192 HRS 30C/60%RH, MSL3							
CYUSB3304 (7CP07502C)	9416001	611433562	G-Taiwan	500	79	0	
CYUSB3304 (7CP07502C)	9416001	611433562	G-Taiwan	1000	79	0	
CYUSB3328 (7CP07502C)	9416001	611433563	G-Taiwan	500	80	0	
CYUSB3328 (7CP07502C)	9416001	611433563	G-Taiwan	1000	80	0	
CYUSB3314 (7CP07502C)	9416001	611433564	G-Taiwan	500	77	0	
CYUSB3314 (7CP07502C)	9416001	611433564	G-Taiwan	1000	76	0	
STRESS: X-RAY							
CYUSB3304 (7CP07502C)	9416001	611433562	G-Taiwan	COMP	15	0	
CYUSB3328 (7CP07502C)	9416001	611433563	G-Taiwan	COMP	15	0	
CYUSB3314 (7CP07502C)	9416001	611433564	G-Taiwan	COMP	15	0	

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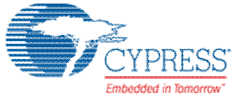

Document History Page

Document Title: QTP# 150701: 100-BALL VFBGA (6X6X1MM) SAC 105 SOLDER BALL FINISH, CUPD WIRE, MSL3, 260C REFLOW, ASE-TAIWAN (G)

Document Number: 002-17274

Rev.	ECN No.	Orig. of Change	Description of Change
**	5481820	JYF	Initial spec release.