

Cypress Semiconductor Package Qualification Report

QTP# 150413 VERSION
April 2016**

**48 VFBGA (6x8x1.0mm)
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
131204	Qualification of 48 VFBGA (6x8x1.0 mm) at ASE-Taiwan (G) using KE-G2250 Mold Compound, Ablestik 2100A Die Attach Epoxy, SAC-105 Solder Ball Finish, 0.8 mil Cu/Pd Wire,with MSL 3, 260°C Reflow Temperature	Dec 2013
150413	Qualification of 48 VFBGA (6x8x1.0 mm) at ASE-Taiwan (G) using KE-G2250 Mold Compound, Ablestik 2100A Die Attach Epoxy, SAC-105 Solder Ball Finish, 0.8 mil Cu/Pd Wire,with MSL 3, 260°C Reflow Temperature	June 2015

MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION	
Package Designation:	BZ48A
Package Outline, Type, or Name:	VFBGA (Very Fine Ball Grid Array)
Mold Compound Name/Manufacturer:	KE-G2250/Kyocera
Mold Compound Flammability Rating:	V-0 / UL94
Oxygen Rating Index:	28%
Substrate Material:	BT resin
Lead Finish, Composition / Thickness:	SAC105
Die Backside Preparation Method/Metallization:	Backgrind
Die Separation Method:	Saw
Die Attach Supplier:	Ablestik
Die Attach Material:	Ablestik 2100A
Bond Diagram Designation:	001-95771
Wire Bond Method:	Thermosonic
Wire Material/Size:	CuPd, 0.8 mil
Thermal Resistance Theta JA °C/W:	31.35°C/W
Package Cross Section Yes/No:	Yes
Assembly Process Flow:	001-89076
Name/Location of Assembly (prime) facility:	ASE-Taiwan (G)
MSL Level	3
Reflow Profile	260C

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

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
Die Shear	MIL-STD-883, Method 2019 Per die size: <ul style="list-style-type: none"> • <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
Electrostatic Discharge Charge Device Model (ESD-CDM)	500V/1,000V/1,250V JESD22-C101	P
Final Visual	JESD22-B101	P
High Accelerated Saturation Test (HAST)	JEDEC STD 22-A110: 110°C, 85%RH, 3.65V Precondition: JESD22 Moisture Sensitivity Level (192 Hrs., 30°C, 60% RH, 260°C Reflow)	P
High Temperature Storage	JESD22-A103:150°C No bias	P
Internal Visual	MIL-STD-883-2014	P
Physical Dimension	MIL-STD-1835, JESD22-B100	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 #: 131204

Device	Fab Lot #	Assy Lot #	Ass Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: ACOUSTIC, MSL3							
CY62167GE30 (7CC1721673A)	9302002	611314681	G-TAIWAN	COMP	15	0	
CY62167G30 (7CC172167A)	9308001	611320113	G-TAIWAN	COMP	15	0	
CY62167G30 (7CC172167A)	9308001	611320115	G-TAIWAN	COMP	15	0	
STRESS: BALL SHEAR							
CY62167GE30 (7CC1721673A)	9302002	611314681	G-TAIWAN	COMP	100	0	
STRESS: BOND PULL							
CY62167GE30 (7CC1721673A)	9302002	611314681	G-TAIWAN	COMP	100	0	
STRESS: CONSTRUCTIONAL ANALYSIS							
CY62167GE30 (7CC1721673A)	9302002	611314681	G-TAIWAN	COMP	5	0	
STRESS: DIE SHEAR							
CY62167GE30 (7CC1721673A)	9302002	611314681	G-TAIWAN	COMP	15	0	
STRESS: DYE PENETRANT TEST							
CY62167GE30 (7CC1721673A)	9302002	611314681	G-TAIWAN	COMP	15	0	
CY62167G30 (7CC172167A)	9308001	611320113	G-TAIWAN	COMP	15	0	
CY62167G30 (7CC172167A)	9308001	611320115	G-TAIWAN	COMP	15	0	
STRESS: ESD-CHARGE DEVICE MODEL							
CY62167GE30 (7CC1721673A)	9302002	611314681	G-TAIWAN	500	9	0	
CY62167GE30 (7CC1721673A)	9302002	611314681	G-TAIWAN	1000	3	0	
CY62167GE30 (7CC1721673A)	9302002	611314681	G-TAIWAN	1250	3	0	
STRESS: FINAL VISUAL							
CY62167GE30 (7CC1721673A)	9302002	611314681	G-TAIWAN	COMP	315	0	
STRESS: HI-ACCEL SATURATION TEST, 110C, 85%RH, 3.65V, PRE COND 192 HR 30C/60%RH, MSL3							
CY62167GE30 (7CC1721673A)	9302002	611314681	G-TAIWAN	264	80	0	
STRESS: HIGH TEMPERATURE STORAGE, PLASTIC, 150C							
CY62167GE30 (7CC1721673A)	9302002	611314681	G-TAIWAN	500	80	0	
CY62167GE30 (7CC1721673A)	9302002	611314681	G-TAIWAN	1000	80	0	
CY62167GE30 (7CC1721673A)	9302002	611314681	G-TAIWAN	1500	80	0	



Reliability Test Data

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Device	Fab Lot #	Assy Lot #	Ass Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: INTERNAL VISUAL							
CY62167GE30 (7CC1721673A)	9302002	611314681	G-TAIWAN	COMP	5	0	
STRESS: PHYSICAL DIMENSION							
CY62167GE30 (7CC1721673A)	9302002	611314681	G-TAIWAN	COMP	30	0	
STRESS: PRESSURE COOKER TEST, 121C, 100%RH, 15 Psig, PRE COND 192 HR 30C/60%RH, MSL3							
CY62167GE30 (7CC1721673A)	9302002	611314681	G-TAIWAN	168	80	0	
CY62167GE30 (7CC1721673A)	9302002	611314681	G-TAIWAN	288	79	0	
STRESS: SOLDER BALL SHEAR							
CY62167GE30 (7CC1721673A)	9302002	611314681	G-TAIWAN	COMP	30	0	
CY62167G30 (7CC172167A)	9308001	611320113	G-TAIWAN	COMP	30	0	
CY62167G30 (7CC172167A)	9308001	611320115	G-TAIWAN	COMP	30	0	
STRESS: TEMPERATURE CYCLE COND. C -65C TO 150C, PRE COND 192 HRS 30C/60%RH, MSL3							
CY62167GE30 (7CC1721673A)	9302002	611314681	G-TAIWAN	500	80	0	
CY62167GE30 (7CC1721673A)	9302002	611314681	G-TAIWAN	1000	80	0	
CY62167G30 (7CC172167A)	9308001	611320113	G-TAIWAN	500	79	0	
CY62167G30 (7CC172167A)	9308001	611320113	G-TAIWAN	1000	79	0	
CY62167G30 (7CC172167A)	9308001	611320115	G-TAIWAN	500	80	0	
CY62167G30 (7CC172167A)	9308001	611320115	G-TAIWAN	1000	80	0	
STRESS: X-RAY							
CY62167GE30 (7CC1721673A)	9302002	611314681	G-TAIWAN	COMP	2378	0	



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<i>Device</i>	<i>Fab Lot #</i>	<i>Assy Lot #</i>	<i>Ass Loc</i>	<i>Duration</i>	<i>Samp</i>	<i>Rej</i>	<i>Failure Mechanism</i>
STRESS: ACOUSTIC							
CY62147G30 (7CP172147AO)	9507001	611513217	G-TAIWAN	COMP	15	0	
CY62147G30 (7CP1721472AO)	9507001	611515060	G-TAIWAN	COMP	15	0	
CY7C1041G30 (7CP171041AO)	9507001	611515059	G-TAIWAN	COMP	15	0	
STRESS: CONSTRUCTIONAL ANALYSIS							
CY62147G30 (7CP172147AO)	9507001	611513217	G-TAIWAN	COMP	5	0	
CY62147G30 (7CP1721472AO)	9507001	611515060	G-TAIWAN	COMP	5	0	
CY7C1041G30 (7CP171041AO)	9507001	611515059	G-TAIWAN	COMP	5	0	
STRESS: DYE PENETRANT TEST							
CY62147G30 (7CP172147AO)	9507001	611513217	G-TAIWAN	COMP	15	0	
CY62147G30 (7CP1721472AO)	9507001	611515060	G-TAIWAN	COMP	15	0	
CY7C1041G30 (7CP171041AO)	9507001	611515059	G-TAIWAN	COMP	15	0	



Document History Page

Document Title: QTP# 150413:48 VFBGA (6X8X1.0MM) SAC 105 SOLDER BALL FINISH, CUPD WIRE, MSL3, 260C REFLOW, ASE-TAIWAN (G)

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Rev.	ECN No.	Orig. of Change	Description of Change
**	5228155	JYF	Initial spec release.