

Cypress Semiconductor Package Qualification Report

QTP# 150414 VERSION
April 2016**

**48 VFBGA (6x8x1.0mm)
SAC 105 Solder Ball Finish, CuPd Wire
MSL3, 260°C Reflow
CML-RA**

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

QTP Number	Description of Qualification Purpose	Date
140204	Qualification of 48 VFBGA (6x8x1.0 mm) at CML-RA using GR9810-1PLA Mold Compound, QMI-506 Die Attach Epoxy, SAC-105 Solder Ball Finish, 0.8 mil CuPd Wire, with MSL 3, 260°C Reflow Temperature	March 2014
150414	Qualification of 48 VFBGA (6x8x1.0 mm) at CML-RA using GR9810-1PLA Mold Compound, QMI-506 Die Attach Epoxy, SAC-105 Solder Ball Finish, 0.8 mil CuPd 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:	GR9810-1PLA/Henkel
Mold Compound Flammability Rating:	V-0 / UL94
Oxygen Rating Index:	54 (Typical) / 28 (Min. value)
Substrate Material:	BT resin
Lead Finish, Composition / Thickness:	SAC105
Die Backside Preparation Method/Metallization:	Backgrind
Die Separation Method:	Saw
Die Attach Supplier:	Henkel
Die Attach Material:	QMI 506
Bond Diagram Designation:	001-95770
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:	001-80721
Name/Location of Assembly (prime) facility:	CML-RA
MSL Level	3
Reflow Profile	260C

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

Note: Please contact a Cypress Representative for other packages availability.

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 #: 140204

Device	Fab Lot #	Assy Lot #	Ass Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: ACOUSTIC, MSL3							
CY7C1061G30 (7CC171061A)	9313001	611348182	CML-RA	COMP	170	0	
CY7C1061G30 (7CC171061A)	9313001	611348183	CML-RA	COMP	15	0	
CY7C1061G30 (7CC171061A)	9313001	611348184	CML-RA	COMP	15	0	
STRESS: BALL SHEAR							
CY7C1061G30 (7CC171061A)	9313001	611348182	CML-RA	COMP	30	0	
CY7C1061G30 (7CC171061A)	9313001	611348183	CML-RA	COMP	30	0	
CY7C1061G30 (7CC171061A)	9313001	611348184	CML-RA	COMP	30	0	
STRESS: BOND PULL							
CY7C1061G30 (7CC171061A)	9313001	611348182	CML-RA	COMP	30	0	
CY7C1061G30 (7CC171061A)	9313001	611348183	CML-RA	COMP	30	0	
CY7C1061G30 (7CC171061A)	9313001	611348184	CML-RA	COMP	30	0	
STRESS: CONSTRUCTIONAL ANALYSIS							
CY7C1061G30 (7CC171061A)	9313001	611348182	CML-RA	COMP	5	0	
STRESS: DIE SHEAR							
CY7C1061G30 (7CC171061A)	9313001	611348182	CML-RA	COMP	15	0	
CY7C1061G30 (7CC171061A)	9313001	611348183	CML-RA	COMP	15	0	
CY7C1061G30 (7CC171061A)	9313001	611348184	CML-RA	COMP	15	0	
STRESS: DYE PENETRANT TEST							
CY7C1061G30 (7CC171061A)	9313001	611348182	CML-RA	COMP	15	0	
CY7C1061G30 (7CC171061A)	9313001	611348183	CML-RA	COMP	15	0	
CY7C1061G30 (7CC171061A)	9313001	611348184	CML-RA	COMP	15	0	
STRESS: ESD-CHARGE DEVICE MODEL							
CY7C1061G30 (7CC171061A)	9313001	611348182	CML-RA	500	9	0	
CY7C1061G30 (7CC171061A)	9313001	611348182	CML-RA	1000	3	0	
CY7C1061G30 (7CC171061A)	9313001	611348182	CML-RA	1250	3	0	
STRESS: FINAL VISUAL							
CY7C1061G30 (7CC171061A)	9313001	611348182	CML-RA	COMP	834	0	
CY7C1061G30 (7CC171061A)	9313001	611348183	CML-RA	COMP	805	0	
CY7C1061G30 (7CC171061A)	9313001	611348184	CML-RA	COMP	528	0	

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Reliability Test Data

QTP #: 140204

Device	Fab Lot #	Assy Lot #	Ass Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: HI-ACCEL SATURATION TEST, 110C, 85%RH, 3.65V, PRE COND 192 HR 30C/60%RH, MSL3							
CY7C1061G30 (7CC171061A)	9313001	611348182	CML-RA	264	30	0	
STRESS: HIGH TEMPERATURE STORAGE, PLASTIC, 150C							
CY7C1061G30 (7CC171061A)	9313001	611333088	CML-RA	500	79	0	
CY7C1061G30 (7CC171061A)	9313001	611333088	CML-RA	1000	79	0	
STRESS: INTERNAL VISUAL							
CY7C1061G30 (7CC171061A)	9313001	611348182	CML-RA	COMP	5	0	
STRESS: PHYSICAL DIMENSION							
CY7C1061G30 (7CC171061A)	9313001	611348182	CML-RA	COMP	30	0	
CY7C1061G30 (7CC171061A)	9313001	611348183	CML-RA	COMP	30	0	
CY7C1061G30 (7CC171061A)	9313001	611348184	CML-RA	COMP	30	0	
STRESS: PRESSURE COOKER TEST, 121C, 100%RH, 15 Psig, PRE COND 192 HR 30C/60%RH, MSL3							
CY7C1061G30 (7CC171061A)	9313001	611333088	CML-RA	168	78	0	
CY7C1061G30 (7CC171061A)	9313001	611333088	CML-RA	288	78	0	
STRESS: SOLDER BALL SHEAR							
CY7C1061G30 (7CC171061A)	9313001	611348182	CML-RA	COMP	150	0	
CY7C1061G30 (7CC171061A)	9313001	611348183	CML-RA	COMP	150	0	
CY7C1061G30 (7CC171061A)	9313001	611348184	CML-RA	COMP	150	0	
STRESS: TEMPERATURE CYCLE COND. C -65C TO 150C, PRE COND 192 HRS 30C/60%RH, MSL3							
CY7C1061G30 (7CC171061A)	9313001	611348182	CML-RA	500	80	0	
CY7C1061G30 (7CC171061A)	9313001	611348182	CML-RA	1000	78	0	
CY7C1061G30 (7CC171061A)	9313001	611348183	CML-RA	500	80	0	
CY7C1061G30 (7CC171061A)	9313001	611348183	CML-RA	1000	79	0	
CY7C1061G30 (7CC171061A)	9313001	611348184	CML-RA	500	80	0	
CY7C1061G30 (7CC171061A)	9313001	611348184	CML-RA	1000	80	0	
STRESS: X-RAY							
CY7C1061G30 (7CC171061A)	9313001	611348182	CML-RA	COMP	15	0	
CY7C1061G30 (7CC171061A)	9313001	611348183	CML-RA	COMP	15	0	
CY7C1061G30 (7CC171061A)	9313001	611348184	CML-RA	COMP	15	0	



Reliability Test Data

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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							
CY7S1041GE30 (7CP1710416A)	9507001	611513220	CML-RA	COMP	15	0	
CY7C1041G30 (7CP171041A)	9507001	611513219	CML-RA	COMP	15	0	
CY62147GE30 (7CP1721473A)	9507001	611514757	CML-RA	COMP	15	0	
STRESS: CONSTRUCTIONAL ANALYSIS							
CY7S1041GE30 (7CP1710416A)	9507001	611513220	CML-RA	COMP	5	0	
CY7C1041G30 (7CP171041A)	9507001	611513219	CML-RA	COMP	5	0	
CY62147GE30 (7CP1721473A)	9507001	611514757	CML-RA	COMP	5	0	
STRESS: DYE PENETRANT TEST							
CY7S1041GE30 (7CP1710416A)	9507001	611513220	CML-RA	COMP	15	0	
CY7C1041G30 (7CP171041A)	9507001	611513219	CML-RA	COMP	15	0	
CY62147GE30 (7CP1721473A)	9507001	611514757	CML-RA	COMP	15	0	



Document History Page

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Rev.	ECN No.	Orig. of Change	Description of Change
**	5230544	JYF	Initial spec release.