

Cypress Semiconductor Package Qualification Report

**QTP# 152202 VERSION **
June 2015**

**48 FBGA (6x8x1.0mm)
Sn/Pb & SAC105 Ball Finish, CuPd Wire
MSL3, 260°C Reflow
BKK-Thailand (SB)**

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

QTP Number	Description of Qualification Purpose	Date
152202	Qualification of FBGA 48 (6x8 x1.0mm) at Cypress Bangkok, Thailand (BKK) Assembly using 0.8mil Cu-Pd wire, CRM-1577DB Die Attach epoxy, KMC-3580LVA Mold Compound with Sn/Pb & Sn/Ag/Cu at MSL3, 260C Reflow Temperature	June 2015

MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION	
Package Designation:	BZ48
Package Outline, Type, or Name:	48-Ball FBGA (Fine Ball Grid Array)
Mold Compound Name/Manufacturer:	KMC-3580LVA/ ShinEtsu
Mold Compound Flammability Rating:	V-0 / UL94
Oxygen Rating Index:	>40%
Leadframe Material:	BT Resin
Lead Finish, Composition / Thickness:	Sn/Ag/Cu (SAC105)
Die Backside Preparation Method/Metallization:	Backgrind
Die Separation Method:	Saw
Die Attach Supplier:	Sumitomo
Die Attach Material:	CRM-1577DB
Bond Diagram Designation:	001-97298
Wire Bond Method:	Thermosonic
Wire Material/Size:	CuPd, 0.8 mil
Thermal Resistance Theta JA °C/W:	72°C/W
Package Cross Section Yes/No:	No
Assembly Process Flow:	001-97055
Name/Location of Assembly (prime) facility:	BKK-Thailand (SB)
MSL Level	3
Reflow Profile	260C

ELECTRICAL TEST / FINISH DESCRIPTION	
Test Location:	CML-R

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, 5.5V Precondition: JESD22 Moisture Sensitivity Level (192 Hrs., 30 °C, 60% RH, 260°C Reflow)	P
High Temperature Operating Life Latent Failure Rate	Dynamic Operating Condition, Vcc Max = 1.85V, 125°C JESD22-A108	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
Solderability	J-STD-002, JESD22-B102	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 #: 152202

Device	Fab Lot #	Assy Lot #	Ass Loc	Duration	Samp	Rej	Failure Mechanism
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STRESS: ACOUSTIC, MSL3

CY62157EV30LL (7CP62157F)	4501549	RFB2171	SB-Thailand	COMP	15	0	
CY62157EV30LL (7CP62157F)	4503799	RFB2191	SB-Thailand	COMP	15	0	
CY62157EV30LL (7CP62157F)	4503799	RFB2192	SB-Thailand	COMP	15	0	
CY62167EV30LL (7CP62167F)	4318389	611514441	SB-Thailand	COMP	15	0	
CY62167EV30LL (7CP62167F)	4318389	611514442	SB-Thailand	COMP	15	0	
CY62126EV30LL (7CP62126F)	4503950	611514440	SB-Thailand	COMP	15	0	

STRESS: BALL SHEAR

CY62157EV30LL (7CP62157F)	4501549	RFB2171	SB-Thailand	COMP	30	0	
CY62157EV30LL (7CP62157F)	4503799	RFB2191	SB-Thailand	COMP	30	0	
CY62157EV30LL (7CP62157F)	4503799	RFB2192	SB-Thailand	COMP	30	0	
CY62167EV30LL (7CP62167F)	4318389	611514441	SB-Thailand	COMP	30	0	
CY62167EV30LL (7CP62167F)	4318389	611514442	SB-Thailand	COMP	30	0	
CY62126EV30LL (7CP62126F)	4503950	611514440	SB-Thailand	COMP	30	0	

STRESS: BOND PULL

CY62157EV30LL (7CP62157F)	4501549	RFB2171	SB-Thailand	COMP	30	0	
CY62157EV30LL (7CP62157F)	4503799	RFB2191	SB-Thailand	COMP	30	0	
CY62157EV30LL (7CP62157F)	4503799	RFB2192	SB-Thailand	COMP	30	0	
CY62167EV30LL (7CP62167F)	4318389	611514441	SB-Thailand	COMP	30	0	
CY62167EV30LL (7CP62167F)	4318389	611514442	SB-Thailand	COMP	30	0	
CY62126EV30LL (7CP62126F)	4503950	611514440	SB-Thailand	COMP	30	0	

STRESS: CONSTRUCTIONAL ANALYSIS

CY62157EV30LL (7CP62157F)	4503799	RFB2191	SB-Thailand	COMP	5	0	
CY62167EV30LL (7CP62167F)	4318389	611514442	SB-Thailand	COMP	5	0	

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QTP #: 152202

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STRESS: DIE SHEAR

CY62157EV30LL (7CP62157F)	4501549	RFB2171	SB-Thailand	COMP	10	0	
CY62157EV30LL (7CP62157F)	4503799	RFB2191	SB-Thailand	COMP	10	0	
CY62157EV30LL (7CP62157F)	4503799	RFB2192	SB-Thailand	COMP	10	0	
CY62167EV30LL (7CP62167F)	4318389	611514441	SB-Thailand	COMP	10	0	
CY62167EV30LL (7CP62167F)	4318389	611514442	SB-Thailand	COMP	10	0	
CY62126EV30LL (7CP62126F)	4503950	611514440	SB-Thailand	COMP	10	0	

STRESS: DYE PENETRANT TEST

CY62167EV30LL (7CP62167F)	4318389	611514441	SB-Thailand	COMP	15	0	
CY62167EV30LL (7CP62167F)	4318389	611514442	SB-Thailand	COMP	15	0	

STRESS: ESD-CHARGE DEVICE MODEL

CY62157EV30LL (7CP62157F)	4503799	RFB2191	SB-Thailand	500	9	0	
CY62157EV30LL (7CP62157F)	4503799	RFB2191	SB-Thailand	1000	3	0	
CY62157EV30LL (7CP62157F)	4503799	RFB2191	SB-Thailand	1250	3	0	

STRESS: FINAL VISUAL

CY62157EV30LL (7CP62157F)	4501549	RFB2171	SB-Thailand	COMP	585	0	
CY62157EV30LL (7CP62157F)	4503799	RFB2191	SB-Thailand	COMP	1054	0	
CY62157EV30LL (7CP62157F)	4503799	RFB2192	SB-Thailand	COMP	603	0	
CY62167EV30LL (7CP62167F)	4318389	611514441	SB-Thailand	COMP	727	0	
CY62167EV30LL (7CP62167F)	4318389	611514442	SB-Thailand	COMP	799	0	
CY62126EV30LL (7CP62126F)	4503950	611514440	SB-Thailand	COMP	1259	0	

STRESS: HI-ACCEL SATURATION TEST (110C, 85%RH, 5.5V), PRE COND 192 HR 30C/60%RH (MSL3)

CY62157EV30LL (7CP62157F)	4501549	RFB2171	SB-Thailand	264	30	0	
CY62157EV30LL (7CP62157F)	4503799	RFB2191	SB-Thailand	264	30	0	
CY62157EV30LL (7CP62157F)	4503799	RFB2192	SB-Thailand	264	30	0	
CY62167EV30LL (7CP62167F)	4318389	611514441	SB-Thailand	264	30	0	

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QTP #: 152202

Device	Fab Lot #	Assy Lot #	Ass Loc	Duration	Samp	Rej	Failure Mechanism
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STRESS: HIGH TEMP DYNAMIC OPERATING LIFE-LATENT FAILURE RATE, 125C, 1.85V

CY62157EV30LL (7CP62157F)	4501549	RFB2171	SB-Thailand	168	116	0	
CY62157EV30LL (7CP62157F)	4501549	RFB2171	SB-Thailand	1000	116	0	
CY62167EV30LL (7CP62167F)	4318389	611514441	SB-Thailand	168	116	0	
CY62167EV30LL (7CP62167F)	4318389	611514442	SB-Thailand	168	115	0	

STRESS: HIGH TEMPERATURE STORAGE, PLASTIC, 150C

CY62157EV30LL (7CP62157F)	4501549	RFB2171	SB-Thailand	500	77	0	
CY62157EV30LL (7CP62157F)	4501549	RFB2171	SB-Thailand	1000	75	0	

STRESS: INTERNAL VISUAL

CY62157EV30LL (7CP62157F)	4503799	RFB2191	SB-Thailand	COMP	5	0	
CY62167EV30LL (7CP62167F)	4318389	611514441	SB-Thailand	COMP	5	0	
CY62167EV30LL (7CP62167F)	4318389	611514442	SB-Thailand	COMP	5	0	
CY62126EV30LL (7CP62126F)	4503950	611514440	SB-Thailand	COMP	5	0	

STRESS: PHYSICAL DIMENSION

CY62167EV30LL (7CP62167F)	4318389	611514441	SB-Thailand	COMP	30	0	
CY62167EV30LL (7CP62167F)	4318389	611514442	SB-Thailand	COMP	30	0	
CY62126EV30LL (7CP62126F)	4503950	611514440	SB-Thailand	COMP	30	0	

STRESS: PRESSURE COOKER TEST (121C, 100%RH, 15 Psig), PRE COND 192 HR 30C/60%RH (MSL3)

CY62157EV30LL (7CP62157F)	4501549	RFB2171	SB-Thailand	168	80	0	
CY62157EV30LL (7CP62157F)	4503799	RFB2191	SB-Thailand	168	80	0	
CY62157EV30LL (7CP62157F)	4503799	RFB2191	SB-Thailand	288	76	0	
CY62167EV30LL (7CP62167F)	4318389	611514441	SB-Thailand	168	80	0	

STRESS: SOLDER BALL SHEAR

CY62157EV30LL (7CP62157F)	4503799	RFB2191	SB-Thailand	COMP	25	0	
CY62157EV30LL (7CP62157F)	4503799	RFB2192	SB-Thailand	COMP	25	0	
CY62167EV30LL (7CP62167F)	4318389	611514441	SB-Thailand	COMP	25	0	
CY62167EV30LL (7CP62167F)	4318389	611514442	SB-Thailand	COMP	25	0	
CY62126EV30LL (7CP62126F)	4503950	611514440	SB-Thailand	COMP	25	0	



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QTP #: 152202

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STRESS: SOLDERABILITY TEST

CY62167EV30LL (7CP62167F)	4318389	611514441	SB-Thailand	COMP	3	0	
CY62167EV30LL (7CP62167F)	4318389	611514442	SB-Thailand	COMP	3	0	
CY62126EV30LL (7CP62126F)	4503950	611514440	SB-Thailand	COMP	3	0	

STRESS: TEMPERATURE CYCLE COND. C -65C TO 150C, PRE COND 192 HRS 30C/60%RH, MSL3

CY62157EV30LL (7CP62157F)	4501549	RFB2171	SB-Thailand	500	80	0	
CY62157EV30LL (7CP62157F)	4501549	RFB2171	SB-Thailand	1000	80	0	
CY62157EV30LL (7CP62157F)	4503799	RFB2191	SB-Thailand	500	80	0	
CY62157EV30LL (7CP62157F)	4503799	RFB2191	SB-Thailand	1000	80	0	
CY62157EV30LL (7CP62157F)	4503799	RFB2192	SB-Thailand	500	79	0	
CY62157EV30LL (7CP62157F)	4503799	RFB2192	SB-Thailand	1000	79	0	
CY62167EV30LL (7CP62167F)	4318389	611514441	SB-Thailand	500	80	0	
CY62167EV30LL (7CP62167F)	4318389	611514442	SB-Thailand	500	79	0	
CY62126EV30LL (7CP62126F)	4503950	611514440	SB-Thailand	500	80	0	

STRESS: X-RAY

CY62157EV30LL (7CP62157F)	4501549	RFB2171	SB-Thailand	COMP	10	0	
CY62157EV30LL (7CP62157F)	4503799	RFB2191	SB-Thailand	COMP	10	0	
CY62157EV30LL (7CP62157F)	4503799	RFB2192	SB-Thailand	COMP	10	0	
CY62167EV30LL (7CP62167F)	4318389	611514441	SB-Thailand	COMP	10	0	
CY62167EV30LL (7CP62167F)	4318389	611514442	SB-Thailand	COMP	10	0	
CY62126EV30LL (7CP62126F)	4503950	611514440	SB-Thailand	COMP	10	0	



Document History Page

Document Title: QTP#152202: 48 FBGA (6X8X1.0MM) SN/PB & SAC105 Ball Finish, CUPD WIRE, MSL3, 260C
REFLOW, BKK-THAILAND (SB)
Document Number: 001-97938

Rev.	ECN No.	Orig. of Change	Description of Change
**	4788151	JYF	Initial spec release.

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Posting: None