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# Cypress Semiconductor Package Qualification Report

**QTP# 131010 VERSION\*\*  
May 2016**

**119 PBGA (14x22x2.4mm)  
SAC 405 Solder Ball Finish, CuPd Wire  
MSL3, 260°C Reflow  
ASE-Taiwan (G)**

**FOR ANY QUESTIONS ON THIS REPORT, PLEASE CONTACT**  
[reliability@cypress.com](mailto:reliability@cypress.com) or via a CYLINK CRM CASE

**Prepared By:**  
Josephine Pineda (JYF)  
Sr. Reliability Engineer

**Reviewed By:**  
Rene Rodgers (RT)  
Sr. MTS Reliability Engineer

**Approved By:**  
Don Darling (DCDA)  
Reliability Director

**PACKAGE QUALIFICATION HISTORY**

<b>QTP Number</b>	<b>Description of Qualification Purpose</b>	<b>Date</b>
131010	Qualification of 119 PBGA (14x22x2.4mm) at ASE-Taiwan (G) using CEL9750ZHF10AKL-U Mold Compound, Ablestik 2100A Die Attach Epoxy, SAC 405 Solder Ball Finish, 0.8 mil CuPd Wire, with MSL 3, 260°C Reflow Temperature	Nov. 2013

MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION	
Package Designation:	BY119
Package Outline, Type, or Name:	PBGA (Plastic Ball Grid Array)
Mold Compound Name/Manufacturer:	CEL9750ZHF10AKL-U/Hitachi
Mold Compound Flammability Rating:	V-0 / UL94
Oxygen Rating Index:	>28%
Substrate Material:	BT resin
Lead Finish, Composition / Thickness:	SAC 405
Die Backside Preparation Method/Metallization:	Backgrind
Die Separation Method:	Saw
Die Attach Supplier:	Ablestik
Die Attach Material:	Ablestik 2100A
Bond Diagram Designation:	001-85190
Wire Bond Method:	Thermosonic
Wire Material/Size:	CuPd, 0.8 mil
Thermal Resistance Theta JA °C/W:	20.92 °C/W
Package Cross Section Yes/No:	Yes
Assembly Process Flow:	001-96508
Name/Location of Assembly (prime) facility:	ASE-Taiwan (G)
MSL Level	3
Reflow Profile	260C

ELECTRICAL TEST / FINISH DESCRIPTION	
Test Location:	CML-R

## 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"> <li>&lt;3000 sq. mils = 1.2 kgf</li> <li>30001-5000 sq. mils = 1.2 kgf</li> <li>&gt;5001 sq. mils = 1.2 kgf</li> </ul>	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
Electrostatic Discharge Human Body Model (ESD-HBM)	1,100V/2,200V/3,300V JESD22-A114	P
Final Visual	JESD22-B101	P
High Accelerated Saturation Test (HAST)	JEDEC STD 22-A110: 110°C/130°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
Static Latch-up	85°C, +/-140mA, +/-180mA 125°C, +/-140mA JESD78	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 #: 131010

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

CY62162G30 (7CC172162AO)	9308001	611319959	G-TAIWAN	COMP	15	0	
CY62162G30 (7CC172162AO)	9308001	611319962	G-TAIWAN	COMP	15	0	
CY62162G30 (7CC172162AO)	9308001	611319961	G-TAIWAN	COMP	15	0	

### STRESS: BALL SHEAR

CY62162G30 (7CC172162AO)	9308001	611319959	G-TAIWAN	COMP	10	0	
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### STRESS: BOND PULL

CY62162G30 (7CC172162AO)	9308001	611319959	G-TAIWAN	COMP	10	0	
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### STRESS: CONSTRUCTIONAL ANALYSIS

CY62162G30 (7CC172162AO)	9308001	611319959	G-TAIWAN	COMP	5	0	
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### STRESS: DIE SHEAR

CY62162G30 (7CC172162AO)	9308001	611319959	G-TAIWAN	COMP	15	0	
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### STRESS: DYE PENETRANT TEST

CY62162G30 (7CC172162AO)	9308001	611319959	G-TAIWAN	COMP	15	0	
CY62162G30 (7CC172162AO)	9308001	611319962	G-TAIWAN	COMP	15	0	
CY62162G30 (7CC172162AO)	9308001	611319961	G-TAIWAN	COMP	15	0	

### STRESS: ESD-CHARGE DEVICE MODEL

CY62162G30 (7CC172162AO)	9308001	611319959	G-TAIWAN	500	9	0	
CY62162G30 (7CC172162AO)	9308001	611319959	G-TAIWAN	1000	3	0	
CY62162G30 (7CC172162AO)	9308001	611319959	G-TAIWAN	1250	3	0	

### STRESS: ESD-HUMAN BODY CIRCUIT PER JEDEC EIA/JESD22-A114

CY62162G30 (7CC172162AO)	9308001	611319959	G-TAIWAN	1100	3	0	
CY62162G30 (7CC172162AO)	9308001	611319959	G-TAIWAN	2200	8	0	
CY62162G30 (7CC172162AO)	9308001	611319959	G-TAIWAN	3300	3	0	

### STRESS: FINAL VISUAL

CY62162G30 (7CC172162AO)	9308001	611319959	G-TAIWAN	COMP	2946	0	
CY62162G30 (7CC172162AO)	9308001	611319962	G-TAIWAN	COMP	983	0	
CY62162G30 (7CC172162AO)	9308001	611319961	G-TAIWAN	COMP	984	0	

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**STRESS: HI-ACCEL SATURATION TEST, 130C, 85%RH, 3.65V, PRE COND 192 HR 30C/60%RH, MSL3**

CY62162G30 (7CC172162AO)	9308001	611319959	G-TAIWAN	128	39	0
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## Reliability Test Data

**QTP #: 131010**

Device	Fab Lot #	Assy Lot #	Ass Loc	Duration	Samp	Rej	Failure Mechanism
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**STRESS: HI-ACCEL SATURATION TEST, 110C, 85%RH, 3.65V, PRE COND 192 HR 30C/60%RH, MSL3**

CY62162G30 (7CC172162AO)	9308001	611319959	G-TAIWAN	264	40	0
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**STRESS: HIGH TEMPERATURE STORAGE, PLASTIC, 150C**

CY62162G30 (7CC172162AO)	9308001	611319959	G-TAIWAN	500	80	0
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CY62162G30 (7CC172162AO)	9308001	611319959	G-TAIWAN	1000	80	0
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**STRESS: INTERNAL VISUAL**

CY62162G30 (7CC172162AO)	9308001	611319959	G-TAIWAN	COMP	5	0
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**STRESS: PHYSICAL DIMENSION**

CY62162G30 (7CC172162AO)	9308001	611319959	G-TAIWAN	COMP	30	0
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**STRESS: PRESSURE COOKER TEST, 121C, 100%RH, 15 Psig, PRE COND 192 HR 30C/60%RH, MSL3**

CY62162G30 (7CC172162AO)	9308001	611319959	G-TAIWAN	168	80	0
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**STRESS: STATIC LATCH-UP TESTING, 85C, 8.25V, +/-140mA**

CY62162G30 (7CC172162AO)	9308001	611319959	G-TAIWAN	COMP	6	0
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**STRESS: STATIC LATCH-UP TESTING, 85C, 9.1V, +/-180mA**

CY62162G30 (7CC172162AO)	9308001	611319959	G-TAIWAN	COMP	2	0
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**STRESS: STATIC LATCH-UP TESTING, 125C, 8.25V, +/-140mA**

CY62162G30 (7CC172162AO)	9308001	611319959	G-TAIWAN	COMP	2	0
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**STRESS: SOLDER BALL SHEAR**

CY62162G30 (7CC172162AO)	9308001	611319959	G-TAIWAN	COMP	30	0
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CY62162G30 (7CC172162AO)	9308001	611319962	G-TAIWAN	COMP	30	0
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CY62162G30 (7CC172162AO)	9308001	611319961	G-TAIWAN	COMP	30	0
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**STRESS: TEMPERATURE CYCLE COND. C -65C TO 150C, PRE COND 192 HRS 30C/60%RH, MSL3**

CY62162G30 (7CC172162AO)	9308001	611319959	G-TAIWAN	500	79	0
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CY62162G30 (7CC172162AO)	9308001	611319959	G-TAIWAN	1000	79	0
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CY62162G30 (7CC172162AO)	9308001	611319962	G-TAIWAN	500	80	0
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CY62162G30 (7CC172162AO)	9308001	611319962	G-TAIWAN	1000	79	0
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CY62162G30 (7CC172162AO)	9308001	611319961	G-TAIWAN	500	79	0
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CY62162G30 (7CC172162AO)	9308001	611319961	G-TAIWAN	1000	78	0
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**STRESS: X-RAY**

CY62162G30 (7CC172162AO)	9308001	611319959	G-TAIWAN	COMP	15	0
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## Document History Page

Document Title: QTP# 131010: 119 PBGA (14X22X2.4MM) SAC 405 SOLDER BALL FINISH, CUPD WIRE, MSL3, 260C REFLOW, ASE-TAIWAN (G)

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Rev.	ECN No.	Orig. of Change	Description of Change
**	5285607	JYF	Initial spec release.