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# Cypress Semiconductor Package Qualification Report

**QTP# 050202 VERSION\*A  
September 2014**

**100-Ball VFBGA  
(6 x 6 x 1mm)  
Pb-Free, MSL3, 260C Reflow  
ASE-Taiwan (G)**

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

<b>QUAL REPORT</b>	<b>DESCRIPTION OF QUALIFICATION PURPOSE</b>	<b>DATE COMP.</b>
050202	100-Ball VFBGA (6 x 6 x 1mm) Pb-Free, MSL3 @260°C Reflow using KE-2270 Mold Compound, Ablestik 2025D die attach, BT Resin substrate material assembled at ASE-Taiwan	Jun 05
064802	Qualify 100-Ball VFBGA with 150 x 150mils die size	Feb 07

### MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION

<b>Package Designation:</b>	BZ100
<b>Package Outline, Type, or Name:</b>	100-Ball VFBGA (6x6x1.0mm)
<b>Mold Compound Name/Manufacturer:</b>	KE-G2270
<b>Mold Compound Flammability Rating:</b>	V-0 per UL94
<b>Oxygen Rating Index:</b>	N/A
<b>Substrate Material:</b>	BT Resin
<b>Lead Finish, Composition / Thickness:</b>	SnAgCu
<b>Die Backside Preparation Method/Metallization:</b>	Backgrinding
<b>Die Separation Method:</b>	Wafer Sawing
<b>Die Attach Supplier:</b>	Ablestik
<b>Die Attach Material:</b>	Ablebond 2025D
<b>Die Attach Method:</b>	Epoxy
<b>Bond Diagram Designation:</b>	001-07669
<b>Wire Bond Method:</b>	Thermosonic
<b>Wire Material/Size:</b>	Au. 0.8mil
<b>Thermal Resistance Theta JA C/W:</b>	44.21 °C/W
<b>Package Cross Section Yes/No:</b>	N/A
<b>Assembly Process Flow:</b>	001-06964
<b>Name/Location of Assembly (prime) facility:</b>	ASE-Taiwan (G)
<b>MSL Level</b>	3
<b>Reflow Profile</b>	260C

### ELECTRICAL TEST / FINISH DESCRIPTION

<b>Test Location:</b>	Cypress Philippines (CML-R)
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# RELIABILITY TESTS PERFORMED PER SPECIFICATION REQUIREMENTS

Stress/Te st	Test (Temp/Bias	Result P/F
High Accelerated Saturation Test (HAST)	130°C, 3.3V, 85%RH Precondition: JESD22 Moisture Sensitivity MSL3 192 Hrs 30°C/60%RH+3IR-Reflow, 260°C+0, -5°C	P
Pressure Cooker Test	121°C, 100%RH, 15 Psig Precondition: JESD22 Moisture Sensitivity MSL3 192 Hrs 85°C/85%RH+3IR-Reflow, 260°C+0, -5°C	P
Temperature Cycle	MIL-STD-883C, Method 1010, Condition C, -65°C to 150C Precondition: JESD22 Moisture Sensitivity MSL3 192 Hrs 85°C/85%RH+3IR-Reflow, 260°C+0, -5°C	P
High Temperature Storage	150°C, no bias	P
Thermal Shock	MIL-STD-883C, Method 1011	P
Electrostatic Discharge Charge Device Model (ESD-CDM)	500V JESD22-C101	P
Electrostatic Discharge Human Body Model (ESD-HBM)	2,200V JESD-22 Method A114-B	P
Electrostatic Discharge Human Body Model (ESD-HBM)	2,200V MIL-STD-883C, Method 3015.7	P
Acoustic Microscopy Test	J-STD-020	P
Ball Shear	JESD22-B116A	P
Bond Pull	MIL-STD-883 – Method 2011	P
Die Shear	MIL-STD-883, Method 2019	P
External Visual	MIL-PRF-38535, MILSTD-883, METHOD 2009,	P
Internal Visual	MIL-STD-883-2014	P
Physical Dimension	MIL-STD-1835, JESD22-B100	P
X-Ray	MIL-STD-883 - 2012	P



## Reliability Test Data

**QTP #: 050202**

<b>Device</b>	<b>Fab Lot #</b>	<b>Assy Lot #</b>	<b>Assy Loc</b>	<b>Duration</b>	<b>Samp</b>	<b>Rej</b>	<b>Failure Mechanism</b>
<b>STRESS: ACOUSTIC, MSL3</b>							
CYDM256A16 (7C02618A)	4503160	610510254	TAIWAN-G	COMP	15	0	
CYDM256A16 (7C02618A)	4503160	610510280	TAIWAN-G	COMP	15	0	
CYDM256A16 (7C02618A)	4503160	610510373	TAIWAN-G	COMP	15	0	
<b>STRESS: BALL SHEAR</b>							
CYDM256A16 (7C02618A)	4503160	610510254	TAIWAN-G	COMP	10	0	
<b>STRESS: BOND PULL</b>							
CYDM256A16 (7C02618A)	4503160	610510254	TAIWAN-G	COMP	10	0	
<b>STRESS: DIE SHEAR</b>							
CYDM256A16 (7C02618A)	4503160	610510254	TAIWAN-G	COMP	15	0	
<b>STRESS: EXTERNAL VISUAL</b>							
CYDM256A16 (7C02618A)	4503160	610510254	TAIWAN-G	COMP	15	0	
<b>STRESS: INTERNAL VISUAL</b>							
CYDM256A16 (7C02618A)	4503160	610510254	TAIWAN-G	COMP	5	0	
<b>STRESS: PHYSICAL DIMENSION</b>							
CYDM256A16 (7C02618A)	4503160	610510254	TAIWAN-G	COMP	5	0	
<b>STRESS: ESD-CHARGE BODY MODEL, 500V</b>							
CYDM256A16 (7C02618A)	4503160	610510254	TAIWAN-G	COMP	9	0	
<b>STRESS: ESD-HUMAN BODY CIRCUIT PER JESD22, METHOD A114-B, 2,200V</b>							
CYDM256A16 (7C02618A)	4503160	610510254	TAIWAN-G	COMP	9	0	
<b>STRESS: ESD-HUMAN BODY CIRCUIT PER MIL-STD 883, METHOD 3015, 2,200V</b>							
CYDM256A16 (7C02618A)	4503160	610510254	TAIWAN-G	COMP	3	0	
<b>STRESS: HIGH TEMPERATURE STORAGE</b>							
CYDM256A16 (7C02618A)	4503160	610510254	TAIWAN-G	500	50	0	
CYDM256A16 (7C02618A)	4503160	610510254	TAIWAN-G	1000	50	0	
<b>STRESS: HI-ACCEL SATURATION TEST, 130C, 85%RH, 3.3V, PRE COND 192 HR 30C/60%RH, MSL3</b>							
CYDM256A16 (7C02618A)	4503160	610510254	TAIWAN-G	128	48	0	



## Reliability Test Data

**QTP #: 050202**

<b>Device</b>	<b>Fab Lot #</b>	<b>Assy Lot #</b>	<b>Assy Loc</b>	<b>Duration</b>	<b>Samp</b>	<b>Rej</b>	<b>Failure Mechanism</b>
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**STRESS: PRESSURE COOKER TEST, 121C, 100%RH, 15 Psig, PRE COND 192 HR 30C/60%RH, MSL3**

CYDM256A16 (7C02618A)	4503160	610510254	TAIWAN-G	168	50	0	
CYDM256A16 (7C02618A)	4503160	610510254	TAIWAN-G	288	48	0	

**STRESS: TC COND. C -65C TO 150C, PRE COND 192 HR 30C/60%RH, MSL3**

CYDM256A16 (7C02618A)	4503160	610510254	TAIWAN-G	300	50	0	
CYDM256A16 (7C02618A)	4503160	610510254	TAIWAN-G	500	50	0	
CYDM256A16 (7C02618A)	4503160	610510254	TAIWAN-G	1000	50	0	
CYDM256A16 (7C02618A)	4503160	610510280	TAIWAN-G	300	50	0	
CYDM256A16 (7C02618A)	4503160	610510373	TAIWAN-G	300	50	0	

**STRESS: THERMAL SHOCK**

CYDM256A16 (7C02618A)	4503160	610510254	TAIWAN-G	100	50	0	
CYDM256A16 (7C02618A)	4503160	610510254	TAIWAN-G	200	50	0	

**STRESS: X-RAY**

CYDM256A16 (7C02618A)	4503160	610510254	TAIWAN-G	COMP	15	0	
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## Reliability Test Data

**QTP #: 064802**

<b>Device</b>	<b>Fab Lot #</b>	<b>Assy Lot #</b>	<b>Assy Loc</b>	<b>Duration</b>	<b>Samp</b>	<b>Rej</b>	<b>Failure Mechanism</b>
<b>STRESS: ACOUSTIC, MSL3</b>							
CYWB0124AB (7C07100A)	4636435	610665106	TAIWAN-G	COMP	15	0	
CY62167DV30LL (7C62167D)	4310393	610318262	TAIWAN-G	COMP	15	0	
CY62167DV30LL (7C62167D)	4309094	610316588	TAIWAN-G	COMP	15	0	
<b>STRESS: BALL SHEAR</b>							
CYWB0124AB (7C07100A)	4636435	610665106	TAIWAN-G	COMP	10	0	
<b>STRESS: BOND PULL</b>							
CYWB0124AB (7C07100A)	4636435	610665106	TAIWAN-G	COMP	10	0	
CYWB0124AB (7C07100A)	4638176	610702742	TAIWAN-G	COMP	10	0	
<b>STRESS: CONSTRUCTIONAL ANALYSIS</b>							
CYWB0124AB (7C07100A)	4636435	610665106	TAIWAN-G	COMP	1	0	
<b>STRESS: DIE SHEAR</b>							
CYWB0124AB (7C07100A)	4636435	610665106	TAIWAN-G	COMP	15	0	
CYWB0124AB (7C07100A)	4638176	610702742	TAIWAN-G	COMP	15	0	
<b>STRESS: DYE PENETRATION</b>							
CYWB0124AB (7C07100A)	4636435	610665106	TAIWAN-G	COMP	15	0	
<b>STRESS: INTERNAL VISUAL</b>							
CYWB0124AB (7C07100A)	4636435	610665106	TAIWAN-G	COMP	5	0	
CY62167DV30LL (7C62167D)	4309094	610316588	TAIWAN-G	COMP	5	0	
<b>STRESS: X-RAY</b>							
CYWB0124AB (7C07100A)	4636435	610665106	TAIWAN-G	COMP	15	0	





## Reliability Test Data

**QTP #: 064802**

<b>Device</b>	<b>Fab Lot #</b>	<b>Assy Lot #</b>	<b>Assy Loc</b>	<b>Duration</b>	<b>Samp</b>	<b>Rej</b>	<b>Failure Mechanism</b>
<b>STRESS: TC COND. C -65C TO 150C, PRE COND 192 HR 30C/60%RH, MSL3</b>							
CYWB0124AB (7C07100A)	4636435	610665106	TAIWAN-G	300	45	0	
CYWB0124AB (7C07100A)	4636435	610665106	TAIWAN-G	500	45	0	
CY62167DV30LL (7C62167D)	4310393	610318262	TAIWAN-G	300	45	0	
CY62167DV30LL (7C62167D)	4310393	610318262	TAIWAN-G	500	45	0	
CY62167DV30LL (7C62167D)	4310393	610318262	TAIWAN-G	1000	45	0	
CY62167DV30LL (7C62167D)	4309094	610316588	TAIWAN-G	300	45	0	
CY62167DV30LL (7C62167D)	4309094	610316588	TAIWAN-G	500	45	0	
CY62167DV30LL (7C62167D)	4309094	610316588	TAIWAN-G	1000	43	0	



## Document History Page

Document Title: QTP#050202:100-Ball VFBGA (6 x 6 x 1mm) Pb-Free, MSL3, 260C Reflow ASE-Taiwan (G)  
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Rev.	ECN No.	Orig. of Change	Description of Change
**	4142014	HSTO	Initial Spec Release Initiate report as per memo LGQ-694.
*A	4516872	HSTO	Align qualification report based on the new template in the front page

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