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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, PLEAE CONTACT
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PACKAGE QUALIFICATION HISTORY

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

ELECTRICAL TEST / FINISH DESCRIPTION	
Test Location:	Cypress Philippines (CML-R)

RELIABILITY TESTS PERFORMED PER SPECIFICATION REQUIREMENTS

Stress/Test	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

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

Reliability Test Data

QTP #: 050202

Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
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	

Reliability Test Data

QTP #: 064802

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

Reliability Test Data

QTP #: 064802

Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: TC COND. C -65C TO 150C, PRE COND 192 HR 30C/60%RH, MSL3							
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

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Document Number: 001-89464

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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