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# Cypress Semiconductor Package Qualification Report

**QTP# 033105 VERSION\*A  
October 2014**

**48-ball Fine Pitch Ball Grid Array (FBGA)  
(8 x 9.5 x 1.0mm & 6 x 8 x 1.0mm) MSL3,  
Pb-Free, 260°C 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>
030102	48-ball (8 x 9.5 x 1.0m) Fine Pitch Ball Grid Array (FBGA) ASE Taiwan (G) Assembly	July 03
033105	Qualify by extension 8 x 9.5 x 1.0mm and 6 x 8 x 1.0mm 48-ball FBGA assembled ASE-Taiwan (G) using Toshiba G1270MC, Ablestik 2025D D/A Epoxy and SnAg(4%), Cu(0.5%), Pb-Free Solder Balls at 260C Reflow	Sep 03

MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION	
Package Designation:	BV48
Package Outline, Type, or Name:	48-ball FBGA (8 x 9.5 x 1.0m) Fine Pitch Ball Grid Array
Mold Compound Name/Manufacturer:	Toshiba G1270MC
Mold Compound Flammability Rating:	V-O per UL94
Oxygen Rating Index:	>28%
Substrate Material:	BT Resin
Lead Finish, Composition / Thickness:	SnAg (4%), Cu (0.5%), Pb-Free
Die Backside Preparation Method/Metallization:	Backgrind
Die Separation Method:	Wafer Saw
Die Attach Supplier:	Ablestik
Die Attach Material:	Ablestik 2025D
Die Attach Method:	Epoxy
Bond Diagram Designation:	10-05014
Wire Bond Method:	Thermosonic
Wire Material/Size:	Au, 1.0um
Thermal Resistance Theta JA °C/W:	35.85°C/W
Package Cross Section Yes/No:	N/A
Name/Location of Assembly (prime) facility:	ASE Taiwan (Taiwan-G)

ELECTRICAL TEST / FINISH DESCRIPTION	
Test Location:	Cypress Philippines (CML-R)
Fault Coverage:	100%

# RELIABILITY TESTS PERFORMED PER SPECIFICATION REQUIREMENTS

Stress/Test	Test Condition (Temp/Bias)	Result P/F
High Temperature Operating Life Early Failure Rate	Dynamic Operating Condition, Vcc Max = 2.4V, 125°C	P
High Temperature Operating Life Latent Failure Rate	Dynamic Operating Condition, Vcc Max = 2.4V, 150°C	P
Electrostatic Discharge Human Body Model (ESD-HBM)	2,200V MIL-STD-883, Method 3015.7	P
Electrostatic Discharge Charge Device Model (ESD-CDM)	500V JESD22-C101	P
Temperature Cycle	JEDEC22, Condition C, -65°C to 150°C Precondition: JESD22 Moisture Sensitivity MSL3 192 Hrs., 30°C/60%RH+3IR-Reflow, 260°C+5, -0°C	P
High Accelerated Saturation	130°C/3.6V, 85%RH Precondition: JESD22 Moisture Sensitivity MSL3 192 Hrs., 30°C/60%RH+3IR-Reflow, 260°C+5, -0°C	P
Pressure Cooker	121C, 100%RH Precondition: JESD22 Moisture Sensitivity MSL3 192 Hrs., 30°C/60%RH+3IR-Reflow, 260°C+5, -0°C	P
High Temperature Storage	150C, no bias	P
Internal Visual	MIL-STD-883-2014	P
External Visual	MIL-PRF-38535, MILSTD-883, METHOD 2009	P
Physical Dimension	MIL-STD-1835, JESD22-B100	P
Die Shear	MIL-STD-883, Method 2019	P
Ball Shear	JESD22-B116A	P
Bond Pull	MIL-STD-883 – Method 2011	P
Thermal Shock	125C, -55C MIL-STD-883C, Method 1011	P
X-Ray	MIL-STD-883 - 2012	P
Acoustic Microscopy Test MSL3	J-STD-020	P

## Reliability Test Data

**QTP #: 030102**

<b>Device</b>	<b>Fab Lot #</b>	<b>Assy Lot #</b>	<b>Ass Loc</b>	<b>Duration</b>	<b>Samp</b>	<b>Rej</b>	<b>Failure Mechanism</b>
<b>STRESS: ACOUSTIC, MSL3</b>							
CY62167DV30L (7C62167D)	4309094	610316588	TAIWN -G	COMP	15	0	
CY62167DV30L (7C62167D)	4309094	610316809	TAIWN -G	COMP	15	0	
<b>STRESS: HIGH TEMP DYNAMIC OPERATING LIFE-EARLY FAILURE RATE, 125C, 2.4V, Vcc Max</b>							
CY62167DV30L (7C62167D)	4309094	610316958	TAIWN -G	96	741	0	
CY62167DV30L (7C62167D)	4306633	610311763	TAIWN -G	96	1568	0	
CY62167DV30L (7C62167D)	4309094	610316958N	TAIWN -G	96	741	0	
<b>STRESS: HIGH TEMP DYNAMIC OPERATING LIFE-LATENT FAILURE RATE, 125C, 2.4V, Vc c Max</b>							
CY62167DV30L (7C62167D)	4309094	610316958	TAIWN -G	80	410	0	
CY62167DV30L (7C62167D)	4309094	610316958	TAIWN -G	500	410	0	
CY62167DV30L (7C62167D)	4309094	610316958N	TAIWN -G	80	410	0	
CY62167DV30L (7C62167D)	4309094	610316958N	TAIWN -G	500	410	0	
CY62167DV30L (7C62167D)	4306633	610311763	TAIWN -G	80	409	0	
CY62167DV30L (7C62167D)	4306633	610311763	TAIWN -G	500	408	0	
CY62167DV30L (7C62167D)	4306633	610311763N	TAIWN -G	80	409	0	
CY62167DV30L (7C62167D)	4306633	610311763N	TAIWN -G	500	408	0	
<b>STRESS: BALL SHEAR</b>							
CY62167DV30L (7C62167D)	4310393	610320742	TAIWN -G	COMP	24	0	
CY62167DV30L (7C62167D)	4310393	610318262	TAIWN -G	COMP	10	0	
<b>STRESS: DIE SHEAR</b>							
CY62167DV30L (7C62167D)	4310393	610320742	TAIWN -G	COMP	5	0	
CY62167DV30L (7C62167D)	4310393	610318262	TAIWN -G	COMP	15	0	
<b>STRESS: PHYSICAL DIMENSIONS</b>							
CY62167DV30L (7C62167D)	4310393	610320742	TAIWN -G	COMP	5	0	
CY62167DV30L (7C62167D)	4310393	610318262	TAIWN -G	COMP	5	0	
<b>STRESS: INTERNAL VISUAL</b>							
CY62167DV30L (7C62167D)	4310393	610320742	TAIWN -G	COMP	15	0	
CY62167DV30L (7C62167D)	4310393	610318262	TAIWN -G	COMP	5	0	

## Reliability Test Data

**QTP #: 030102**

<b>Device</b>	<b>Fab Lot #</b>	<b>Assy Lot #</b>	<b>Ass Loc</b>	<b>Duration</b>	<b>Samp</b>	<b>Rej</b>	<b>Failure Mechanism</b>
<b>STRESS: ESD-CHARGE DEVICE MODEL, 500V</b>							
CY62167DV30L (7C62167D)	4309094	610316958	TAIWN -G	COMP	9	0	
CY62167DV30L (7C62167D)	4306633	610311763	TAIWN -G	COMP	9	0	
<b>STRESS: ESD-HUMAN BODY CIRCUIT PER MIL STD 883, METHOD 3015, 2200V</b>							
CY62167DV30L (7C62167D)	4309094	610316958	TAIWN -G	COMP	9	0	
CY62167DV30L (7C62167D)	4306633	610311763	TAIWN -G	COMP	9	0	
<b>STRESS: BOND PULL</b>							
CY62167DV30L (7C62167D)	4310393	610320742	TAIWN -G	COMP	24	0	
CY62167DV30L (7C62167D)	4310393	610318262	TAIWN -G	COMP	10	0	
<b>STRESS: EXTERNAL VISUAL</b>							
CY62167DV30L (7C62167D)	4310393	610318262	TAIWN -G	COMP	15	0	
CY62167DV30L (7C62167D)	4310393	610320742	TAIWN -G	COMP	315	0	
<b>STRESS: X-RAY</b>							
CY62167DV30L (7C62167D)	4310393	610320742	TAIWN -G	COMP	76	0	
CY62167DV30L (7C62167D)	4310393	610318262	TAIWN -G	COMP	15	0	
CY62167DV30L (7C62167D)	4309094	610316588	TAIWN -G	COMP	15	0	
<b>STRESS: HIGH TEMPERATURE STORAGE, PLASTIC, 150C</b>							
CY62167DV30L (7C62167D)	4309094	610316588	TAIWN -G	500	45	0	
CY62167DV30L (7C62167D)	4309094	610316588	TAIWN -G	1000	45	0	
<b>STRESS: PRESSURE COOKER TEST (121C, 100%RH), PRE COND 192 HR 30C/60%RH, MSL3</b>							
CY62167DV30L (7C62167D)	4309094	610316588	TAIWN -G	168	40	0	
CY62167DV30L (7C62167D)	4309094	610316958	TAIWN -G	168	43	0	
<b>STRESS: HI-ACCEL SATURATION TEST (130C, 85%RH, 3.6V), PRE COND 192 HR 30C/60%RH, MSL3</b>							
CY62167DV30L (7C62167D)	4309094	610316588	TAIWN -G	128	44	0	
CY62167DV30L (7C62167D)	4309094	610316809	TAIWN -G	128	43	0	
<b>STRESS: THERMAL SHOCK, 125c / -55C</b>							
CY62167DV30L (7C62167D)	4309094	610316958	TAIWN -G	100	45	0	
CY62167DV30L (7C62167D)	4309094	610316958	TAIWN -G	200	45	0	

## Reliability Test Data

**QTP #: 030102**

<b>Device</b>	<b>Fab Lot #</b>	<b>Assy Lot #</b>	<b>Ass Loc</b>	<b>Duration</b>	<b>Samp</b>	<b>Rej</b>	<b>Failure Mechanism</b>
<b>STRESS: TC COND. C -65C TO 150C, PRECONDITION 192 HRS 30C/60%RH, MSL3</b>							
CY62167DV30L (7C62167D)	4310393	610318262	TAIWN -G	300	45	0	
CY62167DV30L (7C62167D)	4310393	610318262	TAIWN -G	500	45	0	
CY62167DV30L (7C62167D)	4310393	610318262	TAIWN -G	1000	45	0	
CY62167DV30L (7C62167D)	4309094	610316958	TAIWN -G	300	45	0	
CY62167DV30L (7C62167D)	4309094	610316958	TAIWN -G	500	45	0	
CY62167DV30L (7C62167D)	4309094	610316958	TAIWN -G	1000	43	0	
CY62167DV30L (7C62167D)	4309094	610316809	TAIWN -G	300	44	0	
CY62167DV30L (7C62167D)	4309094	610316809	TAIWN -G	500	44	0	
CY62167DV30L (7C62167D)	4309094	610316809	TAIWN -G	1000	44	0	



## Document History Page

Document Title: QTP# 033105: 48-ball Fine Pitch Ball Grid Array (FBGA) (8 x 9.5 x 1.0mm & 6 x 8 x 1.0mm) MSL3, Pb-Free, 260C Reflow ASE-Taiwan (G)

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Rev.	ECN No.	Orig. of Change	Description of Change
**	4189290	HSTO	Initial Spec Release Initiate report as per memo LGQ-135.
*A	4552290	HSTO	Align qualification report based on the new template in the front page

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