

# **Cypress Semiconductor Package Qualification Report**

**QTP# 031106 VERSION 1.0  
July, 2003**

**235°C MSL3 Reflow Temp for 6 x 8 x 1.0mm  
48-pin Very Fine Ball Grid Array (VFBGA)  
Cypress Philippines Assembly**

## **CYPRESS TECHNICAL CONTACT FOR QUALIFICATION DATA:**

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**PACKAGE QUALIFICATION HISTORY**

<b>QUAL REPORT</b>	<b>DESCRIPTION OF QUALIFICATION PURPOSE</b>	<b>DATE COMP.</b>
023201	48-ball (6 x 8 x 1mm/6 x 10 x 1 mm) FBGA with die size $\leq 165.8 \times 328.2$ mils assembled @ CML-R	Oct 02
031106	235C MSL3 Reflow Temp for 11 Mil Wafer thickness VFBGA 6 x 8 x 1.00mm @ CML-R Autoline	May 03

<b>MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION</b>	
<b>Package Designation:</b>	BA48
<b>Package Outline, Type, or Name:</b>	Very Fine-Pitch Ball Grid Array (6 x 8 x 1.0mm) VFBGA
<b>Mold Compound Name/Manufacturer:</b>	Plaskon SMT B 1 LAR
<b>Mold Compound Flammability Rating:</b>	V-O per UL 94
<b>Oxygen Rating Index:</b>	>34%
<b>Substrate Material:</b>	BT Resin
<b>Lead Finish, Composition / Thickness:</b>	Solder Balls 62%Sn - 37% Pb
<b>Die Backside Preparation Method/Metallization:</b>	Grinding
<b>Die Separation Method:</b>	Sawing
<b>Die Attach Supplier:</b>	Dexter
<b>Die Attach Material:</b>	QMI 506
<b>Bond Diagram Designation</b>	10-04709
<b>Wire Bond Method:</b>	Thermosonic
<b>Wire Material/Size:</b>	Gold, 1.0mil
<b>Thermal Resistance Theta JA °C/W:</b>	73°C/W
<b>Package Cross Section Yes/No:</b>	N/A
<b>Assembly Process Flow:</b>	11-20034
<b>Name/Location of Assembly (prime) facility:</b>	Cypress Philippines (CML-R)

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

**Note:** Please contact a Cypress Representative for other packages availability.

**RELIABILITY TESTS PERFORMED PER SPECIFICATION REQUIREMENT**

Stress/Test	Test Condition (Temp/Bias)	Result P/F
Temperature Cycle	Precondition: JESD22 Moisture Sensitivity MSL 3 192 Hrs., 30°C/60%RH+3IR-Reflow, 220°C+5, -0°C Precondition: JESD22 Moisture Sensitivity MSL 3 192 Hrs., 30°C/60%RH+3IR-Reflow, 235°C+5, -0°C MIL-STD-883C, Method 1010, Condition C, -65°C to 150°C	P
High Accelerated Saturation Test	130°C, 3.63V Precondition: JESD22 Moisture Sensitivity MSL 3 192 Hrs., 30°C/60%RH+3IR-Reflow, 220°C+5, -0°C 130°C, 1.98V Precondition: JESD22 Moisture Sensitivity MSL 3 192 Hrs, 30°C/60%RH+3IR-Reflow, 235°C+5, 0°C	P
Pressure Cooker Test	Precondition: JESD22 Moisture Sensitivity MSL 3 192 Hrs., 30°C/60%RH+3IR-Reflow, 220°C+5, -0°C Precondition: JESD22 Moisture Sensitivity MSL 3 192 Hrs 30°C/60%RH+3IR-Reflow, 235°C+5, 0°C 121°C, 100%RH	P
Internal Visual	Cypress Specification 25-00017	P
External Visual	Cypress Specification 12-00292	P
Ball Shear	Cypress Spec 24-00018	P
High Temperature Storage	150°C, no bias	P
Physical Dimensions	Cypress Specification 25-00031	P
Bond Pull	Cypress Spec 24-00002	P
Thermal Shock	125C, -55C Cypress Spec 25-00014	P
Die Shear	Cypress Specification 12-00292	P
X-Ray	MIL-STD-883-2012	P
Acoustic Microscopy Test , MSL3	Cypress Spec 25-00104	P

## Reliability Test Data

QTP #: 023201

<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>							
CY62157CV30LL- (7C62157C)	4156436	610228211	CML-R	COMP	15	0	
CY62157CV30LL- (7C62157C)	4156436	610228210	CML-R	COMP	15	0	
CY62157CV30LL- (7C62157C)	4156436	610228209	CML-R	COMP	15	0	
<b>STRESS: HI-ACCEL SATURATION TEST, 130C, 85%RH, 1. 98V, PRE COND 192 HR 30C/60%RH, MSL3</b>							
CY62157CV30LL- (7C62157C)	4156436	610228211	CML-R	128	48	0	
<b>STRESS: PRESSURE COOKER TEST, 121C, 100%RH, PRE COND 192 HR 30C/60%RH, MSL3</b>							
CY62157CV30LL- (7C62157C)	4156436	610228211	CML-R	168	48	0	
<b>STRESS: ESD-CHARGE DEVICE MODEL, 500V</b>							
CY62157CV30LL- (7C62157C)	4150436	610228209	CML-R	COMP	9	0	
<b>STRESS: ESD-HUMAN BODY CIRCUIT PER MIL STD 883, METHOD 3015, 2,200V</b>							
CY62157CV30LL- (7C62157C)	4150436	610228209	CML-R	COMP	9	0	
<b>STRESS: PHYSICAL DIMENSIONS</b>							
CY62157CV30LL- (7C62157C)	4156436	610228211	CML-R	COMP	5	0	
<b>STRESS: EXTERNAL VISUAL</b>							
CY62157CV30LL- (7C62157C)	4156436	610228211	CML-R	COMP	15	0	
<b>STRESS: INTERNAL VISUAL</b>							
CY62157CV30LL- (7C62157C)	4156436	610228211	CML-R	COMP	5	0	
<b>STRESS: X-RAY</b>							
CY62157CV30LL- (7C62157C)	4156436	610228211	CML-R	COMP	15	0	
<b>STRESS: THERMAL SHOCK, 125C / -55C</b>							
CY62157CV30LL- (7C62157C)	4156436	610228211	CML-R	100	50	0	
CY62157CV30LL- (7C62157C)	4156436	610228211	CML-R	200	50	0	
<b>STRESS: HIGH TEMPERATURE STORAGE, PLASTIC, 150C</b>							
CY62157CV30LL- (7C62157C)	4156436	610228211	CML-R	500	50	0	
CY62157CV30LL- (7C62157C)	4156436	610228211	CML-R	1000	50	0	
<b>STRESS: BALL SHEAR</b>							
CY62157CV30LL- (7C62157C)	4156436	610228211	CML-R	COMP	3	0	

## Reliability Test Data

QTP #: 023201

<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: DIE SHEAR</b>							
CY62157CV30LL- (7C62157C)	4156436	610228211	CML-R	COMP	15	0	
<b>STRESS: BOND PULL</b>							
CY62157CV30LL- (7C62157C)	4156436	610228211	CML-R	COMP	3	0	
<b>STRESS: TC COND. C -65C TO 150C, PRECONDITION 192 HRS 30C/60%RH, MSL3</b>							
CY62157CV30LL- (7C62157C)	4156436	610228211	CML-R	300	49	0	
CY62157CV30LL- (7C62157C)	4156436	610228211	CML-R	500	49	0	
CY62157CV30LL- (7C62157C)	4156436	610228211	CML-R	1000	49	0	
CY62157CV30LL- (7C62157C)	4156436	610228210	CML-R	300	50	0	
CY62157CV30LL- (7C62157C)	4156436	610228210	CML-R	500	50	0	
CY62157CV30LL- (7C62157C)	4156436	610228210	CML-R	1000	50	0	
CY62157CV30LL- (7C62157C)	4156436	610228209	CML-R	300	50	0	
CY62157CV30LL- (7C62157C)	4156436	610228209	CML-R	500	50	0	
CY62157CV30LL- (7C62157C)	4156436	610228209	CML-R	1000	50	0	

## Reliability Test Data

QTP #: 031106

Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
<b>STRESS: ACOUSTIC - MICROSCOPE MSL3</b>							
CY62357DV18LL (7C6357D)	4237690	610251338	CSPI-R	COMP	15	0	
CY62357DV18LL (7C6357D)	4237690	610251340	CSPI-R	COMP	15	0	
CY62357DV18LL (7C6357D)	4237689	610251339	CSPI-R	COMP	15	0	
<b>STRESS: HI-ACCEL SATURATION TEST (130C, 85%RH, 1.98V)PRE COND 192 HR 30C/60%RH</b>							
CY62357DV18LL (7C6357D)	4237689	610305373	CSPI-R	128	49	0	
<b>STRESS: PRESSURE COOKER TEST (121C, 100%RH), PRE COND 192HRS 30C/60%RH</b>							
CY62357DV18LL (7C6357D)	4309199	610314780	CSPI-R	168	48	0	
<b>STRESS: TC CONDITION C, -65C TO 150C, PRE COND. 192 HRS 30C/60% RH</b>							
CY62357DV18LL (7C6357D)	4237690	610251338	CSPI-R	300	46	0	
CY62357DV18LL (7C6357D)	4237690	610251338	CSPI-R	1000	45	0	
CY62357DV18LL (7C6357D)	4237690	610251340	CSPI-R	300	43	0	
CY62357DV18LL (7C6357D)	4237690	610251340	CSPI-R	1000	43	0	
CY62357DV18LL (7C6357D)	4237689	610251339	CSPI-R	300	45	0	
CY62357DV18LL (7C6357D)	4237689	610251339	CSPI-R	1000	45	0	