

Cypress Semiconductor Package Qualification Report

**QTP# 042704 VERSION 1.0
August 2004**

**1.2mm Fine Pitch Ball Grid Array (FBGA)
(7 mils Backgrind Thickness)
MSL3, 240C Solder Reflow
Cypress Philippines Autoline Assembly**

CYPRESS TECHNICAL CONTACT FOR QUALIFICATION DATA:

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PACKAGE QUALIFICATION HISTORY

QUAL REPORT	DESCRIPTION OF QUALIFICATION PURPOSE	DATE COMP.
003103	48-ball FBGA (7mm x 8.5mm) with die size $\leq 232.9 \times 248.6$ mils, MSL3, CSPI-R Assembly	Feb 01
042704	1.2mm FBGA (7 mils Backgrind Thickness) with die size $\leq 232.9 \times 248.6$ mils, MSL3, 240C Reflow, CML Autoline Assembly	Aug 04

MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION	
Package Designation:	BA48
Package Outline, Type, or Name:	Fine-Pitch Ball Grid Array (7mm x 8.5mm x 1.2mm) FBGA
Mold Compound Name/Manufacturer:	Plaskon SMT B I N – LAR
Mold Compound Flammability Rating:	N/A
Oxygen Rating Index:	N/A
Substrate Material:	BT Resin
Lead Finish, Composition / Thickness:	Solder Balls 62% Sn - 36% Pb – 2%Ag
Die Backside Preparation Method/Metallization:	N/A
Die Separation Method:	Wafer Saw
Die Attach Supplier:	Dexter
Die Attach Material:	QMI 506
Bond Diagram Designation	10-03532
Wire Bond Method:	Ball Bond
Wire Material/Size:	Gold, 1.0mil
Thermal Resistance Theta JA °C/W:	80 °C/W
Package Cross Section Yes/No:	N/A
Assembly Process Flow:	11-20034
Name/Location of Assembly (prime) facility:	Cypress Philippines (CML-RA)

ELECTRICAL TEST / FINISH DESCRIPTION	
Test Location:	Cypress Philippines (CML-R)
Fault Coverage:	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
Acoustic Microscopy Test (C-SAM)	Cypress Spec 25-00104	P
Ball Shear	Cypress Spec 24-00018	P
Bond Pull	Cypress Spec 24-00002	P
Die Shear	Cypress Specification 12-00292	P
External Visual	Cypress Specification 12-00292	P
Thermal Shock	125C, -55C Cypress Spec 25-00014	P
High Temperature Storage	150°C, no bias	P
Internal Visual	Cypress Specification 25-00017	P
Physical Dimensions	Cypress Specification 25-00031	P
X-Ray	MIL-STD-883-2012	P
High Accelerated Saturation 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, 240°C +5, -0°C MIL-STD-883C, Method 1010, Condition C, -65°C to 150°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, 240°C +5, -0°C MIL-STD-883C, Method 1010, Condition C, -65°C to 150°C	P
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, 240°C +5, -0°C MIL-STD-883C, Method 1010, Condition C, -65°C to 150°C	P

Reliability Test Data

QTP #: 003103

Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: ACOUSTIC - MICROSCOPE (MSL3)							
CY62146VLL-BA (7C621464B)	4021372	610034867	CSPI-R	COMP	15	0	
CY62146VLL-BA (7C621464B)	4022374	610035011	CSPI-R	COMP	15	0	
CY62146VLL-BA (7C621464B)	4021244	610035012	CSPI-R	COMP	15	0	
STRESS: HI-ACCEL SATURATION TEST (130C, 85%RH, 3.63V)PRE COND 192 HR 30C/60%RH (MSL3)							
CY62146VLL-BA (7C621464B)	4021244	610035012	CSPI-R	128	48	0	
STRESS: HIGH TEMP STORGAGE, PLASTIC, 150C							
CY62146VLL-BA (7C621464B)	4021372	610034867	CSPI-R	500	50	0	
STRESS: PRESSURE COOKER TEST (121C, 100%RH), PRE COND 192HRS 30C/60%RH (MSL3)							
CY62146VLL-BA (7C621464B)	4022374	610035011	CSPI-R	168	50	0	
CY62146VLL-BA (7C621464B)	4021372	610034867	CSPI-R	168	50	0	
STRESS: THERMAL SHOCK, CONDITION B 125C, -55C							
CY62146VLL-BA (7C621464B)	4021372	610034867	CSPI-R	100	50	0	
STRESS: PHYSICAL DIMENSIONS							
CY62146VLL-BA (7C621464B)	4021372	610034867	CSPI-R	COMP	5	0	
STRESS: X-RAY							
CY62146VLL-BA (7C621464B)	4021372	610034867	CSPI-R	COMP	15	0	
STRESS: DIE SHEAR							
CY62146VLL-BA (7C621464B)	4021372	610034867	CSPI-R	COMP	15	0	
STRESS: BOND PULL							
CY62146VLL-BA (7C621464B)	4021372	610034867	CSPI-R	COMP	10	0	
STRESS: BALL SHEAR							
CY62146VLL-BA (7C621464B)	4021372	610034867	CSPI-R	COMP	10	0	
STRESS: INTERNAL VISUAL							
CY62146VLL-BA (7C621464B)	4021372	610034867	CSPI-R	COMP	5	0	
STRESS: EXTERNAL VISUAL							
CY62146VLL-BA (7C621464B)	4021372	610034867	CSPI-R	COMP	15	0	

Reliability Test Data

QTP #: 003103

Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: TC CONDITION C, -65C TO 150C, PRE COND. 192 HRS 30C/60% RH (MSL3)							
CY62146VLL-BA (7C621464B)	4021244	610035012	CSPI-R	300	48	0	
CY62146VLL-BA (7C621464B)	4021244	610035012	CSPI-R	500	48	0	
CY62146VLL-BA (7C621464B)	4021244	610035012	CSPI-R	1000	48	0	
CY62146VLL-BA (7C621464B)	4022374	610035011	CSPI-R	300	48	0	
CY62146VLL-BA (7C621464B)	4022374	610035011	CSPI-R	500	48	0	
CY62146VLL-BA (7C621464B)	4022374	610035011	CSPI-R	1000	48	0	
CY62146VLL-BA (7C621464B)	4022372	610034867	CSPI-R	300	48	0	
CY62146VLL-BA (7C621464B)	4022372	610034867	CSPI-R	500	48	0	
CY62146VLL-BA (7C621464B)	4022372	610034867	CSPI-R	1000	48	0	

Reliability Test Data

QTP #: 042704

Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: ACOUSTIC - MICROSCOPE (MSL3)							
CY62146VLL-BA (7C621464B)	4330089	610426893	CML-RA	COMP	15	0	
CY62146VLL-BA (7C621464B)	4330089	610426895	CML-RA	COMP	15	0	
STRESS: DIE SHEAR							
CY62146VLL-BA (7C621464B)	4330089	610426893	CML-RA	COMP	5	0	
STRESS: HI-ACCEL SATURATION TEST (130C, 85%RH, 3.6V)PRE COND 192 HR 30C/60%RH (MSL3)							
CY62146VLL-BA (7C621464B)	4330089	610426893	CML-RA	128	45	0	
CY62146VLL-BA (7C621464B)	4330089	610426895	CML-RA	128	45	0	
STRESS: PRESSURE COOKER TEST (121C, 100%RH), PRE COND 192HRS 30C/60%RH (MSL3)							
CY62146VLL-BA (7C621464B)	4330089	610426893	CML-RA	168	44	0	
CY62146VLL-BA (7C621464B)	4330089	610426895	CML-RA	168	42	0	
STRESS: TC CONDITION C, -65C TO 150C, PRE COND. 192 HRS 30C/60% RH (MSL3)							
CY62146VLL-BA (7C621464B)	4330089	610426893	CML-RA	300	44	0	
CY62146VLL-BA (7C621464B)	4330089	610426893	CML-RA	500	44	0	
CY62146VLL-BA (7C621464B)	4330089	610426893	CML-RA	1000	43	0	
CY62146VLL-BA (7C621464B)	4330089	610426895	CML-RA	300	44	0	
CY62146VLL-BA (7C621464B)	4330089	610426895	CML-RA	500	44	0	
CY62146VLL-BA (7C621464B)	4330089	610426895	CML-RA	1000	44	0	