

# **Cypress Semiconductor Package Qualification Report**

**QTP# 99331 VERSION 1.1  
December, 2000**

**48 Lead Fine Pitch Ball Grid Array (FBGA)**

**7mm x 8.5mm**

**ASE Taiwan**

**CYPRESS TECHNICAL CONTACT FOR QUALIFICATION DATA:**

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<b>MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION</b>	
<b>Package Designation:</b>	BA48
<b>Package Outline, Type, or Name:</b>	48-ball Fine Ball Grid Array (FBGA) 7mm x 8.5mm
<b>Mold Compound Name/Manufacturer:</b>	Plaskon SMT-B-1
<b>Mold Compound Flammability Rating:</b>	V-O per UL94
<b>Oxygen Rating Index:</b>	> 28%
<b>Substrate Material:</b>	BT Resin
<b>Lead Finish, Composition / Thickness:</b>	Solder ball, 63%Sn, 37%Pb
<b>Die Backside Preparation Method/Metallization:</b>	N/A
<b>Die Separation Method:</b>	Wafer Saw
<b>Die Attach Supplier:</b>	Ablestik
<b>Die Attach Material:</b>	Ablestik 8355F
<b>Bond Diagram Designation</b>	10-03532
<b>Wire Bond Method:</b>	Thermosonic
<b>Wire Material/Size:</b>	Gold 1.0mil
<b>Thermal Resistance Theta JA °C/W:</b>	63.9°C/W
<b>Package Cross Section Yes/No:</b>	N/A
<b>Assembly Process Flow:</b>	49-41010M
<b>Name/Location of Assembly (prime) facility:</b>	ASE Taiwan (TAIWN-G)

<b>ELECTRICAL TEST / FINISH DESCRIPTION</b>	
<b>Test Location:</b>	ASE Taiwan (TAIWN-G)
<b>Fault Coverage:</b>	100%

**RELIABILITY TESTS PERFORMED PER SPECIFICATION REQUIREMENTS**

<b>Stress/Test</b>	<b>Test Condition (Temp/Bias)</b>	<b>Result P/F</b>
High Accelerated Saturation Test	Bias: 3.63V, 130°C, 85%RH Precondition: JESD22 Moisture Sensitivity Level 3 192 Hrs., 30°C/60%RH + 3IR-Reflow 220°C+ 5, -0°C	P
Temperature Cycle	MIL-STD-883C, Method 1010, Condition B, -55°C to 125°C Precondition: JESD22 Moisture Sensitivity Level 3 192 Hrs., 30°C/60%RH + 3IR-Reflow 220°C+ 5, -0°C	P
Physical Dimensions	Cypress Spec. 25-00031	P
Thermal Shock	Cypress Spec: 25-00014 Condition B -55°C to 150°C	P
High Temperature Storage	150°C+ -5C, No bias	P
External Visual	Cypress Spec 25-00038	P
Internal Visual	Cypress Spec: 25-00017	P
Bond Pull	Cypress Spec 12-00292	P
Ball Shear	Cypress Spec 12-00292	P
Die Shear	Cypress Spec. 12-00292	P
Acoustic Microscopy, Level 3	Cypress Spec. 25-00104	P
Pressure Cooker	121°C + -2C, 100%RH Precondition: JESD22 Moisture Sensitivity Level 3 192hrs 30C/60%RH+ 3IR-Reflow 220°C+ 5, -0°C	P
X-Ray	Cypress Spec 12-00292	P

## Reliability Test Data

QTP #: 99331

<i>Device</i>	<i>Fab Lot #</i>	<i>Assy Lot #</i>	<i>Assy Loc</i>	<i>Duration</i>	<i>Samp</i>	<i>Rej</i>	<i>Failure Mechanism</i>
<b>STRESS: ACOUSTIC</b>							
CY62146VLL-BAIB	4925255	619925642	TAIWN-G	COMP	15	0	
CY62146VLL-BAIB	4925255	619925643	TAIWN-G	COMP	15	0	
CY62146VLL-BAIB	4925255	619925644	TAIWN-G	COMP	15	0	
<b>STRESS: AGE BALL SHEAR</b>							
CY62146VLL-BAIB	4925255	619925644	TAIWN-G	COMP	10	0	
<b>STRESS: BOND PULL</b>							
CY62146VLL-BAIB	4925255	619925644	TAIWN-G	COMP	10	0	
<b>STRESS: PHYSICAL DIMENSIONS</b>							
CY62146VLL-BAIB	4925255	619925644	TAIWN-G	COMP	5	0	
<b>STRESS: DIE SHEAR</b>							
CY62146VLL-BAIB	4925255	619925644	TAIWN-G	COMP	15	0	
<b>STRESS: DATA</b>							
CY62146VLL-BAIB	4925255	619925644	TAIWN-G	COMP	15	0	
<b>STRESS: HI-ACCEL SATURATION TEST (130C, 85%RH, 3.63V)PRE COND 192 HR 30C/60%</b>							
CY62146VLL-BAIB	4925255	619925644	TAIWN-G	128	54	0	
<b>STRESS: HIGH TEMP STORAGE, PLASTIC, 150C</b>							
CY62146VLL-BAIB	4925255	619925644	TAIWN-G	336	48	0	
CY62146VLL-BAIB	4925255	619925644	TAIWN-G	500	48	0	
CY62146VLL-BAIB	4925255	619925644	TAIWN-G	1000	48	0	
<b>STRESS: INTERNAL VISUAL</b>							
CY62146VLL-BAIB	4925255	619925644	TAIWN-G	COMP	5	0	
<b>STRESS: PRESSURE COOKER TEST (121C, 100%RH), PRE COND 192HRS 30C/60%RH)</b>							
CY62146VLL-BAIB	4925255	619925642/3/4	TAIWN-G	168	50	0	

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QTP #: 99331

<i>Device</i>	<i>Fab Lot #</i>	<i>Assy Lot #</i>	<i>Assy Loc</i>	<i>Duration</i>	<i>Samp</i>	<i>Rej</i>	<i>Failure Mechanism</i>
<b>STRESS: TC JEDEC22, CONDITION B. -55C TO 125C, PRE COND. 192HRS 30C/60%RH</b>							
CY62146VLL-BAIB	4925255	619925642	TAIWN-G	500	48	0	
CY62146VLL-BAIB	4925255	619925642	TAIWN-G	1000	47	0	
CY62146VLL-BAIB	4925255	619925642	TAIWN-G	1500	47	0	
CY62146VLL-BAIB	4925255	619925643	TAIWN-G	500	47	0	
CY62146VLL-BAIB	4925255	619925643	TAIWN-G	1000	47	0	
CY62146VLL-BAIB	4925255	619925643	TAIWN-G	1500	47	0	
CY62146VLL-BAIB	4925255	619925644	TAIWN-G	500	48	1	ISB2 Failure (Destroyed During Analysis)
CY62146VLL-BAIB	4925255	619925644	TAIWN-G	1000	48	0	
CY62146VLL-BAIB	4925255	619925644	TAIWN-G	1500	47	0	
<b>STRESS: THERMAL SHOCK, CONDITION B (150C/-55)</b>							
CY62146VLL-BAIB	4925255	619925644	TAIWN-G	100	48	0	
CY62146VLL-BAIB	4925255	619925644	TAIWN-G	200	48	0	
<b>STRESS: X-RAY</b>							
CY62146VLL-BAIB	4925255	619925644	TAIWN-G	COMP	15	0	