

Cypress Semiconductor Package Qualification Report

QTP# 020401 VERSION 1.0

June, 2002

165-ball Fine Pitch Ball Grid Array (FBGA) Level 3

13 x 15 x 1.2 mm

ASE Taiwan (TAIWN-G)

CYPRESS TECHNICAL CONTACT FOR QUALIFICATION DATA:

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PACKAGE QUALIFICATION HISTORY

Qual Report	Description of Qualification Purpose	Date Comp
012902	165-ball FBGA (13 x 15 x 1.2mm), die size \leq 304.2 x 480.8 mils assembled at ASE Taiwan	Feb 02
020401	Larger die size 388.0 x 482.0mils	Mar 02

MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION	
Package Designation:	BB165
Package Outline, Type, or Name:	165-ball Thin Ball Grid Array (FBGA)
Mold Compound Name/Manufacturer:	PLASKON SMT-B-1
Mold Compound Flammability Rating:	V-O per UL94
Oxygen Rating Index:	> 28%
Substrate Material:	BT Resin
Lead Finish, Composition / Thickness:	Solder Ball, 63%Sn, 37%Pb
Die Backside Preparation Method/Metallization:	N/A
Die Separation Method:	Wafer Saw
Die Attach Supplier:	Ablestik
Die Attach Material:	Ablestik 8355F
Die Attach Method:	Epoxy
Bond Diagram Designation:	10-04583
Wire Bond Method:	Thermosonic
Wire Material/Size:	Au, 1.0um
Thermal Resistance Theta JA °C/W:	45°C/W
Package Cross Section Yes/No:	N/A
Assembly Process Flow:	49-41010
Name/Location of Assembly (prime) facility:	ASE Taiwan

ELECTRICAL TEST / FINISH DESCRIPTION	
Test Location:	ASE Taiwan, CML Philippines
Fault Coverage:	100%

RELIABILITY TESTS PERFORMED PER SPECIFICATION REQUIREMENTS

Stress/Test	Test Condition (Temp/Bias)	Result P/F
Temperature Cycle	1) QTP #020401, QTP #012902 JEDEC22, Condition C, -65°C to 150°C Precondition: JESD22 Moisture Sensitivity MSL3 192 Hrs., 30°C/60%RH+3IR-Reflow, 220°C+5, -0°C	P
High Accelerated Saturation	1) QTP #020401 30°C, 2.75V, 85%RH 2) QTP #0129021 30°C/1.98V, 85%RH Precondition: JESD22 Moisture Sensitivity MSL 192 Hrs., 30°C/60%RH+3IR-Reflow, 220°C+5, -0°C	P
Pressure Cooker	1) QTP #020401, QTP #012902 121C, 100%RH Precondition: JESD22 Moisture Sensitivity MSL3 192 Hrs., 30°C/60%RH+3IR-Reflow, 220°C+5, -0°C	P
High Temperature Storage	1) QTP #020401, QTP #012902 150C, no bias	P
Internal Visual	1) QTP #020401, QTP #012902 Cypress Spec 25-00017	P
Die Shear	1) QTP #020401, QTP #012902 Cypress Spec 12-00292	P
Ball Shear	1) QTP #020401, QTP #012902 Cypress Spec 24-00018	P
Bond Pull	Cypress Spec 24-00002	P
Thermal Shock	1) QTP #020401, QTP #012902 125C, -55C Cypress Spec 25-00014	P
X-Ray	1) QTP #012902 Cypress Spec 12-00292	P
Acoustic Microscopy Test, (C-SAM)	1) QTP #020401, QTP #012902 Cypress Spec 25-000104 MSL 3	P

Reliability Test Data

QTP #: 020401

Device	Fab Lot #	Assy Lot #	Ass Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: ACOUSTIC, MSL3							
CY7C1370BV25 (7C13702B)	9143009	610143551	TAIWN-G	COMP	15	0	
CY7C1370BV25 (7C13702B)	9152624	610200674	TAIWN-G	COMP	15	0	
CY7C1370BV25 (7C13702B)	9201639	610200675	TAIWN-G	COMP	15	0	
STRESS: THERMAL SHOCK, 125C / -55C							
CY7C1370BV25 (7C13702B)	9143009	610143551	TAIWN-G	100	48	0	
CY7C1370BV25 (7C13702B)	9143009	610143551	TAIWN-G	200	48	0	
STRESS: BALL SHEAR							
CY7C1370BV25 (7C13702B)	9143009	610143551	TAIWN-G	COMP	10	0	
STRESS: DIE SHEAR							
CY7C1370BV25 (7C13702B)	9143009	610143551	TAIWN-G	COMP	15	0	
STRESS: BOND PULL							
CY7C1370BV25 (7C13702B)	9143009	610143551	TAIWN-G	COMP	10	0	
STRESS: HIGH TEMPERATURE STORAGE, 150C							
CY7C1370BV25 (7C13702B)	9143009	610143551	TAIWN-G	500	48	0	
STRESS: INTERNAL VISUAL							
CY7C1370BV25 (7C13702B)	9143009	610143551	TAIWN-G	COMP	15	0	
STRESS: X-RAY							
CY7C1370BV25 (7C13702B)	9143009	610143551	TAIWN-G	COMP	15	0	
STRESS: PRESSURE COOKER TEST, 121C, 100%RH, PRE COND 192 HR 30C/60%RH, MSL3							
CY7C1370BV25 (7C13702B)	9143009	610143551	TAIWN-G	168	47	0	
STRESS: HI-ACCEL SATURATION TEST, 130C, 85%RH, 1.98V, PRE COND 192 HR 30C/60%RH, MSL3							
CY7C1370BV25 (7C13702B)	9143009	610143551	TAIWN-G	128	47	0	
STRESS: TC COND. C -65C TO 150C, PRECONDITION 192 HRS 30C/60%RH, MSL3							
CY7C1370BV25 (7C13702B)	9143009	610143551	TAIWN-G	300	48	0	
CY7C1370BV25 (7C13702B)	9143009	610143551	TAIWN-G	500	48	0	
CY7C1370BV25 (7C13702B)	9152624	610200674	TAIWN-G	300	50	0	
CY7C1370BV25 (7C13702B)	9152624	610200674	TAIWN-G	500	50	0	
CY7C1370BV25 (7C13702B)	9201639	610200675	TAIWN-G	300	50	0	
CY7C1370BV25 (7C13702B)	9201639	610200675	TAIWN-G	500	50	0	

Reliability Test Data

QTP #: 012902

Device	Fab Lot #	Assy Lot #	Ass Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: ACOUSTIC, MSL3							
CY7C1302* (7C1302A)	4111490	610119944	TAIWN-G	COMP	15	0	
CY7C1302* (7C1302A)	4113910	610120938	TAIWN-G	COMP	15	0	
CY7C1302* (7C1302A)	4107549	610119320	TAIWN-G	COMP	15	0	
STRESS: THERMAL SHOCK, 125c / -55C							
CY7C1302* (7C1302A)	4111490	610119944	TAIWN-G	100	48	0	
CY7C1302* (7C1302A)	4111490	610119944	TAIWN -G	200	48	0	
STRESS: BALL SHEAR							
CY7C1302* (7C1302A)	4107549	610119320	TAIWN-G	COMP	10	0	
STRESS: DIE SHEAR							
CY7C1302* (7C1302A)	4107549	610119320	TAIWN-G	COMP	15	0	
STRESS: BOND PULL							
CY7C1302* (7C1302A)	4107549	610119320	TAIWN-G	COMP	10	0	
STRESS: HIGH TEMPERATURE STORAGE, 150C							
CY7C1302* (7C1302A)	9050314	340000432	TAIWN-G	500	48	0	
CY7C1302* (7C1302A)	9050314	340000432	TAIWN-G	1000	48	0	
STRESS: INTERNAL VISUAL							
CY7C1302* (7C1302A)	4107549	610119320	TAIWN-G	COMP	5	0	
STRESS: X-RAY							
CY7C1302* (7C1302A)	4107549	610119320	TAIWN-G	COMP	15	0	
STRESS: PRESSURE COOKER TEST, 121C, 100%RH, PRE COND 192 HR 30C/60%RH							
CY7C1302* (7C1302A)	4106347	340100120	TAIWN-G	168	46	0	
STRESS: HI-ACCEL SATURATION TEST, 130C, 85%RH, 1.98V, PRE COND 192 HR 30C/60%RH							
CY7C1302* (7C1302A)	9101432	610106766	TAIWN-G	128	46	0	
STRESS: TC COND. C -65C TO 150C, PRECONDITION 192 HRS 30C/60%RH, MSL3							
CY7C1302* (7C1302A)	4111490	610119944	TAIWN-G	300	50	0	
CY7C1302* (7C1302A)	4111490	610119944	TAIWN-G	500	50	0	
CY7C1302* (7C1302A)	4111490	610119944	TAIWN-G	1000	50	0	
CY7C1302* (7C1302A)	4113910	610120938	TAIWN-G	300	50	0	
CY7C1302* (7C1302A)	4113910	610120938	TAIWN-G	500	50	0	
CY7C1302* (7C1302A)	4107549	610119320	TAIWN-G	300	49	0	
CY7C1302* (7C1302A)	4107549	610119320	TAIWN-G	500	48	0	
CY7C1302* (7C1302A)	4107549	610119320	TAIWN-G	1000	48	0	