

Cypress Semiconductor Package Qualification Report

**QTP# 052210 VERSION 2.0
January 2006**

**ALL Plastic Ball Grid Array Package (PBGA)
SnPb, MSL 3, 220C Solder Reflow
ASE-Taiwan**

CYPRESS TECHNICAL CONTACT FOR QUALIFICATION DATA:

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PACKAGE QUALIFICATION HISTORY

Qual Report	Description of Qualification Purpose	Date Comp
004402	Programmable Serial Interface, CYP25G01100VIA in 456-ball Plastic Ball Grid Array, MSL3	May 01
041103	ALL PBGA, SnAgCu, MSL3, 260C Reflow, ASEK-Taiwan Assembly	Mar 05
052210	ALL PBGA, SnPb, MSL3, 220C Reflow assembled in ASE-Taiwan using Sumitomo G770J and Ablestik 2100A	Jun 05

MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION	
Package Designation:	BG 456
Package Outline, Type, or Name:	456-ball Ball Grid Array (BG)
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:	Dexter
Die Attach Material:	Ablesitk
Die Attach Method:	8355F
Bond Diagram Designation	10-04075
Wire Bond Method:	Thermosonic
Wire Material/Size:	Gold, 1.0mil
Thermal Resistance Theta JA °C/W:	21.2°C/W
Package Cross Section Yes/No:	N/A
Assembly Process Flow:	41-41008
Name/Location of Assembly (prime) facility:	ASE Taiwan (TAIWN-G)

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

Note: Please contact a Cypress Representative for other packages availability

MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION	
Package Designation:	BY119
Package Outline, Type, or Name:	119-ball Plastic Ball Grid Array (PBGA)
Mold Compound Name/Manufacturer:	Sumitomo G770J
Mold Compound Flammability Rating:	V-O per UL94
Oxygen Rating Index:	None
Substrate Material:	BT
Lead Finish, Composition / Thickness:	SnAg (4%), Cu (0.5%)
Die Backside Preparation Method/Metallization:	Backgrind
Die Separation Method:	Sawing
Die Attach Supplier:	Ablestik
Die Attach Material:	Ablestik 2100A
Die Attach Method:	Epoxy
Bond Diagram Designation:	10-05656
Wire Bond Method:	Thermosonic
Wire Material/Size:	Au, 1.0mil
Thermal Resistance Theta JA °C/W:	21.50°C/W
Package Cross Section Yes/No:	Yes
Assembly Process Flow:	49-41999
Name/Location of Assembly (prime) facility:	ASEK Taiwan (G)

ELECTRICAL TEST / FINISH DESCRIPTION	
Test Location:	CML-R
Fault Coverage:	100%

RELIABILITY TESTS PERFORMED PER SPECIFICATION REQUIREMENTS

Stress/Test	Test Condition (Temp/Bias)	Result P/F
Temperature Cycle	MIL-STD-883C, Method 1010, Condition C, -65°C to 150°C Precondition: JESD22 Moisture Sensitivity MSL 3 192 Hrs., 30°C/60%RH+3IR-Reflow, 260°C+0, -5°C	P
Pressure Cooker	121C, 100%RH Precondition: JESD22 Moisture Sensitivity MSL 3 192 Hrs., 30°C/60%RH+3IR-Reflow, 260°C+0, -5°C	P
High Accelerated Saturation Test	130°C/85%RH 3.63V Precondition: JESD22 Moisture Sensitivity MSL 3 192 Hrs., 30°C/60%RH+3IR-Reflow, 260°C+0, -5°C	P
High Temperature Storage	150°C, no bias	P
Ball Shear	Cypress Spec 24-00018	P
External Visual	Cypress Specification 12-00292/25-00103	P
Acoustic Microscopy	Cypress Spec. 25-00104	P
X-Ray	Cypress Spec 12-000149	P

Reliability Test Data

QTP #: 004402

Device	Fab Lot #	Assy Lot #	Ass Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: BALL SHEAR							
CYPSI2G100P456 (7M92840A)	9050314	340000454	TAIWN-G	COMP	12	0	

Reliability Test Data

QTP #: 041103

Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: ACOUSTIC, MSL3							
CY7C1370C (7R1370C)	4352800	610417325	TAIWN-G	COMP	15	0	
CY7C1370C (7R1370C)	4352800	610417326	TAIWN-G	COMP	15	0	
CY39100V388B (7C39485E)	9205915	610412646	TAIWN-G	COMP	15	0	
STRESS: BALL SHEAR							
CY7C1370C (7R1370C)	4352800	610417325	TAIWN-G	COMP	15	0	
STRESS: EXTERNAL VISUAL							
CY7C1370C (7R1370C)	4352800	610417325	TAIWN-G	COMP	15	0	
CY7C1370C (7R1370C)	4352800	610417326	TAIWN-G	COMP	15	0	
STRESS: HIGH TEMPERATURE STORAGE, no bias							
CY7C1370C (7R1370C)	4352800	610417325	TAIWN-G	500	49	0	
CY7C1370C (7R1370C)	4352800	610417325	TAIWN-G	1000	49	0	
CY39100V388B (7C39485E)	9205915	610412646	TAIWN-G	500	48	0	
CY39100V388B (7C39485E)	9205915	610412646	TAIWN-G	1000	48	0	
STRESS: HI-ACCEL SATURATION TEST. 130C, 3.63V, 85%RH, PRE COND 192 HR 30C/60%RH, MSL3							
CY7C1370C (7R1370C)	4433051	610451813	TAIWN-G	128	47	0	
CY7C1370C (7R1370C)	4433051	610451814	TAIWN-G	128	48	0	
CY39100V388B (7C39485E)	9205915	610412646	TAIWN-G	128	48	0	
STRESS: PRESSURE COOKER TEST, 121C, 100%RH, PRE COND 192 HR 30C/60%RH, MSL3							
CY7C1370C (7R1370C)	4352800	610417325	TAIWN-G	168	48	0	
CY7C1370C (7R1370C)	4352800	610417326	TAIWN-G	168	50	0	
STRESS: TC COND. C -65C TO 150C, PRE COND 192 HR 30C/60%RH, MSL3							
CY7C1370C (7R1370C)	4352800	610417325	TAIWN-G	300	50	0	
CY7C1370C (7R1370C)	4352800	610417325	TAIWN-G	500	50	0	
CY7C1370C (7R1370C)	4352800	610417326	TAIWN-G	300	45	0	
CY7C1370C (7R1370C)	4352800	610417326	TAIWN-G	500	45	0	
CY39100V388B (7C39485E)	9205915	610412646	TAIWN-G	300	48	0	
CY39100V388B (7C39485E)	9205915	610412646	TAIWN-G	500	48	0	
STRESS: X-RAY							
CY7C1370C (7R1370C)	4352800	610417325	TAIWN-G	COMP	15	0	
CY7C1370C (7R1370C)	4352800	610417326	TAIWN-G	COMP	15	0	