

Cypress Semiconductor Package Qualification Report

**QTP# 010304 VERSION 1.0
August, 2001**

**400-ball Thin Ball Grid Array (FBGA) Level 3
21mm x 21mm x 1.4mm
ASE Taiwan Assembly**

CYPRESS TECHNICAL CONTACT FOR QUALIFICATION DATA:

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PACKAGE QUALIFICATION HISTORY

QUAL REPORT	DESCRIPTION OF QUALIFICATION PURPOSE	DATE COMP.
010304	400-lead FBGA (21mm x 21mm x 1.4mm), die size 229.7 x 587.0 at ASE Taiwan Assembly, MSL3	Jun 01

MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION	
Package Designation:	BB400
Package Outline, Type, or Name:	400-ball, Thin-Pitch Ball Grid Array (21mm x 21 x 1.4mm) FBGA
Mold Compound Name/Manufacturer:	Plaskon SMT B I N
Mold Compound Flammability Rating:	V-O per UL 94
Oxygen Rating Index:	>28%
Lead Frame Designation:	BB
Substrate Material:	BT Resin
Lead Finish, Composition / Thickness:	Solder Balls 63%Sn - 37% Pb
Die Backside Preparation Method/Metallization:	N/A
Die Separation Method:	Wafer Saw
Die Attach Supplier:	Ablestik
Die Attach Material:	8355F
Bond Diagram Designation	10-03690
Wire Bond Method:	Thermosonic
Wire Material/Size:	Gold, 1.0mil
Thermal Resistance Theta JA °C/W: TA= 85°C, Pd = 1 Watt	22.9°C/W
Package Cross Section Yes/No:	N/A
Assembly Process Flow:	49-41010M
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.

RELIABILITY TESTS PERFORMED PER SPECIFICATION REQUIREMENT

Stress/Test	Test Condition (Temp/Bias)	Result P/F
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
High Accelerated Saturation Test	130°C, 85%RH, 3.63V Precondition: JESD22 Moisture Sensitivity Level 3 192 Hrs., 30°C/60%RH+ 3IR-Reflow, 220°C+ 5, -0°C	P
Pressure Cooker Test	No bias, 121°C, 100%, Precondition: JESD22 Moisture Sensitivity Level 3 192 Hrs., 30°C/60%RH+ 3IR-Reflow, 220°C+ 5, -0°C	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
X-Ray	MIL-STD-883-2012	P
Acoustic Microscopy Test (C-SAM)	Cypress Spec 25-00104	P
SEM X-Section	MIL-STD-883C, Method 2018.2	P
Bond Pull	Cypress Spec 24-00002	P
Die Shear	Cypress Specification 12-00292	P
Thermal Shock	125C, -55C Cypress Spec 25-00014	P

Reliability Test Data

QTP #: 010304

<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>
STRESS: ACOUSTIC - MICROSCOPE MSL3							
CY37512VP400-BC(7C37672A)	2939398	610019435	TAIWN-G	COMP	15	0	
STRESS: HI-ACCEL SATURATION TEST (130C, 85%RH, 3.63V)PRE COND 192 HR 30C/60%RH							
CY37512VP400-BC(7C37672A)	2939398	610019437	TAIWN-G	128	48	0	
STRESS: HIGH TEMP STORGAGE, PLASTIC, 150C							
CY37512VP400-BC(7C37672A)	2939398	610019435	TAIWN-G	500	48	0	
CY37512VP400-BC(7C37672A)	2939398	610019435	TAIWN-G	1000	48	0	
STRESS: PRESSURE COOKER TEST (121C, 100%RH), PRE COND 192HRS 30C/60%RH							
CY37512VP400-BC(7C37672A)	2939398	610019437	TAIWN-G	168	50	0	
STRESS: THERMAL SHOCK, CONDITION B 125C, -55C							
CY37512VP400-BC(7C37672A)	2939398	610019435	TAIWN-G	100	48	0	
CY37512VP400-BC(7C37672A)	2939398	610019435	TAIWN-G	200	48	0	
STRESS: X-RAY							
CY37512VP400-BC(7C37672A)	2939398	610019435	TAIWN-G	COMP	15	0	
CY37512VP400-BC(7C37672A)	2939398	610019437	TAIWN-G	COMP	15	0	
CY37512VP400-BC(7C37672A)	2939398	610019436	TAIWN-G	COMP	15	0	
STRESS: DIE SHEAR							
CY37512VP400-BC(7C37672A)	2939398	610019435	TAIWN-G	COMP	15	0	
STRESS: BOND PULL							
CY37512VP400-BC(7C37672A)	2939398	610019435	TAIWN-G	COMP	15	0	
STRESS: BALL SHEAR							
CY37512VP400-BC(7C37672A)	2939398	610019435	TAIWN-G	COMP	15	0	
CY37512VP400-BC(7C37672B)	9033946	610046769	TAIWN-G	COMP	15	0	

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STRESS: EXTERNAL VISUAL							
CY37512VP400-BC(7C37672A)	2939398	610019435	TAIWN-G	COMP	15	0	
STRESS: INTERNAL VISUAL							
CY37512VP400-BC(7C37672A)	2939398	610019435	TAIWN-G	COMP	5	0	
CY37512VP400-BC(7C37672A)	2939398	610019437	TAIWN-G	COMP	5	0	
CY37512VP400-BC(7C37672A)	2939398	610019436	TAIWN-G	COMP	5	0	
STRESS: TC CONDITION B, -55C TO 125C, PRE COND. 192 HRS 30C/60% RH (MSL3)							
CY37512VP400-BC(7C37672B)	9033946	610046769	TAIWN-G	500	150	0	
CY37512VP400-BC(7C37672B)	9033946	610046769	TAIWN-G	1500	150	0	