

Cypress Semiconductor Package Qualification Report

**QTP# 081504 VERSION 1.0
April 2008**

**48-Ball FBGA (Stacked Die)
(8 x 9.5 x 1.2mm)
SnPb, MSL5, 220C Reflow
ASE-Taiwan**

CYPRESS TECHNICAL CONTACT FOR QUALIFICATION DATA:

Rene Rodgers
Principal Reliability Engineer
(408) 943-2732

Mira Ben-Tzur
Quality Engineering Director
(408) 943-2675

PACKAGE QUALIFICATION HISTORY

Qual Report	Description of Qualification Purpose	Date Comp
052502	48-Ball FBGA (Stacked Die) (8 x 9.5 x 1.2mm), Pb-Free, MSL5, 260C Reflow assembled at ASE-Taiwan	Jul 05
081504	48-Ball FBGA (Stacked Die) (8 x 9.5 x 1.2mm), SnPb, MSL5, 220C Reflow assembled at ASE-Taiwan	Apr 08

MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION	
Package Designation:	BA48
Package Outline, Type, or Name:	48-Ball FBGA Stacked Die
Mold Compound Name/Manufacturer:	KE-G-2270/Kyocera
Mold Compound Flammability Rating:	UL-94
Mold Compound Alpha Emission Rate :	< 0.005 C/cm2/hr
Oxygen Rating Index:	None
Substrate Material:	BT Resin
Lead Finish, Composition / Thickness:	SnAgCu
Die Backside Preparation Method/Metallization:	Grinding
Die Separation Method:	Blade Sawing, Single Pass
Die Attach Supplier:	Ablestik
Die Attach Material:	Die Attach 1 & 3: Ablestik 2025D Die Attach 2: QMI536
Die Attach Method:	Epoxy
Bond Diagram Designation:	10-06832
Wire Bond Method:	Thermosonic
Wire Material/Size:	Au, 1.0 mil
Thermal Resistance Theta JA °C/W:	35.85 °C/W
Package Cross Section Yes/No:	N/A
Assembly Process Flow:	49-41999
Name/Location of Assembly (prime) facility:	ASE-Taiwan (G)
MSL Level	5
Reflow Profile	260C

ELECTRICAL TEST / FINISH DESCRIPTION	
Test Location:	CML-R

RELIABILITY TESTS PERFORMED PER SPECIFICATION REQUIREMENTS

Stress/Test	Test Condition (Temp/Bias)	Result P/F
Acoustic Microscopy	Cypress Spec 25-00104	P
Ball Shear	Cypress Spec 12-00292	P
Bond Pull	Cypress Spec 12-00292	P
Die Shear	Cypress Spec 12-00292	P
External Visual	Cypress Spec. 12-00292/25-00103	P
Internal Visual	Cypress Spec 12-00292	P
High Accelerated Saturation Test (HAST)	130°C, 85%RH, 3.63V Precondition: JESD22 Moisture Sensitivity MSL5 72 Hrs., 30°C/60%RH+3IR-Reflow, 260°C +0, -5°C	P
High Temperature Storage	150C, no bias	P
Physical Dimension	Cypress Spec. 25-00031	P
Pressure Cooker	121°C, 100%RH Precondition: JESD22 Moisture Sensitivity MSL5 72 Hrs., 30°C/60%RH+3IR-Reflow, 260°C +0, -5°C	P
Temperature Cycle	MIL-STD-883C, Method 1010, Condition C, -65°C to 150°C Precondition: JESD22 Moisture Sensitivity MSL5 72 Hrs., 30°C/60%RH+3IR-Reflow, 260°C +0, -5°C	P
Thermal Shock	125C, -55C Cypress Spec. 25-00014	P
X-Ray	Cypress Spec 12-00292	P

Reliability Test Data

QTP #: 081504

<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, MSL5							
CY62177DV30L (7C62172D)	4504324	610518429	TAIWAN-G	COMP	15	0	
CY62177DV30L (7C62172D)	4504324	610518427	TAIWAN-G	COMP	15	0	
CY62177DV30L (7C62172D)	4504324	610517374	TAIWAN-G	COMP	15	0	
STRESS: BALL SHEAR							
CY62177DV30L (7C62172D)	4447832	610504454	TAIWAN-G	COMP	10	0	
STRESS: BOND PULL							
CY62177DV30L (7C62172D)	4447832	610504454	TAIWAN-G	COMP	10	0	
STRESS: DIE SHEAR							
CY62177DV30L (7C62172D)	4504324	610517374	TAIWAN-G	COMP	10	0	
STRESS: EXTERNAL VISUAL							
CY62177DV30L (7C62172D)	4447832	610504454	TAIWAN-G	COMP	15	0	
STRESS: HI-ACCEL SATURATION TEST (130C, 85%RH, 3.63V), PRE COND 72 HR 30C/60%RH, MSL5							
CY62177DV30L (7C62172D)	4504324	610518429	TAIWAN-G	128	45	0	
STRESS: HIGH TEMPERATURE STORAGE							
CY62177DV30L (7C62172D)	4447832	610504454	TAIWAN-G	500	45	0	
CY62177DV30L (7C62172D)	4447832	610504454	TAIWAN-G	1000	45	0	
STRESS: INTERNAL VISUAL							
CY62177DV30L (7C62172D)	4447832	610504454	TAIWAN-G	COMP	5	0	
STRESS: PRESSURE COOKER TEST, 121C, 100%RH, PRE COND 72 HR 30C/60%RH, MSL5							
CY62177DV30L (7C62172D)	4504324	610518427	TAIWAN-G	168	41	0	
STRESS: PHYSICAL DIMENSIONS							
CY62177DV30L (7C62172D)	4504324	610517374	TAIWAN-G	COMP	5	0	
STRESS: X-RAY							
CY62177DV30L (7C62172D)	4504324	610517374	TAIWAN-G	COMP	15	0	
STRESS: THERMAL SHOCK COND. B – 55C TO 125C							
CY62177DV30L (7C62172D)	4447832	610504454	TAIWAN-G	100	45	0	
CY62177DV30L (7C62172D)	4447832	610504454	TAIWAN-G	200	45	0	

Reliability Test Data

QTP #: 081504

<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: TC COND. C -65C TO 150C, PRE COND 72 HRS 30C/60%RH, MSL5							
CY62177DV30L (7C62172D)	4504324	610518429	TAIWAN-G	300	45	0	
CY62177DV30L (7C62172D)	4504324	610518429	TAIWAN-G	500	45	0	
CY62177DV30L (7C62172D)	4504324	610518427	TAIWAN-G	300	50	0	
CY62177DV30L (7C62172D)	4504324	610518427	TAIWAN-G	500	50	0	
CY62177DV30L (7C62172D)	4504324	610518427	TAIWAN-G	1000	50	0	
CY62177DV30L (7C62172D)	4504324	610517374	TAIWAN-G	300	50	0	
CY62177DV30L (7C62172D)	4504324	610517374	TAIWAN-G	500	50	0	