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Cypress Semiconductor
Package Qualification Report

QTP# 050702 VERSION*A
November 2014

209-Ball Fine Pitch Ball Grid Array (FBGA)
(14 x 22 x 1.76mm)
MSL3, 220C Solder Reflow
ASE-Taiwan (G)

FOR ANY QUESTIONS ON THIS REPORT, PLEAE CONTACT
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PACKAGE QUALIFICATION HISTORY

Qual Report		Description of Qualification Purpose		Date Comp
050702		209-Ball FBGA (14 x 22 x 1.76mm) , MSL3, 220C Reflow assembled at ASE-Taiwan (G)		Apr 05

MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION	
Package Designation:	BB209
Package Outline, Type, or Name:	209-Ball Fine Pitch Ball Grid Array (FBGA)
Mold Compound Name/Manufacturer:	KE-G2270
Mold Compound Flammability Rating:	V-O per UL94
Oxygen Rating Index:	34
Substrate Material:	ASEM
Lead Finish, Composition / Thickness:	Sn/Ag/Cu
Die Backside Preparation Method/Metallization:	Backgrinding
Die Separation Method:	Sawing
Die Attach Supplier:	Ablestik
Die Attach Material:	2025D
Die Attach Method:	Silver Epoxy
Wire Bond Method:	Thermosonic
Wire Material/Size:	Au, 1.0 mil
Thermal Resistance Theta JA °C/W:	25.31°C/W
Package Cross Section Yes/No:	Yes, qual only
Assembly Process Flow:	49-41040
Name/Location of Assembly (prime) facility:	ASE-Taiwan (G)

ELECTRICAL TEST /	
Test Location:	CML-R, CHIPMOS
Fault Coverage:	100%

RELIABILITY TESTS PERFORMED PER SPECIFICATION REQUIREMENTS

Stress/Test	Test Condition (Temp/Bias)	Result P/F
Acoustic Microscopy Test	J-STD-020	P
Ball Shear	JESD22-B116A	P
Bond Pull	MIL-STD-883 – Method 2011	P
Die Shear	MIL-STD-883, Method 2019	P
Electrostatic Discharge Charge Device Model (ESD-CDM)	500V JESD22-C101	P
Electrostatic Discharge Human Body Model (ESD-HBM)	2,200V JESD22, Method A114-B	P
Electrostatic Discharge Human Body Model (ESD-HBM)	2,200V MIL-STD-883, Method 3015.7	P
High Accelerated Saturation	130°C, 3.6V, 85%RH Precondition: JESD22 Moisture Sensitivity MSL3 192 Hrs., 30°C/60%RH+3IR-Reflow, 220°C+0, -5°C	P
High Temperature Storage	150C, no bias	P
Internal Visual	MIL-STD-883-2014	P
Physical Dimensions	MIL-STD-1835, JESD22-B100	P
Pressure Cooker	121C, 100%RH Precondition: JESD22 Moisture Sensitivity MSL3 192 Hrs., 30°C/60%RH+3IR-Reflow, 220°C+0, -5°C	P
Temperature Cycle	JEDEC22, Condition C, -65°C to 150°C Precondition: JESD22 Moisture Sensitivity MSL3 192 Hrs., 30°C/60%RH+3IR-Reflow, 220°C+0, -5°C	P
Thermal Shock	MIL-STD-883C, Method 1011	P
X-Ray	MIL-STD-883 - 2012	P

Reliability Test Data

QTP #: 050702

Device	Fab Lot #	Assy Lot #	Ass Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: ACOUSTIC, MSL3							
CY7C1474V33 (7C1474A)	4423980	*610466039*	TAIWAN-G	COMP	15	0	
CY7C1474V33 (7C1474A)	4418403	*610466037*	TAIWAN-G	COMP	15	0	
CY7C1474V33 (7C1474A)	4414234	*610466036*	TAIWAN-G	COMP	15	0	
STRESS: BOND PULL							
CY7C1474V33 (7C1474A)	4423980	*610466039*	TAIWAN-G	COMP	48	0	
CY7C1474V33 (7C1474A)	4418403	*610466037*	TAIWAN-G	COMP	48	0	
CY7C1474V33 (7C1474A)	4414234	*610466036*	TAIWAN-G	COMP	48	0	
STRESS: BALL SHEAR							
CY7C1474V33 (7C1474A)	4423980	*610466039*	TAIWAN-G	COMP	48	0	
CY7C1474V33 (7C1474A)	4418403	*610466037*	TAIWAN-G	COMP	48	0	
CY7C1474V33 (7C1474A)	4414234	*610466036*	TAIWAN-G	COMP	48	0	
STRESS: COPLANARITY							
CY7C1474V33 (7C1474A)	4423980	*610466039*	TAIWAN-G	COMP	164	0	
CY7C1474V33 (7C1474A)	4418403	*610466037*	TAIWAN-G	COMP	127	0	
CY7C1474V33 (7C1474A)	4414234	*610466036*	TAIWAN-G	COMP	200	0	
STRESS: DIE SHEAR							
CY7C1474V33 (7C1474A)	4423980	*610466039*	TAIWAN-G	COMP	15	0	
CY7C1474V33 (7C1474A)	4418403	*610466037*	TAIWAN-G	COMP	15	0	
CY7C1474V33 (7C1474A)	4414234	*610466036*	TAIWAN-G	COMP	15	0	
STRESS: ESD-CHARGE DEVICE MODEL, 500V							
CY7C1474V33 (7C1474A)	4423980	*610466039*	TAIWAN-G	COMP	9	0	
STRESS: ESD-HUMAN BODY CIRCUIT PER JESD22, METHOD A114-B, 2,200V							
CY7C1474V33 (7C1474A)	4423980	*610466039*	TAIWAN-G	COMP	9	0	
STRESS: ESD-HUMAN BODY CIRCUIT PER MIL STD 883, METHOD 3015, 2,200V							
CY7C1474V33 (7C1474A)	4423980	*610466039*	TAIWAN-G	COMP	3	0	
STRESS: EXTERNAL VISUAL							
CY7C1474V33 (7C1474A)	4418403	*610466037*	TAIWAN-G	COMP	127	0	
CY7C1474V33 (7C1474A)	4414234	*610466036*	TAIWAN-G	COMP	164	0	

Reliability Test Data

QTP #: 050702

Device	Fab Lot #	Assy Lot #	Ass Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: INTERNAL VISUAL							
CY7C1474V33 (7C1474A)	4423980	*610466039*	TAIWAN-G	COMP	15	0	
CY7C1474V33 (7C1474A)	4418403	*610466037*	TAIWAN-G	COMP	15	0	
STRESS: HI-ACCEL SATURATION TEST (130C, 85%RH, 3.6V), PRE COND 192 HR 30C/60%RH, MSL3							
CY7C1474V33 (7C1474A)	4423980	*610466039*	TAIWAN-G	128	47	0	
STRESS: HIGH TEMPERATURE STORAGE, PLASTIC, 150C							
CY7C1470V33 (7C1470A)	4352890	*610457388*	TAIWAN-G	644	45	0	
CY7C1470V33 (7C1470A)	4352890	*610457388*	TAIWAN-G	1000	45	0	
STRESS: PHYSICAL DIMENSIONS							
CY7C1474V33 (7C1474A)	4423980	*610466039*	TAIWAN-G	COMP	5	0	
CY7C1474V33 (7C1474A)	4418403	*610466037*	TAIWAN-G	COMP	5	0	
CY7C1474V33 (7C1474A)	4414234	*610466036*	TAIWAN-G	COMP	5	0	
STRESS: PRESSURE COOKER TEST (121C, 100%RH), PRE COND 192 HR 30C/60%RH, MSL3							
CY7C1474V33 (7C1474A)	4423980	*610466039*	TAIWAN-G	168	50	0	
STRESS: TC COND. C -65C TO 150C, PRECONDITION 192 HRS 30C/60%RH, MSL3							
CY7C1474V33 (7C1474A)	4423980	*610466039*	TAIWAN-G	300	49	0	
CY7C1474V33 (7C1474A)	4423980	*610466039*	TAIWAN-G	500	49	0	
CY7C1474V33 (7C1474A)	4418403	*610466037*	TAIWAN-G	300	46	0	
CY7C1474V33 (7C1474A)	4418403	*610466037*	TAIWAN-G	500	44	0	
CY7C1474V33 (7C1474A)	4414234	*610466036*	TAIWAN-G	300	50	0	
CY7C1474V33 (7C1474A)	4414234	*610466036*	TAIWAN-G	500	48	0	
STRESS: THERMAL SHOCK							
CY7C1474V33 (7C1474A)	4423980	*610466039*	TAIWAN-G	200	50	0	
STRESS: X-RAY							
CY7C1474V33 (7C1474A)	4423980	*610466039*	TAIWAN-G	COMP	76	0	
CY7C1474V33 (7C1474A)	4418403	*610466037*	TAIWAN-G	COMP	76	0	
CY7C1474V33 (7C1474A)	4414234	*610466036*	TAIWAN-G	COMP	76	0	

Document History Page

Document Title: QTP# 050702: 209-Ball Fine Pitch Ball Grid Array (FBGA) (14 x 22 x 1.76mm) MSL3, 220C Solder Reflow ASE-Taiwan (G)
Document Number: 001-90054

Rev.	ECN No.	Orig. of Change	Description of Change
**	4190466	HSTO	Initial Spec Release Initiate report as per memo LGQ-245.
*A	4558885	HSTO	Align qualification report based on the new template in the front page

Distribution: WEB

Posting: None