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Cypress Semiconductor
Package Qualification Report

QTP# 011707 VERSION*A
November 2014

<676-Ball Fine Pitch Ball Grid Array
(11x11mm, 15x15mm, 17x17mm, 19x19mm)
(23x23mm, 27x27mm)
MSL3
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.
000212		676-ball (27 x 27mm) FBGA, die size ≤ 306.5 x 361.7 mils, ASE Taiwan, MSL3		Jul 01
011707		676-ball (27 x 27mm) FBGA with multichip die, die size #1 ≤ 427.2 x 510.0 mils and die size #2 109.4 x 93.3mils at ASE Taiwan, MSL3, (larger die)		Mar 02
032706		CYNSE70130 TCAM2 in 256-ball (17 x 17mm) FBGA ASE-Taiwan Assembly (qualified by extension)		Dec 03

MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION	
Package Designation:	BB676A
Package Outline, Type, or Name:	676-Ball Fine Pitch 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
Wire Bond Method:	Thermosonic
Wire Material/Size:	Au, 1.0mil
Thermal Resistance Theta JA °C/W:	20°C/W
Package Cross Section Yes/No:	N/A
Name/Location of Assembly (prime) facility:	ASE Taiwan

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

Note: Please contact a Cypress Representative for other packages availability.

RELIABILITY TESTS PERFORMED PER SPECIFICATION REQUIREMENTS

Stress/Test	Test Condition (Temp/Bias)	Result P/F
Electrostatic Discharge Charge Device Model (ESD-CDM)	500V JESD22-C101	P
Electrostatic Discharge Human Body Model (ESD-HBM)	2,200V MIL-STD-883, Method 3015.7	P
Static Latch up	125C, 5.5V, ± 300mA In accordance with JEDEC 17	P
Temperature Cycle	JEDEC22, Condition B, -55°C to 125°C Precondition: JESD22 Moisture Sensitivity MSL 3 192 Hrs., 30°C/60%RH+3IR-Reflow, 220°C+0, -5°C	P
High Accelerated Saturation	130°C, 3.63V/1.98V, 85%RH Precondition: JESD22 Moisture Sensitivity MSL 3 192 Hrs., 30°C/60%RH+3IR-Reflow, 220°C+0, -5°C	P
Pressure Cooker	121C, 100%RH Precondition: JESD22 Moisture Sensitivity MSL 3 192 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
External Visual	MIL-PRF-38535, MILSTD-883, METHOD 2009,	P
Physical Dimension	MIL-STD-1835, JESD22-B100	P
Die Shear	MIL-STD-883, Method 2019	P
Ball Shear	JESD22-B116A	P
Bond Pull	MIL-STD-883 – Method 2011	P
Thermal Shock	125C, -55C MIL-STD-883C, Method 1011	P
X-Ray	MIL-STD-883C, Method 2012	P
Acoustic Microscopy, MSL 3	J-STD-020	P

Reliability Test Data

QTP #: 000212

Device	Fab Lot #	Assy Lot #	Ass Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: ACOUSTIC, MSL 3							
CY39100V256 (7C39481A)	9101432	610104239	TAIWN-G	COMP	15	0	
CY39100V484 (7C39482A)	9101432	610104241	TAIWN -G	COMP	15	0	
CY39100V676 (7C39488A)	9050314	340000432	TAIWN -G	COMP	15	0	
CY39100V676 (7C39488A)	9050314	610103343	TAIWN -G	COMP	15	0	
CY39100V676 (7C39488A)	9050314	610101708	TAIWN -G	COMP	15	0	
STRESS: BALL SHEAR							
CY39100V256 (7C39481A)	9101432	610104239	TAIWN-G	COMP	15	0	
CY39100V484 (7C39482A)	9101432	610104241	TAIWN -G	COMP	15	0	
CY39100V676 (7C39488A)	9050314	340000432	TAIWN -G	COMP	15	0	
STRESS: BOND PULL							
CY39100V256 (7C39481A)	9101432	610104239	TAIWN-G	COMP	15	0	
CY39100V484 (7C39482A)	9101432	610104241	TAIWN -G	COMP	15	0	
CY39100V676 (7C39488A)	9050314	340000432	TAIWN -G	COMP	15	0	
STRESS: DIE SHEAR							
CY39100V256 (7C39481A)	9101432	610104239	TAIWN-G	COMP	15	0	
CY39100V484 (7C39482A)	9101432	610104241	TAIWN -G	COMP	15	0	
CY39100V676 (7C39488A)	9050314	340000432	TAIWN -G	COMP	15	0	
STRESS: ESD-CHARGE DEVICE MODEL, 500V							
CY39100V256 (7C39481A)	9101432	610104239	TAIWN -G	COMP	9	0	
CY39100V484 (7C39482A)	9101432	610104241	TAIWN -G	COMP	9	0	
CY39100V676 (7C39488A)	9050314	340000432	TAIWN -G	COMP	9	0	
STRESS: EXTERNAL VISUAL							
CY39100V256 (7C39481A)	9101432	610104239	TAIWN-G	COMP	15	0	
CY39100V484 (7C39482A)	9101432	610104241	TAIWN -G	COMP	15	0	
CY39100V676 (7C39488A)	9050314	340000432	TAIWN -G	COMP	15	0	
STRESS: HI-ACCEL SATURATION TEST, 130C, 85%RH, 1.98V, PRE COND 192 HR 30C/60%RH, MSL3							
CY39100V676 (7C39488A)	9101432	610106766	TAIWN -G	256	46	0	
STRESS: INTERNAL VISUAL							
CY39100V676 (7C39488A)	9050314	340000432	TAIWN -G	COMP	15	0	

Reliability Test Data

QTP #: 000212

Device	Fab Lot #	Assy Lot #	Ass Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: HIGH TEMPERATURE STORAGE, PLASTIC, 150C							
CY39100V676 (7C39488A)	9050314	340000432	TAIWN -G	500	48	0	
CY39100V676 (7C39488A)	9050314	340000432	TAIWN -G	1000	48	0	
STRESS: PHYSICAL DIMENSIONS							
CY39100V256 (7C39481A)	9101432	61010423	TAIWN-G	COMP	5	0	
CY39100V484 (7C39482A)	9101432	610104241	TAIWN -G	COMP	5	0	
CY39100V676 (7C39488A)	9050314	340000432	TAIWN -G	COMP	5	0	
STRESS: PRESSURE COOKER TEST, 121C, 100%RH, PRE COND 192HRS 30C/60%RH, MSL3							
CY39100V676 (7C39488A)	9050314	340000432	TAIWN -G	168	48	0	
STRESS: TC COND. B -55C TO 125C, PRECONDITION 192 HRS 30C/60%RH, MSL3							
CY39100V484 (7C39482A)	9101432	610104241	TAIWN -G	500	48	0	
CY39100V484 (7C39482A)	9101432	610104241	TAIWN -G	1000	48	0	
CY39100V676 (7C39488A)	9050314	340000432	TAIWN -G	500	48	0	
CY39100V676 (7C39488A)	9050314	340000432	TAIWN -G	1000	48	0	
CY39100V676 (7C39488A)	9050314	610101708	TAIWN -G	500	48	0	
CY39100V676 (7C39488A)	9050314	610101708	TAIWN -G	1000	48	0	
CY39100V676 (7C39488A)	9050314	610103343	TAIWN -G	500	48	0	
CY39100V676 (7C39488A)	9050314	610103343	TAIWN -G	1000	48	0	
CY39100V256 (7C39481A)	9050314	340000430	TAIWN -G	500	48	0	
CY39100V256 (7C39481A)	9050314	340000430	TAIWN -G	1000	48	0	
STRESS: THERMAL SHOCK, 125C / -55C							
CY39100V676 (7C39488A)	9050314	340000432	TAIWN-G	100	48	0	
CY39100V676 (7C39488A)	9050314	340000432	TAIWN-G	200	48	0	
STRESS: X-RAY							
CY39100V256 (7C39481A)	9101432	610104239	TAIWN-G	COMP	15	0	
CY39100V484 (7C39482A)	9101432	610104241	TAIWN -G	COMP	15	0	
CY39100V676 (7C39488A)	9050314	340000432	TAIWN -G	COMP	15	0	

Reliability Test Data

QTP #: 011707

Device	Fab Lot #	Assy Lot #	Ass Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: ACOUSTIC, MSL3							
CY39200V676-BC (7C39788A)	9128853	610123858	TAIWN-G	COMP	15	0	
CY39200V676-BC (7C39788A)	9133017	610133960	TAIWN-G	COMP	18	0	
CY39200V676-BC (7C39788A)	9133017	610134074	TAIWN-G	COMP	15	0	
STRESS: BALL SHEAR							
CY39200V676-BC (7C39788A)	9128853	610123858	TAIWN-G	COMP	10	0	
STRESS: BOND PULL							
CY39200V676-BC (7C39788A)	9128853	610123858	TAIWN-G	COMP	10	0	
STRESS: DIE SHEAR							
CY39200V676-BC (7C39788A)	9128853	610123858	TAIWN-G	COMP	15	0	
STRESS: ESD-CHARGE DEVICE MODEL, 500V							
CY39200V676-BC (7C39788A)	9128853	610123858	TAIWN-G	COMP	9	0	
STRESS: INTERNAL VISUAL							
CY39200V676-BC (7C39788A)	9128853	610123858	TAIWN-G	COMP	5	0	
STRESS: HI-ACCEL SATURATION TEST, 130C, 85%RH, 3.63V, PRE COND 192 HR 30C/60%RH, MSL3							
CY39200V676-BC (7C39788A)	9128853	610123858	TAIWN-G	128	48	0	
STRESS: PRESSURE COOKER TEST, 121C, 100%RH, PRE COND 192 HR 30C/60%RH, MSL3							
CY39200V676-BC (7C39788A)	9128853	610123858	TAIWN-G	168	48	0	
CY39200V676-BC (7C39788A)	9133017	610133960	TAIWN-G	168	48	0	
STRESS: TC COND. C -65C TO 150C, PRECONDITION 192 HRS 30C/60%RH , MSL3							
CY39200V676-BC (7C39788A)	9128853	610123858	TAIWN-G	300	48	0	
CY39200V676-BC (7C39788A)	9128853	610123858	TAIWN-G	500	36	0	
CY39200V676-BC (7C39788A)	9133017	610133960	TAIWN-G	300	49	0	
CY39200V676-BC (7C39788A)	9133017	610134074	TAIWN-G	300	47	0	
CY39200V676-BC (7C39788A)	9133017	610134074	TAIWN-G	500	46	0	
STRESS: THERMAL SHOCK, +125C/-55C							
CY39200V676-BC (7C39788A)	9128853	610123858	TAIWN-G	100	48	0	
CY39200V676-BC (7C39788A)	9128853	610123858	TAIWN-G	200	47	0	
STRESS: X-RAY							
CY39200V676-BC (7C39788A)	9128853	610123858	TAIWN-G	COMP	15	0	

Reliability Test Data

QTP #: 032706

Device	Fab Lot #	Assy Lot #	Ass Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: ESD-CHARGE DEVICE MODEL, 500V							
CYNSE70130A (7C76040C)	9330527		TAIWN-G	COMP	9	0	
STRESS: ESD-HUMAN BODY CIRCUIT PER MIL STD 883, METHOD 3015, 2,200V							
CYNSE70130A (7C76040C)	9330515	610341261	TAIWN-G	COMP	3	0	
STRESS: STATIC LATCH-UP TESTING, 125C, 5.5V, +/-300mA							
CYNSE70130A (7C76040C)	9330515	610341261	TAIWN-G	COMP	3	0	

Document History Page

Document Title: QTP# 011707: <676-Ball Fine Pitch Ball Grid Array (11x11mm, 15x15mm, 17x17mm, 19x19mm) (23x23mm, 27x27mm) MSL3 ASE-Taiwan (G)
Document Number: 001-90032

Rev.	ECN No.	Orig. of Change	Description of Change
**	4189309	HSTO	Initial Spec Release Initiate report as per memo LGQ-250.
*A	4558885	HSTO	Align qualification report based on the new template in the front page

Distribution: WEB

Posting: None