

Please note that Cypress is an Infineon Technologies Company.

The document following this cover page is marked as “Cypress” document as this is the company that originally developed the product. Please note that Infineon will continue to offer the product to new and existing customers as part of the Infineon product portfolio.

Continuity of document content

The fact that Infineon offers the following product as part of the Infineon product portfolio does not lead to any changes to this document. Future revisions will occur when appropriate, and any changes will be set out on the document history page.

Continuity of ordering part numbers

Infineon continues to support existing part numbers. Please continue to use the ordering part numbers listed in the datasheet for ordering.

Cypress Semiconductor Package Qualification Report

**QTP# 050704 VERSION*A
September 2014**

**165-Ball Fine Pitch Ball Grid Array (FBGA)
(15 x 17 x 1.4mm and 13 x 15 x 1.4mm)
MSL3, 260C Solder Reflow
ASE-Taiwan (G)**

**FOR ANY QUESTIONS ON THIS REPORT, PLEASE CONTACT
reliability@cypress.com or via a CYLINK CRM CASE**

Prepared By:
Honesto Sintos
Reliability Engineer

Reviewed By:
Rene Rodgers
Reliability Manager

Approved By:
Richard Oshiro
Reliability Director

PACKAGE QUALIFICATION HISTORY

Qual Report		Description of Qualification Purpose	Date Comp
050704		165-Ball FBGA (15 x 17 x 1.4mm), MSL3, 260C Reflow assembled at ASE-Taiwan (G)	Mar 05
050704		165-Ball FBGA (15x17x1.4mm and 13x15x1.4mm) using G2270 Mold Compound and Ablestik 2025D , MSL3, 260C Reflow assembled at ASE-Taiwan (G)	Mar 08

MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION	
Package Designation:	BB165
Package Outline, Type, or Name:	165-Ball Fine Pitch Ball Grid Array (FBGA)
Mold Compound Name/Manufacturer:	KE-G2270
Mold Compound Flammability Rating:	V-O per UL94
Mold Compound Alpha Emission Rate:	< 0.005 C/cm ² hr
Oxygen Rating Index:	N/A
Substrate Material:	BT
Lead Finish, Composition / Thickness:	95.5%Sn/ 4%Ag/ 0.5%Cu
Die Backside Preparation Method/Metallization:	Grinding
Die Separation Method:	Step Cut
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:	16.3 °C/W
Package Cross Section Yes/No:	Yes
Assembly Process Flow:	49-41041/49-41999
Name/Location of Assembly (prime) facility:	ASE-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
Acoustic Microscopy Test MSL3	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
External Visual	MIL-PRF-38535, MILSTD-883, METHOD 2009,	P
Internal Visual	MIL-STD-883-2014	P
High Accelerated Saturation	130°C, 3.6V/1.98V, 85%RH Precondition: JESD22 Moisture Sensitivity MSL3 192 Hrs., 30°C/60%RH+3IR-Reflow, 260°C+5, -0°C	P
High Temperature Storage	150C, no bias	P
Physical Dimension	MIL-STD-1835, JESD22-B100	P
Pressure Cooker	121C, 100%RH Precondition: JESD22 Moisture Sensitivity MSL3 192 Hrs., 30°C/60%RH+3IR-Reflow, 260°C+5, -0°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, 260°C+5, -0°C	P
Thermal Shock	MIL-STD-883C, Method 1011	P
X-Ray	MIL-STD-883 - 2012	P

Reliability Test Data

QTP #: 050704

<i>Device</i>	<i>Fab Lot #</i>	<i>Assy Lot #</i>	<i>Ass Loc</i>	<i>Duration</i>	<i>Samp</i>	<i>Rej</i>	<i>Failure Mechanism</i>
STRESS: ACOUSTIC, MSL3							
CY7C1470V33 (7C1470A)	4352891	610457386	TAIWAN-G	COMP	15	0	
CY7C1470V33 (7C1470A)	4414234	610457387	TAIWAN-G	COMP	15	0	
CY7C1470V33 (7C1470A)	4402400	610500796	TAIWAN-G	COMP	15	0	
CY7C1313AV18 (7C1313B)	4352777	610419844	TAIWAN-G	COMP	15	0	
STRESS: BOND PULL							
CY7C1470V33 (7C1470A)	4352891	610457386	TAIWAN-G	COMP	100	0	
CY7C1470V33 (7C1470A)	4414234	610457387	TAIWAN-G	COMP	100	0	
CY7C1470V33 (7C1470A)	4352890	610457388	TAIWAN-G	COMP	100	0	
STRESS: BALL SHEAR							
CY7C1470V33 (7C1470A)	4352891	610457386	TAIWAN-G	COMP	100	0	
CY7C1470V33 (7C1470A)	4414234	610457387	TAIWAN-G	COMP	100	0	
CY7C1470V33 (7C1470A)	4352890	610457388	TAIWAN-G	COMP	100	0	
STRESS: COPLANARITY							
CY7C1470V33 (7C1470A)	4352891	610457386	TAIWAN-G	COMP	200	0	
CY7C1470V33 (7C1470A)	4414234	610457387	TAIWAN-G	COMP	200	0	
CY7C1470V33 (7C1470A)	4352890	610457388	TAIWAN-G	COMP	200	0	
STRESS: COPLANARITY							
CY7C1313AV18 (7C1313B)	4352777	610419844	TAIWAN-G	COMP	5	0	
STRESS: DIE SHEAR							
CY7C1470V33 (7C1470A)	4352891	610457386	TAIWAN-G	COMP	15	0	
CY7C1470V33 (7C1470A)	4414234	610457387	TAIWAN-G	COMP	15	0	
CY7C1470V33 (7C1470A)	4352890	610457388	TAIWAN-G	COMP	15	0	
STRESS: ESD-CHARGE DEVICE MODEL, 500V							
CY7C1470V33 (7C1470A)	4352891	610457386	TAIWAN-G	COMP	9	0	
STRESS: ESD-HUMAN BODY CIRCUIT PER JESD22, METHOD A114-B, 2,200V							
CY7C1470V33 (7C1470A)	4352891	610457386	TAIWAN-G	COMP	9	0	
STRESS: ESD-HUMAN BODY CIRCUIT PER MIL STD 883, METHOD 3015, 2,200V							
CY7C1470V33 (7C1470A)	4352891	610457386	TAIWAN-G	COMP	3	0	

Reliability Test Data

QTP #: 050704

Device	Fab Lot #	Assy Lot #	Ass Loc	Duration	Samp	Rej	Failure Mechanism
--------	-----------	------------	---------	----------	------	-----	-------------------

STRESS: EXTERNAL VISUAL

CY7C1470V33 (7C1470A)	4352891	610457386	TAIWAN-G	COMP	315	0	
CY7C1470V33 (7C1470A)	4414234	610457387	TAIWAN-G	COMP	210	0	
CY7C1470V33 (7C1470A)	4352890	610457388	TAIWAN-G	COMP	106	0	
CY7C1313AV18 (7C1313B)	4352777	610419844	TAIWAN-G	COMP	15	0	

STRESS: HI-ACCEL SATURATION TEST (130C, 85%RH, 3.6V), PRE COND 192 HR 30C/60%RH, MSL3

CY7C1470V33 (7C1470A)	4414234	610457387	TAIWAN-G	128	47	0	
-----------------------	---------	-----------	----------	-----	----	---	--

STRESS: HI-ACCEL SATURATION TEST (130C, 85%RH, 1.98V), PRE COND 192 HR 30C/60%RH, MSL3

CY7C1313AV18 (7C1313B)	4352777	610419844	TAIWAN-G	128	45	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: INTERNAL VISUAL

CY7C1470V33 (7C1470A)	4352891	610457386	TAIWAN-G	COMP	5	0	
-----------------------	---------	-----------	----------	------	---	---	--

STRESS: PHYSICAL DIMENSIONS

CY7C1470V33 (7C1470A)	4352891	610457386	TAIWAN-G	COMP	10	0	
CY7C1470V33 (7C1470A)	4414234	610457387	TAIWAN-G	COMP	10	0	
CY7C1470V33 (7C1470A)	4352890	610457388	TAIWAN-G	COMP	10	0	

STRESS: PRESSURE COOKER TEST (121C, 100%RH), PRE COND 192 HR 30C/60%RH, MSL3

CY7C1470V33 (7C1470A)	4352891	610457386	TAIWAN-G	168	48	0	
CY7C1470V33 (7C1470A)	4352891	610457386	TAIWAN-G	288	48	0	
CY7C1313AV18 (7C1313B)	4352777	610419844	TAIWAN-G	168	45	0	

Reliability Test Data

QTP #: 050704

Device	Fab Lot #	Assy Lot #	Ass Loc	Duration	Samp	Rej	Failure Mechanism
--------	-----------	------------	---------	----------	------	-----	-------------------

STRESS: TC COND. C -65C TO 150C, PRECONDITION 192 HRS 30C/60%RH, MSL3

CY7C1470V33 (7C1470A)	4352891	610457386	TAIWAN-G	300	48	0	
CY7C1470V33 (7C1470A)	4352891	610457386	TAIWAN-G	500	46	0	
CY7C1470V33 (7C1470A)	4352891	610457386	TAIWAN-G	1000	46	0	
CY7C1470V33 (7C1470A)	4414234	610457387	TAIWAN-G	300	48	0	
CY7C1470V33 (7C1470A)	4414234	610457387	TAIWAN-G	500	48	0	
CY7C1470V33 (7C1470A)	4414234	610457387	TAIWAN-G	1000	48	0	
CY7C1470V33 (7C1470A)	4402400	610500796	TAIWAN-G	300	49	0	
CY7C1470V33 (7C1470A)	4402400	610500796	TAIWAN-G	500	49	0	
CY7C1313AV18 (7C1313B)	4352777	610419844	TAIWAN-G	300	44	0	

STRESS: THERMAL SHOCK

CY7C1470V33 (7C1470A)	4352891	610457386	TAIWAN-G	100	50	0	
CY7C1470V33 (7C1470A)	4352891	610457386	TAIWAN-G	200	50	0	

STRESS: X-RAY

CY7C1470V33 (7C1470A)	4352891	610457386	TAIWAN-G	COMP	76	0	
CY7C1470V33 (7C1470A)	4414234	610457387	TAIWAN-G	COMP	76	0	
CY7C1470V33 (7C1470A)	4352890	610457388	TAIWAN-G	COMP	76	0	
CY7C1313AV18 (7C1313B)	4352777	610419844	TAIWAN-G	COMP	15	0	

Document History Page

Document Title: QTP#050704: 165-Ball Fine Pitch Ball Grid Array (FBGA) (15 x 17 x 1.4mm and 13 x 15 x 1.4mm)
MSL3, 260C Solder Reflow ASE-Taiwan (G)
Document Number: 001-89474

Rev.	ECN No.	Orig. of Change	Description of Change
**	4142595	HSTO	Initial Spec Release Initiate report as per memo HGA-369.
*A	4517626	HSTO	Align qualification report based on the new template in the front page

Distribution: WEB

Posting: None