Cypress Semiconductor
Package Qualification Report

QTP# 073905
March 2025

172-Ball FBGA (Stacked Die)
(15 x 15mm)
SnAgCu, MSL3, 260C Reflow
ASE-Taiwan (G)

CYPRESS TECHNICAL CONTACT FOR QUALIFICATION DATA:

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PACKAGE QUALIFICATION HISTORY

Qual Report	Description of Qualification Purpose	Date Comp
073905	172-Ball FBGA (Stacked Die) (15 x 15mm), SnAgCu, MSL3, 260C Reflow assembled at ASE-Taiwan (G)	Jun 10

MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION	
Package Designation:	BB172
Package Outline, Type, or Name:	172-Ball FBGA Stacked Die
Mold Compound Name/Manufacturer:	KE-G-2270/Kyocera
Mold Compound Flammability Rating:	UL-94
Mold Compound Alpha Emission Rate :	N/A
Oxygen Rating Index:	N/A
Substrate Material:	ASEM
Lead Finish, Composition / Thickness:	SnAgCu
Die Backside Preparation Method/Metallization:	Backgrinding
Die Separation Method:	Saw
Die Attach Supplier:	Ablestik/QMI
Die Attach Material:	Die Attach 1: Ablestik 2025D Die Attach 2: QMI536
Die Attach Method:	Epoxy
Bond Diagram Designation:	001-16784
Wire Bond Method:	Thermosonic
Wire Material/Size:	1.0 mil
Thermal Resistance Theta JA °C/W:	N/A
Package Cross Section Yes/No:	Yes
Assembly Process Flow:	49-41999
Name/Location of Assembly (prime) facility:	ASE-Taiwan (G)
MSL Level	3
Reflow Profile	260C

ELECTRICAL TEST / FINISH DESCRIPTION	
Test Location:	CML-R, KYEC-Taiwan, G-Taiwan

RELIABILITY TESTS PERFORMED PER SPECIFICATION REQUIREMENTS

Stress/Test	Test Condition (Temp/Bias)	Result P/F
Acoustic Microscopy	J-STD-020	P
Ball Shear	JESD22-B116A, Cpk : 1.33, Ppk : 1.66	P
Final Visual	JESD22-B101B	P
Internal Visual	MIL-STD-883-2014	P
High Accelerated Saturation Test (HAST)	130°C, 85%RH, 3.6V Precondition: JESD22 Moisture Sensitivity MSL3 192 Hrs., 30°C/60%RH+3IR-Reflow, **260°C**+0, -5°C 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
Pressure Cooker	121°C, 100%RH Precondition: JESD22 Moisture Sensitivity MSL3 192 Hrs., 30°C/60%RH+3IR-Reflow, **260°C**+0, -5°C	P
Solderability	JESD22-B116A	P
Temperature Cycle	MIL-STD-883C, Method 1010, Condition C, -65°C to 150°C Precondition: JESD22 Moisture Sensitivity MSL3 192 Hrs., 30°C/60%RH+3IR-Reflow, **260°C**+0, -5°C	P

Reliability Test Data

QTP #: 073905

Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: ACOUSTIC, MSL3							
CY7C0853AV (7C08533BC)	4625447	610722410	TAIWAN-G	COMP	15	0	
CY7C0853AV (7C08533BC)	4627264	610724033	TAIWAN-G	COMP	15	0	
CY7C0853AV (7C08533BC)	4629088	610724229	TAIWAN-G	COMP	15	0	
STRESS: FINAL VISUAL							
CY7C0853AV (7C08533AC)	4616921	610816418	TAIWAN-G	COMP	140	0	
CY7C0853AV (7C08533AC)	4616921	610816416	TAIWAN-G	COMP	155	0	
STRESS: HI-ACCEL SATURATION TEST (130C, 85%RH, 3.6V), PRE COND 192 HR 30C/60%RH, MSL3							
CY7C1474V33 (7C1474AC)	4423980	610466039	TAIWAN-G	128	48	0	
STRESS: HI-ACCEL SATURATION TEST (130C, 85%RH, 3.63V), PRE COND HR 30C/60%RH, MSL5							
CY62177DV30L (7C62172DC)	4504324	610518429	TAIWAN-G	128	45	0	
STRESS: INTERNAL VISUAL							
CY7C0853AV (7C08533AC)	4616921	610816418	TAIWAN-G	COMP	5	0	
CY7C0853AV (7C08533AC)	4616921	610816416	TAIWAN-G	COMP	5	0	
STRESS: PRESSURE COOKER TEST, 121C, 100%RH, PRE COND 192 HR 30C/60%RH, MSL3							
CY7C0853AV (7C08533BC)	4625447	610722410	TAIWAN-G	168	80	0	
STRESS: SOLDER BALL SHEAR							
CY7C0853AV (7C08533AC)	4616921	610816418	TAIWAN-G	COMP	5	0	
CY7C0853AV (7C08533AC)	4616921	610816416	TAIWAN-G	COMP	5	0	
STRESS: SOLDERABILITY							
CY7C0853AV (7C08533BC)	4625447	610722410	TAIWAN-G	COMP	3	0	
CY7C0853AV (7C08533BC)	4627264	610724033	TAIWAN-G	COMP	3	0	
STRESS: TC COND. C -65C TO 150C, PRE COND192 HRS 30C/60%RH, MSL3							
CY7C0853AV (7C08533BC)	4625447	610722410	TAIWAN-G	500	80	0	
CY7C0853AV (7C08533BC)	4625447	610722410	TAIWAN-G	1000	80	0	
CY7C0853AV (7C08533BC)	4627264	610724033	TAIWAN-G	500	790		
CY7C0853AV (7C08533BC)	4627264	610724033	TAIWAN-G	1000	790		
CY7C0853AV (7C08533BC)	4629088	610724229	TAIWAN-G	500	800		
CY7C0853AV (7C08533BC)	4629088	610724229	TAIWAN-G	1000	800		

Reliability Test Data

QTP #: 073905

Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: CROSS SECTION							
CY7C0853AV (7C08533AC)	4616921	610816418	TAIWAN-G	COMP	5	0	
CY7C0853AV (7C08533AC)	4616921	610816416	TAIWAN-G	COMP	5	0	

History Page

Document Title: 073905: 172-BALL FBGA (STACKED DIE) (15 X 15MM) SNAGCU, MSL3, 260C REFLOW ASE-TAIWAN (G)
Document Number: 001-62081

Rev.	ECN No.	Orig. of Change	Description of Change
**	2943601	HGA	Initial spec release
*A	4040635	NSR	Removed VERSION 1.0 in the title page. Updated Cypress Technical Contact For Qualification Data. Added KYEC-Taiwan and G-Taiwan in test site. Removed wetting balance since it was not part of tests requirements for BGA package. Corrected HAST data. Removed reference Cypress Specs and retain the reference industry standards in Reliability Tests performed table.
*B	8113666	HSTO	Sunset review