

Cypress Semiconductor Package Qualification Report

**QTP# 080806 VERSION 1.0
July 2008**

**119 PBGA
(14 x 22 x 2.4 mm)
SnPb, MSL3, 220°C Reflow
Unisem-Indonesia**

CYPRESS TECHNICAL CONTACT FOR QUALIFICATION DATA:

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PACKAGE QUALIFICATION HISTORY

QUAL REPORT	DESCRIPTION OF QUALIFICATION PURPOSE	DATE COMP.
073702	Qualify 119PBGA (14 x 22 x 2.4 mm) SnAgCu, MSL3, 260C Reflow, using CRM 1577A Epoxy and Nitto GE100LFCSV Mold Compound assembled at AIT , Indonesia	Oct 07
080806	Qualify 119PBGA (14 x 22 x 2.4 mm) SnPb, MSL3, 220C Reflow, using CRM 1577A Epoxy and Nitto GE100LFCSV Mold Compound assembled at Unisem , Indonesia	Apr 08

MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION

Package Designation:	BG119
Package Outline, Type, or Name:	119 Plastic Ball Grid Array (PBGA)
Mold Compound Name/Manufacturer:	Nitto GE100LFCSV
Mold Compound Flammability Rating:	V-0 UL-94
Mold Compound Alpha Emission Rate :	$\geq 0.0015 \text{ cm}^2/\text{h}$
Oxygen Rating Index:	NA
Substrate Material:	Green Substrate
Lead Finish, Composition / Thickness:	SnPb
Die Backside Preparation Method/Metallization:	Backgrind
Die Separation Method:	Saw
Die Attach Supplier:	Ablestik
Die Attach Material:	CRM 1577A
Die Attach Method:	Epoxy
Bond Diagram Designation:	001-15795
Wire Bond Method:	Thermosonic
Wire Material/Size:	Au/ 0.8mil
Thermal Resistance Theta JA °C/W :	16.1 °C/W
Package Cross Section Yes/No:	N/A
Assembly Process Flow:	001-08480
Name/Location of Assembly (prime) facility:	Unisem-Indonesia
MSL Level:	3
Reflow Profile:	220C

ELECTRICAL TEST / FINISH DESCRIPTION

Test Location:	CML-R
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RELIABILITY TESTS PERFORMED PER SPECIFICATION REQUIREMENTS

Stress/Test	Test Condition (Temp/Bias)	Result P/F
Electrostatic Discharge Charge Device Model (ESD-CDM)	500V Spec. 25-00020 Cypress	P
Electrostatic Discharge Human Body Model (ESD-HBM)	2,200V Method A114-E JESD22,	P
High Accelerated Saturation Test (HAST)	130°C, 3.65V, 85%RH Precondition: JESD22 Moisture Sensitivity MSL 3 192 Hrs, 30°C/60%RH + 3IR-Reflow, 260°C +0, -5°C	P
High Temp Storage	150C, no bias	P
Pressure Cooker	121°C, 100%RH, 15 PSIG Precondition: JESD22 Moisture Sensitivity MSL 3 192 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 MSL3 192 Hrs 30°C/60%RH + 3IR-Reflow, 260°C +0, -5°C	P
Acoustic Microscopy	Cypress Spec 25-00104	P
Ball Shear	Cypress Spec 12-00292	P
Bond Pull	Cypress Spec 12-00292	P
Constructional Analysis	Cypress Spec 25-20035	P
Cross Section	Cypress Spec 25-20026	P
Die Shear	Cypress Spec 12-00292	P
Dye Penetrant Test	Cypress Spec 25-00046	P
Final Visual Inspection	Cypress Spec 12-00292	P
Internal Visual	Cypress Spec 12-00292	P
Physical Dimension	Cypress Spec 25-00031	P
Solderability	Cypress Spec 25-00018	P
Solder Ball Shear	JESD-B117	P
Thermal Shock	Cypress Spec 25-00014	P
X-Ray	MIL-STD-883-2012	P

Reliability Test Data

QTP #: 073702

<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							
CY7C1012SV33 (7C1012A)	4712061	610734552	AIT-INDONESIA	COMP	15	0	
CY7C1012SV33 (7C1012A)	4712061	610734555	AIT-INDONESIA	COMP	15	0	
CY7C1012SV33 (7C1012A)	4712061	610734556	AIT-INDONESIA	COMP	15	0	
STRESS: BALL SHEAR							
CY7C1012SV33 (7C1012A)	4712061	610734552	AIT-INDONESIA	COMP	10	0	
STRESS: BOND PULL							
CY7C1012SV33 (7C1012A)	4712061	610734552	AIT-INDONESIA	COMP	10	0	
STRESS: CONSTRUCTIONAL ANALYSIS							
CY7C1012SV33 (7C1012A)	4712061	610734552	AIT-INDONESIA	COMP	1	0	
STRESS: DIE SHEAR							
CY7C1012SV33 (7C1012A)	4712061	610734552	AIT-INDONESIA	COMP	15	0	
STRESS: DYE PENETRANT TEST							
CY7C1012SV33 (7C1012A)	4712061	610734552	AIT-INDONESIA	COMP	15	0	
CY7C1012SV33 (7C1012A)	4712061	610734555	AIT-INDONESIA	COMP	15	0	
CY7C1012SV33 (7C1012A)	4712061	610734556	AIT-INDONESIA	COMP	15	0	
STRESS: ESD-CHARGE DEVICE MODEL, 500V							
CY7C1012SV33 (7C1012A)	4712061	610734552	AIT-INDONESIA	COMP	9	0	
STRESS: ESD-HUMAN BODY CIRCUIT PER JESD22, METHOD A114-E, 2,200V							
CY7C1012SV33 (7C1012A)	4712061	610734552	AIT-INDONESIA	COMP	8	0	
STRESS: FINAL VISUAL							
CY7C1012SV33 (7C1012A)	4712061	610734552	AIT-INDONESIA	COMP	535	0	
CY7C1012SV33 (7C1012A)	4712061	610734555	AIT-INDONESIA	COMP	118	0	
CY7C1012SV33 (7C1012A)	4712061	610734556	AIT-INDONESIA	COMP	113	0	
STRESS: HIGH TEMP STORAGE							
CY62167DV30LL (7C62162DC)	24701893	610725091	AIT-INDONESIA	500	77	0	
CY62167DV30LL (7C62162DC)	24701893	610725091	AIT-INDONESIA	1000	76	0	
STRESS: HI-ACCEL SATURATION TEST, (130C, 3.65V), 85%RH, PRE COND 192 HR 30C/60%RH, MSL3							
CY7C1012SV33 (7C1012A)	4712061	610734552	AIT-INDONESIA	128	79	0	
STRESS: INTERNAL VISUAL							
CY7C1012SV33 (7C1012A)	4712061	610734552	AIT-INDONESIA	COMP	5	0	
CY7C1012SV33 (7C1012A)	4712061	610734555	AIT-INDONESIA	COMP	5	0	

Reliability Test Data

QTP #: 073702

Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: PHYSICAL DIMENSIONS							
CY7C1012SV33 (7C1012A)	4712061	610734552	AIT-INDONESIA	COMP	30	0	
STRESS: PRESSURE COOKER TEST (121C, 100%RH), PRE COND 192HRS 30C/60%RH, MSL3							
CY7C1012SV33 (7C1012A)	4712061	610734552	AIT-INDONESIA	168	80	0	
STRESS: SOLDERABILITY							
CY7C1012SV33 (7C1012A)	4712061	610734552	AIT-INDONESIA	COMP	3	0	
CY7C1012SV33 (7C1012A)	4712061	610734555	AIT-INDONESIA	COMP	3	0	
CY7C1012SV33 (7C1012A)	4712061	610734556	AIT-INDONESIA	COMP	3	0	
STRESS: TC COND. -65C TO 150 C, PRECONDITION 192 HRS 30C/60%RH, MSL3							
CY7C1012SV33 (7C1012A)	4712061	610734552	AIT-INDONESIA	500	80	0	
CY7C1012SV33 (7C1012A)	4712061	610734555	AIT-INDONESIA	500	80	0	
CY7C1012SV33 (7C1012A)	4712061	610734556	AIT-INDONESIA	500	80	0	
STRESS: THERMAL SHOCK							
CY7C1012SV33 (7C1012A)	4712061	610734552	AIT-INDONESIA	200	80	0	
CY7C1012SV33 (7C1012A)	4712061	610734552	AIT-INDONESIA	1000	80	0	
STRESS: X-RAY							
CY7C1012SV33 (7C1012A)	4712061	610734552	AIT-INDONESIA	COMP	15	0	

Reliability Test Data

QTP #: 080806

<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: CROSS SECTION							
CY7C1012AV33 (7C1012A)	4712061	610734554	AIT-INDONESIA	COMP	5	0	
CY7C1012AV33 (7C1012A)	4712061	610734553	AIT-INDONESIA	COMP	5	0	
STRESS: FINAL VISUAL INSPECTION							
CY7C1012AV33 (7C1012A)	4712061	610734554	AIT-INDONESIA	COMP	100	0	
CY7C1012AV33 (7C1012A)	4712061	610734553	AIT-INDONESIA	COMP	97	0	
STRESS: SOLDERABILITY							
CY7C1012AV33 (7C1012A)	4712061	610734554	AIT-INDONESIA	COMP	3	0	
CY7C1012AV33 (7C1012A)	4712061	610734553	AIT-INDONESIA	COMP	3	0	
STRESS: SOLDER BALL SHEAR							
CY7C1012AV33 (7C1012A)	4712061	610734554	AIT-INDONESIA	COMP	5	0	
CY7C1012AV33 (7C1012A)	4712061	610734553	AIT-INDONESIA	COMP	5	0	
STRESS: X-RAY							
CY7C1012AV33 (7C1012A)	4712061	610734554	AIT-INDONESIA	COMP	5	0	
CY7C1012AV33 (7C1012A)	4712061	610734553	AIT-INDONESIA	COMP	5	0	