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Cypress Semiconductor
Package Qualification Report

QTP 070802 VERSION*B
October 2014

28 / 32-Lead SOIC

(300mils)

Pure Sn, MSL3, 260C Reflow

Amkor-Phil (M)

FOR ANY QUESTIONS ON THIS REPORT, PLEAE 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.
044301		ALL (300mil) SOIC package using Sumitomo G600, 8290 DA Epoxy with 100% Matte Tin with Annealing Process, @ 260C Solder Reflow Peak, MSL3, assembled @ PHIL-M		Apr 05
070802		AMKOR Philippines (M), 32L SOIC 300mils Large Die Qualification Using device 14B101L (1M nvSRAM), Die Size (149X347mils) with Sumitomo G600 Mold Compound, Ablestik 8290 Epoxy Pb-Free (Matte Sn, MSL3/260C)		Aug 07
090303		To qualify SOIC Packages (28/32L) 300 mils body in Amkor-Phils in MSL3, 260C, Pure Sn Lead Finish (Devices with Down bonds)		June 09

MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION	
Package Designation:	SZ32
Package Outline, Type, or Name:	32-Lead Plastic Small Outline IC Package (SOIC)
Mold Compound Name/Manufacturer:	Sumitomo EME-G600
Mold Compound Flammability Rating:	V-0 per UL-94
Mold Compound Alpha Emission Rate:	<0.001 cph/cm2
Oxygen Rating Index:	V-0
Lead Frame Material:	Copper
Lead Finish, Composition / Thickness:	100% Matte Tin / 6 mils
Die Backside Preparation Method/Metallization:	Backgrind
Die Separation Method:	100% Saw Through
Die Attach Supplier:	Ablestik
Die Attach Material:	8290
Die Attach Method:	Epoxy
Wire Bond Method:	Thermosonic
Wire Material/Size:	Au / 1.2mil
Thermal Resistance Theta JA °C/W:	44.3 °C/W
Package Cross Section Yes/No:	N/A
Assembly Process Flow:	001-02209
Name/Location of Assembly (prime) facility:	PHIL-M
MSL Level:	3
Reflow Profile:	260C

ELECTRICAL TEST / FINISH DESCRIPTION	
Test Location:	INTEGRA Technologies, AMKOR Phil (M)

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
High Accelerated Saturation Test (HAST)	130C, 5.5V, 3.63V, 85%RH Precondition: JESD22 Moisture Sensitivity MSL 3 192 Hrs., 30□C/60%RH+3IR-Reflow, 260C+5, -0C	P
Pressure Cooker	121□C, 100%RH Precondition: JESD22 Moisture Sensitivity MSL 3 192 Hrs., 30C/60%RH+3IR-Reflow, 260C+5, -0C	P
Temperature Cycle	MIL-STD-883C, Method 1010, Condition C, -65C to 150C Precondition: JESD22 Moisture Sensitivity MSL 3 192 Hrs., 30C/60%RH+3IR-Reflow, 260C+5, -0C	P
Acoustic Microscopy	J-STD-020	P
Adhesion of Lead Finish	MIL-STD-883, Method 2025	P
Ball Shear	JESD22-B116A	P
Bond Pull	MIL-STD-883 – Method 2011	P
Constructional Analysis	Criteria: Meet external and internal characteristics of Cypress package	P
Die Shear	MIL-STD-883, Method 2019	P
Dye Penetrant Test	Test to determine the existence and extent of cracks, Criteria: No Package Crack	P
External Visual	MIL-PRF-38535, MILSTD-883, METHOD 2009	P
High Temp Storage	150C, no bias	P
Internal Visual	MIL-STD-883-2014	P
Physical Dimension	MIL-STD-1835, JESD22-B100	P
SEM X-Section	MIL-STD-883, Method 883-2018-2	P
Solderability	J-STD-002, JESD22-B102	P
Thermal Shock	MIL-STD-883C, Method 1011	P
X-Ray	MIL-STD-883C, Method 2012	P

Reliability Test Data

QTP #: 044301

Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: ACOUSTIC - MICROSCOPE, MSL3							
CY7C63723-SXC (7C63720A)	2431971	610454227	PHIL-M	COMP	15	0	
CY7C63723-SXC (7C63720A)	2431971	610454228	PHIL-M	COMP	15	0	
CYISM532ASXC (7C8SM532B)	9421605	610454226	PHIL-M	COMP	15	0	
STRESS: ADHESION OF LEAD FINISH							
CY7C63723-SXC (7C63720A)	2431971	610454227	PHIL-M	COMP	3	0	
CY7C63723-SXC (7C63720A)	2431971	610454228	PHIL-M	COMP	3	0	
STRESS: EXTRNAL VISUAL							
CY7C63723-SXC (7C63720A)	2431971	610454227	PHIL-M	COMP	15	0	
CY7C63723-SXC (7C63720A)	2431971	610454228	PHIL-M	COMP	15	0	
STRESS: X-RAY							
CY7C63723-SXC (7C63720A)	2431971	610454227	PHIL-M	COMP	15	0	
CY7C63723-SXC (7C63720A)	2431971	610454228	PHIL-M	COMP	15	0	
STRESS: SOLDERABILITY							
CY7C63723-SXC (7C63720A)	2431971	610454227	PHIL-M	COMP	3	0	
CY7C63723-SXC (7C63720A)	2431971	610454228	PHIL-M	COMP	3	0	
STRESS: SEM X-SECTION							
CY7C63723-SXC (7C63720A)	2431971	610454227	PHIL-M	COMP	5	0	
CY7C63723-SXC (7C63720A)	2431971	610454228	PHIL-M	COMP	5	0	
STRESS: HI-ACCEL SATURATION TEST. 130C, 5.5V, 85%RH, PRE COND 192 HRS 30C/60%RH, MSL3							
CY7C63723-SXC (7C63720A)	2431971	610454227	PHIL-M	128	49	0	
CY7C63723-SXC (7C63720A)	2431971	610454228	PHIL-M	128	50	0	
STRESS: PRESSURE COOKER TEST, 121C, 100%RH, PRE COND 192 HRS 30C/60%RH, MSL3							
CY7C63723-SXC (7C63720A)	2431971	610454227	PHIL-M	168	50	0	

Reliability Test Data

QTP #: 044301

Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: TC COND. C -65C TO 150C, PRE COND 192 HRS 30C/60%RH, MSL3							
CY7C63723-SXC (7C63720A)	2431971	610454227	PHIL-M	300	50	0	
CY7C63723-SXC (7C63720A)	2431971	610454227	PHIL-M	500	50	0	
CY7C63723-SXC (7C63720A)	2431971	610454227	PHIL-M	1000	50	0	
CY7C63723-SXC (7C63720A)	2431971	610454228	PHIL-M	300	50	0	
CY7C63723-SXC (7C63720A)	2431971	610454228	PHIL-M	500	49	0	
CY7C63723-SXC (7C63720A)	2431971	610454228	PHIL-M	1000	49	0	
CYISM532ASXC (7C8SM532B)	9421605	610454226	PHIL-M	300	49	0	
CYISM532ASXC (7C8SM532B)	9421605	610454226	PHIL-M	1000	49	0	

Reliability Test Data

QTP #: 070802

Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: ACOUSTIC, MSL3							
CY14B101L (14B101L)	NA	71600440	PHIL-M	COMP	15	0	
CY14B101L (14B101L)	NA	71600441	PHIL-M	COMP	15	0	
CY14B101L (14B101L)	NA	71600442	PHIL-M	COMP	15	0	
STRESS: BALL SHEAR							
CY14B101L (14B101L)	NA	71600441	PHIL-M	COMP	10	0	
STRESS: BOND PULL							
CY14B101L (14B101L)	NA	71600441	PHIL-M	COMP	10	0	
STRESS: DIE SHEAR							
CY14B101L (14B101L)	NA	71600441	PHIL-M	COMP	15	0	
STRESS: CONSTRUCTIONAL ANALYSIS							
CY14B101L (14B101L)	NA	800701341	PHIL-M	COMP	1	0	
STRESS: DIE PENETRANT TEST							
CY14B101L (14B101L)	NA	800700018	PHIL-M	COMP	15	0	
CY14B101L (14B101L)	NA	800700033	PHIL-M	COMP	15	0	
CY14B101L (14B101L)	NA	800701341	PHIL-M	COMP	15	0	
STRESS: HI-ACCEL SATURATION TEST. 130C, 3.63V, 85%RH, PRE COND 192 HRS 30C/60%RH, MSL3							
CY14B101L (14B101L)	NA	71600442	PHIL-M	128	84	0	
STRESS: HIGH TEMP STORAGE, 150C							
CY14B101L (14B101L)	NA	71600440	PHIL-M	500	84	0	
CY14B101L (14B101L)	NA	71600440	PHIL-M	1000	84	0	
STRESS: INTERNAL VISUAL							
CY14B101L (14B101L)	NA	71600441	PHIL-M	COMP	5	0	
STRESS: PRESSURE COOKER TEST, 121C, 100%RH, PRE COND 192 HRS 30C/60%RH, MSL3							
CY14B101L (14B101L)	NA	71600441	PHIL-M	168	84	0	
STRESS: TC COND. C -65C TO 150C, PRE COND 192 HRS 30C/60%RH, MSL3							
CY14B101L (14B101L)	NA	71600440	PHIL-M	300	77	0	
CY14B101L (14B101L)	NA	71600441	PHIL-M	300	77	0	
CY14B101L (14B101L)	NA	71600442	PHIL-M	300	77	0	

Reliability Test Data

QTP #: 070802

Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: TS COND. B -55C TO 125C							
CY14B101L (14B101L)	NA	800700033	PHIL-M	200	77	0	
CY14B101L (14B101L)	NA	800700033	PHIL-M	1000	77	0	
STRESS: X-RAY							
CY14B101L (14B101L)	NA	71600441	PHIL-M	COMP	15	0	

Reliability Test Data

QTP #: 090303

Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: ACOUSTIC, MSL3							
CY14B101L (14B101LM)	8722005	610754487	PHIL-M	COMP	15	0	
CY14B101L (14B101LM)	8747008	610812873	PHIL-M	COMP	15	0	
CY14B101L (14B101L)	NA	71600441	PHIL-M	COMP	15	0	
STRESS: BALL SHEAR							
STK14C88 (14C88BR)	8847035	610905107	PHIL-M	COMP	10	0	
STRESS: BOND PULL							
STK14C88 (14C88BR)	8847035	610905107	PHIL-M	COMP	10	0	
STRESS: DIE SHEAR							
STK14C88 (14C88BR)	8847035	610905107	PHIL-M	COMP	4	0	
STK14C88 (14C88BR)	8847037	610904626	PHIL-M	COMP	4	0	
STK14C88 (14C88BR)	8847031	610901550	PHIL-M	COMP	4	0	
STK14C88 (14C88BR)	8847072	610902707	PHIL-M	COMP	4	0	
STRESS: CONSTRUCTIONAL ANALYSIS							
STK14C88 (14C88)	NA	800800897	PHIL-M	COMP	5	0	
STRESS: DIE PENETRANT TEST							
STK14C88 (14C88)	NA	800800897	PHIL-M	COMP	15	0	
STK14C88 (14C88)	NA	800801088	PHIL-M	COMP	15	0	
STK14C88 (14C88)	NA	800800900	PHIL-M	COMP	15	0	
STRESS: HI-ACCEL SATURATION TEST. 130C, 3.63V, 85%RH, PRE COND 192 HRS 30C/60%RH, MSL3							
CY14B101L (14B101L)	NA	71600442	PHIL-M	128	84	0	
STRESS: INTERNAL VISUAL							
STK14C88 (14C88)	NA	800800897	PHIL-M	COMP	5	0	
STRESS: PRESSURE COOKER TEST, 121C, 100%RH, PRE COND 192 HRS 30C/60%RH, MSL3							
CY14B101L (14B101L)	NA	71600441	PHIL-M	168	84	0	
STRESS: PHYSICAL DIMENSION							
CY14B101L (14B101LM)	8722005	610754487	PHIL-M	COMP	30	0	
STRESS: SOLDERABILITY							
STK14C88 (14C88)	NA	800800897	PHIL-M	COMP	3	0	
STK14C88 (14C88)	NA	800801088	PHIL-M	COMP	3	0	
STK14C88 (14C88)	NA	800800900	PHIL-M	COMP	3	0	

Reliability Test Data

QTP #: 090303

Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: TC COND. C -65C TO 150C, PRE COND 192 HRS 30C/60%RH, MSL3							
CY14B101L (14B101LM)	8722005	610754487	PHIL-M	500	74	0	
CY14B101L (14B101LM)	8747008	610812873	PHIL-M	500	80	0	
CY14B101L (14B101L)	NA	71600441	PHIL-M	300	77	0	
STRESS: TS COND. B -55C TO 125C							
CY14B101L (14B101L)	NA	800700033	PHIL-M	200	77	0	
CY14B101L (14B101L)	NA	800700033	PHIL-M	1000	77	0	
STRESS: X-RAY							
STK14C88 (14C88BR)	8847035	610905107	PHIL-M	COMP	15	0	
STK14C88 (14C88BR)	8847037	610904626	PHIL-M	COMP	15	0	

Document History Page

Document Title: QTP 070802: 28 / 32-Lead SOIC (300 mils) Pure Sn, MSL3, 260C Reflow, Amkor-Phil (M) Qualification Report
Document Number: 001-64002

Rev.	ECN No.	Orig. of Change	Description of Change
**	3025091	NRG	Initial spec release Updated title to include 28L SOIC.
*A	4163081	HSTO	Sunset Review Deleted “version 2.1” in front page Deleted obsolete specifications in page 3 Removed the reference Cypress specs in the reliability tests performed table and replace with the reference industry standards.
*B	4536462	HSTO	Align qualification report based on the new template in the front page

Distribution: WEB

Posting: None