

Cypress Semiconductor Package Qualification Report

**QTP# 033203 VERSION*A
September 2014**

**<16-Lead SOIC (150mils)
Pb-Free, MSL3, 260C Solder Reflow
Amkor-Phil**

**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.
033203	Qualify Amkor for \leq 16-Lead SOIC (150mils) Pb-Free, MSL1, 260C Solder Reflow Temperature @ Amkor-Philippines	Dec 03
033203	Cypress established policy requiring MSL and Reflow Peak Temperature alignment for Cypress and its Assembly Subcontractors. Downgrade from MSL1 to MSL3.	Mar 07

MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION	
Package Designation:	S1615
Package Outline, Type, or Name:	16-Lead Small Outline IC (SOIC)
Mold Compound Name/Manufacturer:	Sumitomo 6600H
Mold Compound Flammability Rating:	V-O per UL 94
Oxygen Rating Index:	>28%
Lead Frame Material:	Copper
Lead Finish, Composition / Thickness:	Pure Tin
Die Backside Preparation Method/Metallization:	Backgrind
Die Separation Method:	Wafer Saw
Die Attach Supplier:	Ablestik
Die Attach Material:	8290
Die Attach Method:	Eutectic
Bond Diagram Designation	10-02699
Wire Bond Method:	Thermosonic
Wire Material/Size:	Au, 1.0 mils
Thermal Resistance Theta JA °C/W:	121.6°C/W
Package Cross Section Yes/No:	N/A
Assembly Process Flow:	49-41999M
Name/Location of Assembly (prime) facility:	Amkor- Philippines (Phil-M)
MSL3	3
Reflow Profile	260C

ELECTRICAL TEST / FINISH DESCRIPTION	
Test Location:	Cypress Philippines (CML-R)

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

RELIABILITY TESTS PERFORMED PER SPECIFICATION REQUIREMENTS

Stress/Test	Test Condition (Temp/Bias)	Result P/F
High Accelerated Saturation Test (HAST)	130°C, 3.63V, 85%RH Precondition: JESD22 Moisture Sensitivity MSL 1 168 Hrs., 85°C/85%RH+3IR-Reflow, 260°C+0, -5°C	P
Temperature Cycle	Precondition: JESD22 Moisture Sensitivity MSL 1 168 Hrs., 85°C/85%RH+3IR-Reflow, 260°C+0, -5°C	P
Pressure Cooker	121°C, 100%RH, 15 Psig Precondition: JESD22 Moisture Sensitivity MSL 1 168 Hrs., 85°C/85%RH+3IR-Reflow, 260°C+0, -5°C	P
High Temperature Storage	150C, no bias	P
Acoustic Microscopy	J-STD-020	P
X-Ray	MIL-STD-883 - 2012	P
Solderability	J-STD-002, JESD22-B102	P
External Visual	MIL-PRF-38535, MILSTD-883, METHOD 2009	P
Adhesion of Lead Finish	MIL-STD-883, Method 2025	P



Reliability Test Data

QTP #: 033203

Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: ACOUSTIC, MSL1							
CY2292SC	2322742	610340131	PHIL-M	COMP	15	0	
CY2292SC	2322742	610340131M	PHIL-M	COMP	15	0	
CY2292SC	2322742	610340131M1	PHIL-M	COMP	15	0	
STRESS: ADHESION OF LEAD FINISH							
CY27022SC	9214305	610239606	PHIL-M	COMP	5	0	
CY27022SC	9214305	610239608	PHIL-M	COMP	5	0	
STRESS: EXTERNAL VISUAL							
CY2292SC	2322742	610340131M	PHIL-M	COMP	15	0	
CY2292SC	2322742	610340131M1	PHIL-M	COMP	15	0	
STRESS: SOLDERABILITY							
CY2292SC	2322742	610340131	PHIL-M	COMP	5	0	
CY2292SC	2322742	610340131M	PHIL-M	COMP	5	0	
STRESS: X-RAY							
CY2292SC	2322742	610340131	PHIL-M	COMP	15	0	
STRESS: HI-ACCEL SATURATION TEST, 130C, 85%RH, 3.63V, PRE-COND. 168 HRS., 85C/85%RH, MSL1							
CY2292SC	2322742	610340131	PHIL-M	128	42	0	
CY2292SC	2322742	610340131M	PHIL-M	128	48	0	
STRESS: PRESSURE COOKER TEST, 121C, 100%RH, 15 Psig, PRE COND. 168 Hrs., 85C/85%RH, MSL1							
CY2292SC	2322742	610340131	PHIL-M	168	48	0	
STRESS: TC CONDITION C, -65C TO 150C, PRE COND. 168 HRS., 85C/85%RH, MSL1							
CY2292SC	2322742	610340131	PHIL-M	300	50	0	
CY2292SC	2322742	610340131	PHIL-M	500	50	0	
CY2292SC	2322742	610340131	PHIL-M	1000	49	0	
CY2292SC	2322742	610340131M	PHIL-M	300	50	0	
CY2292SC	2322742	610340131M	PHIL-M	500	49	0	
CY2292SC	2322742	610340131M	PHIL-M	1000	48	0	
CY2292SC	2322742	610340131M1	PHIL-M	300	50	0	
CY2292SC	2322742	610340131M1	PHIL-M	500	50	0	
CY2292SC	2322742	610340131M1	PHIL-M	1000	50	0	

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Document History Page

Document Title:QTP#033203: <16-Lead SOIC (150mils) Pb-Free, MSL3, 260C Solder Reflow Amkor-Phil
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Rev.	ECN No.	Orig. of Change	Description of Change
**	4140895	HSTO	Initial Specification Release Initiate report as per memo LGQ-695
*A	4516853	HSTO	Align qualification report based on the new template in the front page

Distribution: WEB

Posting: None