Cypress Semiconductor
Package Qualification Report

QTP# 023407 VERSION*A
January 2015

8/16-Lead SOIC Package (150mil)
Ni/Pd/Au, MSL3
235C & 260C Reflow
Cypress Philippines (CML-RA)

FOR ANY QUESTIONS ON THIS REPORT, PLEAE CONTACT
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PACKAGE QUALIFICATION HISTORY

QUAL REPORT	DESCRIPTION OF QUALIFICATION PURPOSE	DATE COMP.
023407	8/16-lead (150mil) SOIC package using NITTO MP-8500 Molding Compound, Ni/Pd /Au Leadframe, @ 260C Solder Reflow Peak, MSL1, CML-RA (Autoline)	Dec 02
023407	Cypress established policy requiring MSL and Reflow Peak Temperature alignment for Cypress and its Assembly Subcontractors.	Sep 06

MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION	
Package Designation:	S1615
Package Outline, Type, or Name:	16- Plastic Small Outline IC Package (SOIC)
Mold Compound Name/Manufacturer:	NITTO MP-8500
Mold Compound Flammability Rating:	V-O per UL94
Oxygen Rating Index:	>28%
Lead Frame Material:	Copper base with Ni/Pd and Gold Flash Plating
Lead Finish, Composition / Thickness:	Ni/Pd with Gold Flash
Die Backside Preparation Method/Metallization:	N/A
Die Separation Method:	Wafer Saw
Die Attach Supplier:	Dexter
Die Attach Material:	QMI 509
Die Attach Method:	Silver Epoxy
Bond Diagram Designation	Not Applicable
Wire Bond Method:	Thermosonic
Wire Material/Size:	Gold, 1.0mil
Thermal Resistance Theta JA °C/W:	86°C/W
Package Cross Section Yes/No:	N/A
Assembly Process Flow:	Not Applicable
Name/Location of Assembly (prime) facility:	Cypress Philippines (CML-R)
MSL Level	3
Reflow Profile	235C & 260C

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

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
Temperature Cycle	MIL-STD-883C, Method 1010, Condition C, -65°C to 150°C 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 Accelerated Saturation Test (HAST)	130°C, 5.5V, 85%RH Precondition: JESD22 Moisture Sensitivity MSL 1 168 Hrs., 85C/85%RH+3IR-Reflow, 260°C+0, -5°C	P
Electrostatic Discharge Human Body Model (ESD-HBM)	2,200V MIL-STD-883, Method 3015.7	P
Electrostatic Discharge Charge Device Model (ESD-CDM)	500V JESD22-C101	P
Thermal Shock	-55°C to +125°C MIL-STD-883C, Method 1011	P
High Temperature Storage	150°C ±5°C no bias	P
Ball Shear	JESD22-B116A Cpk : 1.33, Ppk : 1.66	P
Die Shear	MIL-STD-883, Method 2019	P
Bond Pull	MIL-STD-883 – Method 2011, Cpk : 1.33, Ppk : 1.66	P
External Visual	MIL-PRF-38535, MIL-STD-883, METHOD 2009	P
Internal Visual	MIL-STD-883-2014	P
Physical Dimensions	MIL-STD-1835, JESD22-B100	P
X-Ray	MIL-STD-883C, Method 2012, Cypress Spec 12-00292	P
Solderability	J-STD-002, JESD22-B102 95% solder coverage minimum	P
Acoustic Microscopy	J-STD-020 Precondition: JESD22 Moisture Sensitivity Level (168 Hrs., 85°C, 85% RH)	P

Reliability Test Data

QTP #: 023407

Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: ACOUSTIC, MSL1							
CY2292*-SC (7C83300D)	2233327	*610242798*	CML-RA	COMP	15	0	
CY2292*-SC (7C83300D)	2235486	*610242797*	CML-RA	COMP	15	0	
CY2292*-SC (7C83300D)	2235480	*610242799*	CML-RA	COMP	15	0	
STRESS: DIE SHEAR							
CY2292*-SC (7C83300D)	2233327	*610242798*	CML-RA	COMP	15	0	
STRESS: BALL SHEAR							
CY2292*-SC (7C83300D)	2233327	*610242798*	CML-RA	COMP	10	0	
STRESS: BOND PULL							
CY2292*-SC (7C83300D)	2233327	*610242798*	CML-RA	COMP	10	0	
STRESS: PHYSICAL DIMENSIONS							
CY2292*-SC (7C83300D)	2233327	*610242798*	CML-RA	COMP	5	0	
STRESS: EXTRNAL VISUAL							
CY2292*-SC (7C83300D)	2233327	*610242798*	CML-RA	COMP	15	0	
STRESS: INTERNAL VISUAL							
CY2292*-SC (7C83300D)	2233327	*610242798*	CML-RA	COMP	5	0	
STRESS: X-RAY							
CY2292*-SC (7C83300D)	2233327	*610242798*	CML-RA	COMP	15	0	
STRESS: SOLDERABILITY							
CY2292*-SC (7C83300D)	2233327	*610242798*	CML-RA	COMP	3	0	
STRESS: HIGH TEMPERATURE STORAGE, PLASTIC, 150C							
CY2292*-SC (7C83300D)	2233327	*610242798*	CML-RA	500	50	0	
CY2292*-SC (7C83300D)	2233327	*610242798*	CML-RA	1000	50	0	
STRESS: THERMAL SHOCK, +125C/-55C							
CY2292*-SC (7C83300D)	2233327	*610242798*	CML-RA	100	50	0	
CY2292*-SC (7C83300D)	2233327	*610242798*	CML-RA	200	50	0	
STRESS: ESD-CHARGE DEVICE MODEL, 500V							
CY2292*-SC (7C83300D)	2233327	*610242798*	CML-RA	COMP	9	0	
STRESS: ESD-HUMAN BODY CIRCUIT PER MIL STD 883, METHOD 3015, 2,200V							
CY2292*-SC (7C83300D)	2233327	*610242798*	CML-RA	COMP	9	0	

Reliability Test Data

QTP #: 023407

Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: HI-ACCEL SATURATION TEST. 130C, 5.5V, 85%RH, PRE COND 168 HR 85C/85%RH, MSL 1							
CY2292*-SC (7C83300D)	2233327	*610242798*	CML-RA	128	48	0	
STRESS: PRESSURE COOKER TEST, 121C, 100%RH, 15 Psig, PRE COND 168 HR 85C/85%RH, MSL1							
CY2292*-SC (7C83300D)	2233327	*610242798*	CML-RA	168	50	0	
STRESS: TC COND. C -65C TO 150C, PRE COND 168 HRS 85C/85%RH, MSL1							
CY2292*-SC (7C83300D)	2233327	*610242798*	CML-RA	300	50	0	
CY2292*-SC (7C83300D)	2233327	*610242798*	CML-RA	500	50	0	
CY2292*-SC (7C83300D)	2233327	*610242798*	CML-RA	1000	50	0	
CY2292*-SC (7C83300D)	2235486	*610242797*	CML-RA	300	50	0	
CY2292*-SC (7C83300D)	2235486	*610242797*	CML-RA	500	50	0	
CY2292*-SC (7C83300D)	2235486	*610242797*	CML-RA	1000	50	0	
CY2292*-SC (7C83300D)	2235480	*610242799*	CML-RA	300	50	0	
CY2292*-SC (7C83300D)	2235480	*610242799*	CML-RA	500	50	0	
CY2292*-SC (7C83300D)	2235480	*610242799*	CML-RA	1000	50	0	

Document History Page

Document Title: QTP 023407 : 8-16 SOIC, MSL3, 235C, 260C, NIPDAU, CML-RA
Document Number: 001-85252

Rev.	ECN No.	Orig. of Change	Description of Change
**	3839084	HLR	Initial Spec Release.
*A	4611795	HSTO	Align qualification report based on the new template in the front page Update the test conditions and reference standards/criteria for ESD-CDM, Thermal Shock, Ball Shear, Bond Pull, External Visual, Internal Visual, Physical Dimensions, X-Ray, and Solderability

Distribution: WEB

Posting: None