

Cypress Semiconductor Automotive Package Qualification Report

**QTP# 150403 VERSION **
May 2015**

**8L SOIC (150mil)
NiPdAuAg, Au Wire
MSL3, 260C Reflow
CML-Philippines (RA)**

**FOR ANY QUESTIONS ON THIS REPORT PLEASE CONTACT reliability@cypress.com :
OR VIA LINK A CYLINK CRM CASE**

Prepared By:
Becky Thomas
Reliability Engineer

Reviewed By:
Rene Rodgers
Reliability Manager

Approved By:
Don Darling
Reliability Director

PACKAGE QUALIFICATION HISTORY

QTP Number	Description of Qualification Purpose	Date
150403	Qualification of 8L SOIC (150 mil) using Au wire with KE G3000 mold compound, QMI-509 die attach material, Cu leadframe and NiPdAuAg leadfinish.	May 2015

MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION	
Package Designation:	SZ815
Package Outline, Type, or Name:	8L SOIC (150 mils)
Mold Compound Name/Manufacturer:	KE G3000 / Kyocera
Mold Compound Flammability Rating:	V-0 UL-94
Mold Compound Alpha Emission Rate:	N/A (not low alpha mold compound)
Oxygen Rating Index: >28%	70%
Lead Frame Designation:	FMP
Lead Frame Material:	Cu
Substrate Material:	N/A
Lead Finish, Composition / Thickness:	NiPdAuAg
Die Backside Preparation Method/Metallization:	Backgrind
Die Separation Method:	Laser Groove / Saw
Die Attach Supplier:	Henkel
Die Attach Material:	QMI-509
Bond Diagram Designation	001-95149 / 001-95150
Wire Bond Method:	Thermosonic
Wire Material/Size:	Au / 0.8 mil
Thermal Resistance Theta JA °C/W:	161
Package Cross Section Yes/No:	Yes
Assembly Process Flow:	001-93265
Name/Location of Assembly (prime) facility:	CML Autoline (RA)
MSL LEVEL	3
REFLOW PROFILE	260C

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

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
Electrostatic Discharge Human Body Model (ESD-HBM)	AEC-Q100-002, 500V, 1,000V, 1,500V, 2,000V	P
Electrostatic Discharge Charge Device Model (ESD-CDM)	AEC-Q100-011, 250V, 500V, 750V (corner pins)	P
High Temperature Storage Life Test	JESD22-A103, 150 C	P
High Temperature Operating Life Early Failure Rate	AEC-Q100-008 and JESD22-A108, 125C Dynamic Operating Condition, Vcc = 3.60V	P
High Temperature Operating Life Latent Failure Rate	JESD22-A108, 150 C /125C Dynamic Operating Condition, Vcc = 3.60V, 125 C	P
High Accelerated Saturation Test (HAST)	JESD22-A110, 130 C, 85%RH, 3.60V Precondition: JESD22-A113 Moisture Sensitivity Level 3 (192 Hrs., 30 C°, 60% RH)	P
Temperature Cycle	JESD22- A104, -65 C to 150 C Precondition: JESD22-A113 Moisture Sensitivity Level 3 (192 Hrs., 30 C°, 60% RH)	P
Post Temperature Cycle Wire Bond Pull	Mil-Std 883, Method 2011	P
Pressure Cooker Test	JESD22-A102, 121 C, 100%RH, 15 PSIG Precondition: JESD22-A113 Moisture Sensitivity Level 3 (192 Hrs., 30 C°, 60% RH)	P
Wire Bond Shear	AEC Q100-001	P
Wire Bond Pull	Mil-Std 883, Method 2011	P
Solderability	JESD22-B102	P
Physical Dimensions	JESD22B100 and B108	P
Electrical Distributions	AEC Q100-009	P



Reliability Test Data

QTP #: 150403

Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: ESD-HUMAN BODY CIRCUIT 500V (Tested at Room and Hot Temperature)							
CY15B256Q-SXA	4446384	611446947	CML-RA	500	3	0	
STRESS: ESD-HUMAN BODY CIRCUIT 1000V (Tested at Room and Hot Temperature)							
CY15B256Q-SXA	4446384	611446947	CML-RA	1000	3	0	
STRESS: ESD-HUMAN BODY CIRCUIT 1500V (Tested at Room and Hot Temperature)							
CY15B256Q-SXA	4446384	611446947	CML-RA	1500	3	0	
STRESS: ESD-HUMAN BODY CIRCUIT 2000V (Tested at Room and Hot Temperature)							
CY15B256Q-SXA	4446384	611446947	CML-RA	2000	3	0	
STRESS: ESD- CHARGED DEVICE MODEL 250V (Tested at Room and Hot Temperature)							
CY15B256Q-SXA	4446384	611446947	CML-RA	250	3	0	
STRESS: ESD- CHARGED DEVICE MODEL500V (Tested at Room and Hot Temperature)							
CY15B256Q-SXA	4446384	611446947	CML-RA	500	3	0	
STRESS: ESD- CHARGED DEVICE MODEL750V- corner pins (Tested at Room and Hot Temperature)							
CY15B256Q-SXA	4446384	611446947	CML-RA	750	3	0	
STRESS: HIGH TEMPERATURE STORAGE (150C1,000 hours, non-biased, tested at Room Temperature)							
CY15B256Q-SXA	4446384	611446947	CML-RA	1000	80	0	
STRESS: HIGH TEMPERATURE OPERATING LIFE- EARLY FAILURE RATE (125C, 96 hours, 3.60V, Tested at Room and Hot Temperature)							
CY15B256Q-SXA	4446384	611446947	CML-RA	96	800	0	
CY15B256Q-SXA	4447630	611446948	CML-RA	96	800	0	
CY15B256Q-SXA	4447630	611446949	CML-RA	96	800	0	
STRESS: HIGH TEMPERATURE OPERATING LIFE- LATENT FAILURE RATE (125C, 1,000 hours, 3.60V, Tested at Room, Hot, and Cold Temperature)							
CY15B256Q-SXA	4446384	611446947	CML-RA	1000	80	0	
CY15B256Q-SXA	4447630	611446948	CML-RA	1000	80	0	
CY15B256Q-SXA	4447630	611446949	CML-RA	1000	78	0	



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Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
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STRESS: Highly Accelerated Saturation Test (HAST) (130C, 85%RH, Biased at 3.60V), with MSL3 Preconditioning – 96 hours, Tested at Room and Hot Temperature

CY15B256Q-SXA	4446384	611446947	CML-RA	96	79	0	
CY15B256Q-SXA	4447630	611446948	CML-RA	96	80	0	
CY15B256Q-SXA	4447630	611446949	CML-RA	96	80	0	
CY15B256Q-SXA	4447630	611511715	CML-RA	96	80	0	

STRESS: TEMPERATURE CYCLE, CONDITION C (-65C TO 150C), with MSL3 Preconditioning, Tested at Hot Temperature

CY15B256Q-SXA	4446384	611446947	CML-RA	500	83	0	
CY15B256Q-SXA	4446384	611446947	CML-RA	1000	78	0	
CY15B256Q-SXA	4447630	611446948	CML-RA	500	80	0	
CY15B256Q-SXA	4447630	611446948	CML-RA	1000	79	0	
CY15B256Q-SXA	4447630	611446949	CML-RA	500	79	0	
CY15B256Q-SXA	4447630	611446949	CML-RA	1000	78	0	
CY15B256Q-SXA	4447630	611511715	CML-RA	500	77	0	

STRESS: POST TEMPERATURE CYCLE WIRE BOND PULL

CY15B256Q-SXA	4446384	611446947	CML-RA	500	5	0	
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Reliability Test Data

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Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: PRESSURE COOKER TEST (121C, 100%RH), with MSL3 Preconditioning, 96 and 168 hours, Tested at Room Temperature							
CY15B256Q-SXA	4446384	611446947	CML-RA	96	80	0	
CY15B256Q-SXA	4446384	611446947	CML-RA	168	80	0	
CY15B256Q-SXA	4447630	611446948	CML-RA	96	80	0	
CY15B256Q-SXA	4447630	611446948	CML-RA	168	80	0	
CY15B256Q-SXA	4447630	611446949	CML-RA	96	80	0	
CY15B256Q-SXA	4447630	611446949	CML-RA	168	80	0	
CY15B256Q-SXA	4447630	611511715	CML-RA	96	77	0	
CY15B256Q-SXA	4447630	611511715	CML-RA	168	77	0	
STRESS: WIRE BALL SHEAR							
CY15B256Q-SXA	4446384	611446947	CML-RA	COMP	30	0	
CY15B256Q-SXA	4447630	611446948	CML-RA	COMP	30	0	
CY15B256Q-SXA	4447630	611446949	CML-RA	COMP	30	0	
STRESS: WIRE BOND PULL							
CY15B256Q-SXA	4446384	611446947	CML-RA	COMP	30	0	
CY15B256Q-SXA	4447630	611446948	CML-RA	COMP	30	0	
CY15B256Q-SXA	4447630	611446949	CML-RA	COMP	30	0	
STRESS: SOLDERABILITY							
CY15B256Q-SXA	4446384	611446947	CML-RA	COMP	15	0	
CY15B256Q-SXA	4447630	611446948	CML-RA	COMP	15	0	
CY15B256Q-SXA	4447630	611446949	CML-RA	COMP	15	0	



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STRESS: PHYSICAL DIMENSIONS							
CY15B256Q-SXA	4446384	611446947	CML-RA	COMP	30	0	
CY15B256Q-SXA	4447630	611446948	CML-RA	COMP	30	0	
CY15B256Q-SXA	4447630	611446949	CML-RA	COMP	30	0	
STRESS: Electrical Distributions							
CY15B256Q-SXA	4446384	611446947	CML-RA	COMP	32	0	
CY15B256Q-SXA	4447630	611446948	CML-RA	COMP	32	0	
CY15B256Q-SXA	4447630	611446949	CML-RA	COMP	32	0	



Document History Page

Document Title: QTP 150403: 8L SOIC (150 MIL) NIPDAUAG, AU WIRE, MSL3, 260C REFLOW CML (RA)
AUTOMOTIVE FOR 128 KBIT AND 256 KBIT F-RAM

Document Number: 001-97753

Rev.	ECN No.	Orig. of Change	Description of Change
**	4774941	BECK	Initial spec release

Distribution: WEB

Posting: None