

Cypress Semiconductor Package Qualification Report

**QTP# 125106
May 2013**

**SOIC18/20/24 LD (300MILS)
NiPdAu, 100% Copper(Cu) Wire
MSL3, 260°C Reflow
CML, Autoline (RA)**

CYPRESS TECHNICAL CONTACT FOR QUALIFICATION DATA:

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PACKAGE QUALIFICATION HISTORY

QTP Number	Description of Qualification Purpose	Date
125106	Qualification of 100% Copper (Cu) Wire bond on SOIC 24LD – 300MilS package dimensions at CML, Autoline (RA)	May 2013

MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION	
Package Designation:	SZ243
Package Outline, Type, or Name:	SOIC 24L (300 Mils)
Mold Compound Name/Manufacturer:	KEG3000 /Kyocera
Mold Compound Flammability Rating:	V-0 @ 0.8-3.2mm
Mold Compound Alpha Emission Rate:	0.002 max
Oxygen Rating Index: >28%	≥28% typical value
Lead Frame Designation:	Reduced Full Metal Pad
Lead Frame Material:	Copper
Substrate Material:	N/A
Lead Finish, Composition / Thickness:	NiPdAu
Die Backside Preparation Method/Metallization:	Backgrind
Die Separation Method:	SAW Process
Die Attach Supplier:	Henkel
Die Attach Material:	QMI509
Bond Diagram Designation	001-05903
Wire Bond Method:	Thermosonic
Wire Material/Size:	100% Cu / 0.8Mil
Thermal Resistance Theta JA °C/W:	68°C/W
Package Cross Section Yes/No:	Yes
Assembly Process Flow:	11-21099
Name/Location of Assembly (prime) facility:	CML, Autoline (RA)
MSL LEVEL	3
REFLOW PROFILE	260C

ELECTRICAL TEST / FINISH DESCRIPTION	
Test Location:	CML-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
High Temperature Operating Life Latent Failure Rate	Dynamic Operating Condition, Vcc = 5.5, 150 C JESD22-A108	P
High Accelerated Saturation Test (HAST)	JEDEC STD 22-A110, 130 C, 85%RH, 5.5V Precondition: JESD22 Moisture Sensitivity Level (192 Hrs., 30 C°, 60% RH, 260C Reflow)	P
Pressure Cooker Test	JESD22-A102, 121 C, 100%RH, 15 PSIG Precondition: JESD22 Moisture Sensitivity Level (192 Hrs., 30 C°, 60% RH, 260C Reflow)	P
Temperature Cycle	MIL-STD-883C, Method 1010, Condition C, -65 C to 150 C Precondition: JESD22 Moisture Sensitivity Level (192 Hrs., 30 C°, 60% RH, 260C Reflow)	P
High Temp Storage	JESD22-A103, 150 C, no bias	P
Acoustic Microscopy	J-STD-020 Precondition: JESD22 Moisture Sensitivity Level (192 Hrs., 30 C°, 60% RH, 260C Reflow)	P
Ball Shear	JESD22-B116A, Cpk : 1.33, Ppk : 1.66	P
Bond Pull	MIL-STD-883 – Method 2011, Cpk : 1.33, Ppk : 1.66	P
Constructional Analysis	Criteria: Meet external and internal characteristics of a package	P
Final Visual Inspection	JESD22-B101B	P
Thermal Shock	MIL-STD-883C, Method 1011, Condition B, -55 C to 125C and JESD22-A106B, Condition C, -55 C to 125C	P
X-Ray	MIL-STD-883 - 2012	P
Post Stress Ball Shear	JESD22-A116	P
Post Stress Bond Shear	MIL-STD-883 - 2011	P



Reliability Test Data

QTP #: 125106

Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: ACOUSTIC							
CY7C63743C(7C637402AU)	6042010	611237207	CML-RA	COMP	15	0	
CY7C63743C((7C637402AU)	6042010	611237208	CML-RA	COMP	15	0	
CY7C63743C((7C637402AU)	6042010	611237209	CML-RA	COMP	15	0	
STRESS: BALL SHEAR							
CY7C63743C(7C637402AU)	6042010	611237207	CML-RA	COMP	5	0	
CY7C63743C((7C637402AU)	6042010	611237208	CML-RA	COMP	5	0	
CY7C63743C((7C637402AU)	6042010	611237209	CML-RA	COMP	5	0	
STRESS: BOND PULL							
CY7C63743C(7C637402AU)	6042010	611237207	CML-RA	COMP	5	0	
CY7C63743C((7C637402AU)	6042010	611237208	CML-RA	COMP	5	0	
CY7C63743C((7C637402AU)	6042010	611237209	CML-RA	COMP	5	0	
STRESS: CONSTRUCTIONAL ANALYSIS							
CY7C63743C(7C637402AU)	6042010	611237207	CML-RA	COMP	5	0	
CY7C63743C((7C637402AU)	6042010	611237208	CML-RA	COMP	5	0	
CY7C63743C((7C637402AU)	6042010	611237209	CML-RA	COMP	5	0	
STRESS: FINAL VISUAL							
CY7C63743C(7C637402AU)	6042010	611237207	CML-RA	COMP	2487	0	
CY7C63743C((7C637402AU)	6042010	611237208	CML-RA	COMP	2455	0	
CY7C63743C((7C637402AU)	6042010	611237209	CML-RA	COMP	2451	0	
STRESS: HI-ACCEL SATURATION TEST, 130C, 5.5V, 85%RH, PRE COND 192 HR 30C/60%RH (MSL3)							
CY7C63743C(7C637402AU)	6042010	611237207	CML-RA	128	80	0	
CY7C63743C((7C637402AU)	6042010	611237208	CML-RA	128	80	0	
CY7C63743C((7C637402AU)	6042010	611237209	CML-RA	128	80	0	
STRESS: HIGH TEMP STORAGE, 150C							
CY7C63743C(7C637402AU)	6042010	611237207	CML-RA	1000	92	0	
CY7C63743C((7C637402AU)	6042010	611237208	CML-RA	1000	100	0	
CY7C63743C((7C637402AU)	6042010	611237209	CML-RA	1000	100	0	



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STRESS: HIGH TEMP DYNAMIC OPERATING LIFE-LATENT FAILURE RATE (125C, 5.5V, Vcc Max)							
CY8C21534B (8C21534A C)	4145954	611204991	CML-RA	168	116	0	
CY8C21534B (8C21534A C)	4145954	611204991	CML-RA	1000	116	0	
STRESS: PRESSURE COOKER TEST (121C, 100%RH, 15 Psig, PRE COND 192 HR 30C/60%RH (MSL3)							
CY7C63743C(7C637402AU)	6042010	611237207	CML-RA	168	97	0	
CY7C63743C(7C637402AU)	6042010	611237207	CML-RA	288	92	0	
CY7C63743C((7C637402AU)	6042010	611237208	CML-RA	168	100	0	
CY7C63743C((7C637402AU)	6042010	611237208	CML-RA	288	100	0	
CY7C63743C((7C637402AU)	6042010	611237209	CML-RA	168	100	0	
CY7C63743C((7C637402AU)	6042010	611237209	CML-RA	288	100	0	
STRESS: POST MSL3 CONSTRUCTIONAL ANALYSIS							
CY7C63743C(7C637402AU)	6042010	611237207	CML-RA	COMP	5	0	
STRESS: POST MSL3 BALL SHEAR							
CY7C63743C(7C637402AU)	6042010	611237207	CML-RA	COMP	4	0	
STRESS: POST HI-ACCEL SATURATION TEST BALL SHEAR							
CY7C63743C(7C637402AU)	6042010	611237207	CML-RA	128	5	0	
STRESS: POST HIGH TEMP STORAGE BALL SHEAR							
CY7C63743C(7C637402AU)	6042010	611237207	CML-RA	500	5	0	
CY7C63743C(7C637402AU)	6042010	611237207	CML-RA	1000	5	0	
STRESS: POST PRESSURE COOKER TEST BALL SHEAR TEST							
CY7C63743C(7C637402AU)	6042010	611237207	CML-RA	168	5	0	
STRESS: POST TC BALL SHEAR							
CY7C63743C(7C637402AU)	6042010	611237207	CML-RA	500	5	0	
STRESS: POST MSL3 BOND PULL							
CY7C63743C(7C637402AU)	6042010	611237207	CML-RA	COMP	4	0	
STRESS: POST HI-ACCEL SATURATION TEST BOND PULL							
CY7C63743C(7C637402AU)	6042010	611237207	CML-RA	128	5	0	



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STRESS: POST HIGH TEMP STORAGE BOND PULL							
CY7C63743C(7C637402AU)	6042010	611237207	CML-RA	500	5	0	
CY7C63743C(7C637402AU)	6042010	611237207	CML-RA	1000	5	0	
STRESS: POST PRESSURE COOKER TEST BOND PULL							
CY7C63743C(7C637402AU)	6042010	611237207	CML-RA	168	5	0	
STRESS: POST TC BOND PULL							
CY7C63743C(7C637402AU)	6042010	611237207	CML-RA	500	5	0	
STRESS: TC COND. C -65C TO 150C, PRE COND 192 HR 30C/60%RH (MSL3)							
CY7C63743C(7C637402AU)	6042010	611237207	CML-RA	500	97	0	
CY7C63743C(7C637402AU)	6042010	611237207	CML-RA	1000	92	0	
CY7C63743C(7C637402AU)	6042010	611237208	CML-RA	500	100	0	
CY7C63743C(7C637402AU)	6042010	611237208	CML-RA	1000	100	0	
CY7C63743C(7C637402AU)	6042010	611237208	CML-RA	500	100	0	
CY7C63743C(7C637402AU)	6042010	611237208	CML-RA	1000	100	0	
STRESS: THERMAL SHOCK							
CY7C63743C(7C637402AU)	6042010	611237207	CML-RA	200	100	0	
CY7C63743C(7C637402AU)	6042010	611237207	CML-RA	1000	100	0	
STRESS: X-RAY							
CY7C63743C(7C637402AU)	6042010	611237207	CML-RA	COMP	15	0	
CY7C63743C((7C637402AU)	6042010	611237208	CML-RA	COMP	15	0	
CY7C63743C((7C637402AU)	6042010	611237209	CML-RA	COMP	15	0	



Document History Page

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**	3993194	ILZ	Initial spec release

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