

# Cypress Semiconductor Customer Specific Qualification Report

**QTP# 110703 VERSION \*B  
April 2014**

**44L TSOP II  
NiPdAu, MSL3, 260C Reflow  
RA-CML**

**FOR ANY QUESTIONS ON THIS REPORT, PLEASE CONTACT  
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## PACKAGE QUALIFICATION HISTORY

<b>QTP Number</b>	<b>Description of Qualification Purpose</b>	<b>Date</b>
060905	≤44-Lead TSOP II (without down bonds), using Hitachi-CEL9200 Mold Compound, NiPdAu, MSL3, 260C Reflow assembled at CML-R	May 06
063202	≤44-Lead TSOP II NiPdAu, using Kyocera KE-G3000 (for non-SRAMs), KE-G6000 (for SRAMs) Mold Compound, MSL3, 260C Reflow assembled at CML-R	Oct 06
110703	Qualification of 44Lead TSOP Package in Autoline#6 using (7C1321B8C & 7C1401B1C) Devices, QMI 509 Die Attach Epoxy, 0.9mil Au wire, Kyocera KE-G6000 Epoxy Molding Compound, NiPdAu Pre-plated leadframe with MSL3 / 260.	Mar 11

<b>MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION</b>	
Package Designation:	ZW44
Package Outline, Type, or Name:	44-Lead Thin Small Outline. Type II
Mold Compound Name/Manufacturer:	KE-G6000 / Kyocera
Mold Compound Flammability Rating:	V-O per UL94
Mold Compound Alpha Emission Rate:	N/A
Oxygen Rating Index: >28%	N/A
Lead Frame Designation:	Reduced Metal Pad
Lead Frame Material:	Copper
Substrate Material:	N/A
Lead Finish, Composition / Thickness:	NiPdAu
Die Backside Preparation Method/Metallization:	Backgrind
Die Separation Method:	Wafersaw
Die Attach Supplier:	Henkel
Die Attach Material:	QMI-509
Bond Diagram Designation	001-65865 / 001-65872
Wire Bond Method:	Thermosonic
Wire Material/Size:	0.9 mil / Au
Thermal Resistance Theta JA °C/W:	31.11°C/W
Package Cross Section Yes/No:	Yes
Assembly Process Flow:	11-21101
Name/Location of Assembly (prime) facility:	RA-CML
MSL Level	3
Reflow Profile	260C

<b>ELECTRICAL TEST / FINISH DESCRIPTION</b>	
Test Location:	R-CML

**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)	JEDEC STD 22-A110, 130 C, 85%RH, 5.5V Precondition: JESD22 Moisture Sensitivity Level (192 Hrs., 30 C°, 60% RH, 260C Reflow)	P
High Temp Storage	150 C, No bias	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
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	Meet external and internal characteristics of package	P
Die Shear	Per die size: <ul style="list-style-type: none"> <li>• &lt;3000 sq. mils = 1.2 kgf</li> <li>• 30001-5000 sq. mils = 1.2 kgf</li> <li>• &gt;5001 sq. mils = 1.2 kgf</li> </ul>	P
Dye Penetrant Test	Test to determine the existence and extent of cracks, Criteria: No Package Crack	P
Internal Visual	MIL-STD-883-2014	P
Solderability	J-STD-002, JESD22-B102	P
Final Visual Inspection	JESD22-B101B	P
Thermal Shock	MIL-STD-883C, Method 1010, Condition b, -55 C to 125 C	P
X-Ray	MIL-STD-883 - 2012	P



## Reliability Test Data

**QTP #: 060905**

<b>Device</b>	<b>Fab Lot #</b>	<b>Assy Lot #</b>	<b>Assy Loc</b>	<b>Duration</b>	<b>Samp</b>	<b>Rej</b>	<b>Failure Mechanism</b>
<b>STRESS: ACOUSTIC, MSL3</b>							
CY7C1041BV33 (7C1341C)	4436950	610511269	CML-R	COMP	15	0	
CY7C1041BV33 (7C1341C)	4436950	610511569	CML-R	COMP	15	0	
CY7C1041BV33 (7C1341C)	4435627	610514432	CML-R	COMP	15	0	
<b>STRESS: HI-ACCEL SATURATION TEST, 130C, 3.63V, 85%RH, PRE COND 192HR 30C/60%RH, MSL3</b>							
CY7C1041BV33 (7C1341C)	4428378	610510764	CML-R	128	45	0	
<b>STRESS: HIGH TEMPERATURE STORAGE, no bias</b>							
CY7C1041CV33 (7C1341R)	4428378	610514205	CML-R	500	50	0	
CY7C1041CV33 (7C1341R)	4428378	610514205	CML-R	1000	50	0	
<b>STRESS: PRESSURE COOKER TEST, 121C, 100%RH, 15 Psig, PRE COND 192HR 30C/60%RH, MSL3</b>							
CY7C1041BV33 (7C1341C)	4428378	610458652	CML-R	168	50	0	
<b>STRESS: TC COND. C -65C TO 150C, PRE COND 192HR 30C/60%RH, MSL3</b>							
CY7C1041BV33 (7C1341C)	4436950	610511269	CML-R	300	50	0	
CY7C1041BV33 (7C1341C)	4436950	610511269	CML-R	500	50	0	
CY7C1041BV33 (7C1341C)	4436950	610511569	CML-R	300	50	0	
CY7C1041BV33 (7C1341C)	4435627	610514432	CML-R	300	50	0	



## Reliability Test Data

**QTP #: 063202**

<b>Device</b>	<b>Fab Lot #</b>	<b>Assy Lot #</b>	<b>Assy Loc</b>	<b>Duration</b>	<b>Samp</b>	<b>Rej</b>	<b>Failure Mechanism</b>
<b>STRESS: ACOUSTIC, MSL3</b>							
CY7C1041D (7C1541SC)	4620290	610643650M	CML-R	COMP	15	0	
CY7C1041D (7C1541SC)	4620290	610643650M1	CML-R	COMP	15	0	
CY7C1041D (7C1541SC)	4620290	610643650M2	CML-R	COMP	15	0	
<b>STRESS: DYE PENETRATION</b>							
CY7C1041D (7C1541SC)	4620290	610643650M2	CML-R	COMP	15	0	
<b>STRESS: HIGH TEMPERATURE STORAGE, no bias</b>							
CY62256LL (7A62256E)	4512383	610535998	CML-R	1000	50	0	
<b>STRESS: PRESSURE COOKER TEST, 121C, 100%RH, 15 Psig, PRE COND 192HR 30C/60%RH, MSL3</b>							
CY7C1041D (7C1541SC)	4620290	610643650M	CML-R	168	50	0	
<b>STRESS: TC COND. C -65C TO 150C, PRE COND 192HR 30C/60%RH, MSL3</b>							
CY7C1041D (7C1541SC)	4620290	610643650M	CML-R	300	50	0	
CY7C1041D (7C1541SC)	4620290	610643650M	CML-R	500	50	0	
CY7C1041D (7C1541SC)	4620290	610643650M1	CML-R	300	50	0	
CY7C1041D (7C1541SC)	4620290	610643650M1	CML-R	500	48	0	
CY7C1041D (7C1541SC)	4620290	610643650M2	CML-R	300	50	0	
CY7C1041D (7C1541SC)	4620290	610643650M2	CML-R	500	50	0	
<b>STRESS: X-RAY</b>							
CY7C1041D (7C1541SC)	4620290	610643650M	CML-R	COMP	15	0	



## Reliability Test Data

**QTP #: 110703**

<b>Device</b>	<b>Fab Lot #</b>	<b>Assy Lot #</b>	<b>Assy Loc</b>	<b>Duration</b>	<b>Samp</b>	<b>Rej</b>	<b>Failure Mechanism</b>
<b>STRESS: ACOUSTIC, MSL3</b>							
CY14B101KA (7C1401B1CC)	4027912	611060408	CML-RA	COMP	15	0	
CY7C1021DV33 (7C1321NC)	4039584	611060384	CML-RA	COMP	15	0	
CY14B101KA (7C1401B1CC)	4027912	611060409	CML-RA	COMP	15	0	
<b>STRESS: BALL SHEAR</b>							
CY14B101KA (7C1401B1CC)	4027912	611060408	CML-RA	COMP	30	0	
CY7C1021DV33 (7C1321NC)	4039584	611060384	CML-RA	COMP	30	0	
<b>STRESS: BOND PULL</b>							
CY14B101KA (7C1401B1CC)	4027912	611060408	CML-RA	COMP	30	0	
<b>STRESS: CONSTRUCTIONAL ANALYSIS</b>							
CY14B101KA (7C1401B1CC)	4027912	611060408	CML-RA	COMP	5	0	
CY7C1021DV33 (7C1321NC)	4039584	611060384	CML-RA	COMP	5	0	
<b>STRESS: DIE SHEAR</b>							
CY14B101KA (7C1401B1CC)	4027912	611060408	CML-RA	COMP	25	0	
CY7C1021DV33 (7C1321NC)	4039584	611060384	CML-RA	COMP	25	0	
CY14B101KA (7C1401B1CC)	4027912	611060409	CML-RA	COMP	25	0	
<b>STRESS: DYE PENETRATION TEST</b>							
CY14B101KA (7C1401B1CC)	4027912	611060408	CML-RA	COMP	15	0	
CY7C1021DV33 (7C1321NC)	4039584	611060384	CML-RA	COMP	15	0	
CY14B101KA (7C1401B1CC)	4027912	611060409	CML-RA	COMP	15	0	
<b>STRESS: HI-ACCEL SATURATION TEST, 130C, 3.65V, 85%RH, PRE COND 192HR 30C/60%RH, MSL3</b>							
CG6722AM (7C1341NC)	4025335	611040205	CML-R	128	45	0	
<b>STRESS: HI-ACCEL SATURATION TEST, 130C, 3.63V, 85%RH, PRE COND 192HR 30C/60%RH, MSL3</b>							
CYS25G0101DX (7B9532A)	4548790	610639532	Q-KOREA	128	43	0	
<b>STRESS: HIGH TEMPERATURE STORAGE, no bias</b>							
CG6722AM (7C1341NC)	4025335	611040205	CML-R	500	29	0	
CG6722AM (7C1341NC)	4025335	611040205	CML-R	1000	29	0	



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<b>Device</b>	<b>Fab Lot #</b>	<b>Assy Lot #</b>	<b>Assy Loc</b>	<b>Duration</b>	<b>Samp</b>	<b>Rej</b>	<b>Failure Mechanism</b>
<b>STRESS: INTERNAL VISUAL</b>							
CY14B101KA (7C1401B1CC)	4027912	611060408	CML-RA	COMP	5	0	
<b>STRESS: PHYSICAL DIMENSION</b>							
CY14B101KA (7C1401B1CC)	4027912	611060408	CML-RA	COMP	30	0	
CY7C1021DV33 (7C1321NC)	4039584	611060384	CML-RA	COMP	30	0	
CY14B101KA (7C1401B1CC)	4027912	611060409	CML-RA	COMP	30	0	
<b>STRESS: PRESSURE COOKER TEST, 121C, 100%RH, 15 Psig, PRE COND 192HR 30C/60%RH, MSL3</b>							
CY14B101KA (7C1401B1CC)	4027912	611060408	CML-RA	168	80	0	
CY7C1021DV33 (7C1321NC)	4039584	611060384	CML-RA	168	80	0	
<b>STRESS: SOLDERABILITY</b>							
CY14B101KA (7C1401B1CC)	4027912	611060408	CML-RA	COMP	3	0	
CY7C1021DV33 (7C1321NC)	4039584	611060384	CML-RA	COMP	3	0	
CY14B101KA (7C1401B1CC)	4027912	611060409	CML-RA	COMP	3	0	
<b>STRESS: TC COND. C -65C TO 150C, PRE COND 192HR 30C/60%RH, MSL3</b>							
CY14B101KA (7C1401B1CC)	4027912	611060408	CML-RA	500	80	0	
CY14B101KA (7C1401B1CC)	4027912	611060408	CML-RA	1000	80	0	
CY7C1021DV33 (7C1321NC)	4039584	611060384	CML-RA	500	80	0	
CY7C1021DV33 (7C1321NC)	4039584	611060384	CML-RA	1000	80	0	
CY14B101KA (7C1401B1CC)	4027912	611060409	CML-RA	500	80	0	
CY14B101KA (7C1401B1CC)	4027912	611060409	CML-RA	1000	80	0	
<b>STRESS: THERMAL SHOCK</b>							
CY14B101KA (7C1401B1CC)	4027912	611060408	CML-RA	200	80	0	
CY14B101KA (7C1401B1CC)	4027912	611060408	CML-RA	1000	80	0	
<b>STRESS: X-RAY</b>							
CY14B101KA (7C1401B1CC)	4027912	611060408	CML-RA	COMP	80	0	
CY7C1021DV33 (7C1321NC)	4039584	611060384	CML-RA	COMP	80	0	
CY14B101KA (7C1401B1CC)	4027912	611060409	CML-RA	COMP	80	0	





## Document History Page

Document Title: QTP 110703: 44L TSOP II, NiPdAu, MSL3, 260C Reflow RA-CML Qualification Report  
Document Number: 001-68009

Rev.	ECN No.	Orig. of Change	Description of Change
**	3188092	NRG	Initial spec release
*A	3988470	ILZ	Sunset Review Deleted Version Number 1 and updated current date of revision Removed Cypress reference specs and replaced with Industry Standards on Reliability Tests Performed Per Specification Requirements Table – page 4 Added 1000cycles Temperature Cycle Test Data on Reliability Test Data for QTP 110703 – page 8
*B	4338458	HSTO	Align qualification report based on the new template in the front page Updated the result of Dye Penetrant Test, Solderability and Thermal Shock test on Reliability Test Performed Per Specification Requirement Table – page4

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