

# Cypress Semiconductor Package Qualification Report

**QTP# 063711 VERSION\*A  
January, 2015**

**20/28-Lead (SSOP)  
(209mils)  
NiPdAu, MSL3, 260C Solder Reflow  
CML-RA**

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

<b>QTP Number</b>	<b>Description of Qualification Purpose</b>	<b>Date Comp.</b>
063711	Qualify CML-RA #9 for 20/28-Lead SSOP (209mils), MSL3, 260C Solder Reflow Temperature	Oct 06

<b>MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION</b>	
<b>Package Designation:</b>	SP28
<b>Package Outline, Type, or Name:</b>	28-Lead Shrunk Small Outline Package (SSOP)
<b>Mold Compound Name/Manufacturer:</b>	KE G3000DA
<b>Mold Compound Flammability Rating:</b>	V-O per UL 94
<b>Oxygen Rating Index:</b>	N/A
<b>Lead Frame Material:</b>	Copper
<b>Lead Finish:</b>	NiPdAu
<b>Die Backside Preparation Method/Metallization:</b>	Backgrind
<b>Die Separation Method:</b>	Sawing
<b>Die Attach Supplier:</b>	Dexter
<b>Die Attach Material:</b>	QMI 509
<b>Die Attach Method:</b>	Epoxy
<b>Bond Diagram Designation</b>	Not Applicable
<b>Wire Bond Method:</b>	Thermosonic
<b>Wire Material/Size:</b>	Au. 1.0 mil
<b>Thermal Resistance Theta JA °C/W:</b>	96 °C/W
<b>Package Cross Section Yes/No:</b>	N/A
<b>Assembly Process Flow:</b>	Not Applicable
<b>Name/Location of Assembly (prime) facility:</b>	CML-RA
<b>MSL Level</b>	3
<b>Reflow Profile</b>	260C

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

**Note:** Please contact a Cypress Representative for other packages availability.

**RELIABILITY TESTS PERFORMED PER SPECIFICATION REQUIREMENT**

<b>Stress/Test</b>	<b>Test Condition (Temp/Bias)</b>	<b>Result P/F</b>
Acoustic Microscopy	J-STD-020 Precondition: JESD22 Moisture Sensitivity Level (192 Hrs., 30°C, 60% RH, 260°C Reflow)	P
Ball Shear	JESD22-B116	P
Bond Pull	MIL-STD-883 – Method 2011	P
Constructional Analysis	Criteria: Meet external and internal characteristics of Cypress package	P
Dye Penetration	Test to determine the existence and extent of cracks, Criteria: No Package Crack	P
External Visual	MIL-PRF-38535, MIL-STD-883, METHOD 2009	P
Glue Adhesion	JESD22-A111	P
Physical Dimension	MIL-STD-1835, JESD22-B100	P
Internal Visual	MIL-STD-883-2014	P
High Accelerated Saturation Test (HAST)	JEDEC STD 22-A110: 130°C, 5.25V, 85%RH Precondition: JESD22 Moisture Sensitivity Level (192 Hrs., 30°C, 60% RH, 260°C Reflow)	P
Pressure Cooker	JESD22-A102: 121°C, 100%RH, 15 PSIG Precondition: JESD22 Moisture Sensitivity Level (192 Hrs., 30°C, 60% RH, 260°C Reflow)	P
Temperature Cycle	MIL-STD-883, Method 1010, Condition C, -65°C to 150°C Precondition: JESD22 Moisture Sensitivity Level (192 Hrs., 30°C, 60% RH, 260°C Reflow)	P
X-Ray	MIL-STD-883-2012	P



## Reliability Test Data

QTP #: 063711

<i>Device</i>	<i>Fab Lot #</i>	<i>Assy Lot #</i>	<i>Assy Loc</i>	<i>Duration</i>	<i>Samp</i>	<i>Rej</i>	<i>Failure Mechanism</i>
<b>STRESS: ACOUSTIC, MSL3</b>							
CY8C29466 (8C29466A)	2552819	610652214	CML-RA	COMP	15	0	
CY8C29466 (8C29466A)	2552819	610652198	CML-RA	COMP	15	0	
CY8C29466 (8C29466A)	2552819	610652199	CML-RA	COMP	15	0	
<b>STRESS: BALL SHEAR</b>							
CY8C29466 (8C29466A)	2552819	610652214	CML-RA	COMP	10	0	
<b>STRESSBOND PULL</b>							
CY8C29466 (8C29466A)	2552819	610652214	CML-RA	COMP	10	0	
<b>STRESS: DYE PENTRATION</b>							
CY8C29466 (8C29466A)	2552819	610652214	CML-RA	COMP	15	0	
CY8C29466 (8C29466A)	2552819	610652198	CML-RA	COMP	15	0	
CY8C29466 (8C29466A)	2552819	610652199	CML-RA	COMP	15	0	
<b>STRESS: GLUE ADHESION</b>							
CY8C29466 (8C29466A)	2552819	610652214	CML-RA	COMP	15	0	
CY8C29466 (8C29466A)	2552819	610652198	CML-RA	COMP	15	0	
CY8C29466 (8C29466A)	2552819	610652199	CML-RA	COMP	15	0	
<b>STRESS: EXTERNAL VISUAL</b>							
CY8C29466 (8C29466A)	2552819	610652214	CML-RA	COMP	15	0	
<b>STRESS: INTERNAL VISUAL</b>							
CY8C29466 (8C29466A)	2552819	610652214	CML-RA	COMP	5	0	
CY8C29466 (8C29466A)	2552819	610652198	CML-RA	COMP	5	0	
<b>STRESS: PHYSICAL DIMENSION</b>							
CY8C29466 (8C29466A)	2552819	610652214	CML-RA	COMP	5	0	
CY8C29466 (8C29466A)	2552819	610652199	CML-RA	COMP	5	0	
<b>STRESS: HI-ACCEL SATURATION TEST, 130C, 5.25V, 85%RH, PRE COND 192 HRS, 30C/60%RH, MSL3</b>							
CY8C29466 (8C29466A)	2552819	610652214	CML-RA	128	44	0	
<b>STRESS: PRESSURE COOKER TEST, 121C 100%RH, 15 Psig, PRE COND 192 HRS, 30C/60%RH, MSL3</b>							
CY8C29466 (8C29466A)	2552819	610652214	CML-RA	168	45	0	



## Reliability Test Data

QTP #: 063711

<i>Device</i>	<i>Fab Lot #</i>	<i>Assy Lot #</i>	<i>Assy Loc</i>	<i>Duration</i>	<i>Samp</i>	<i>Rej</i>	<i>Failure Mechanism</i>
<b>STRESS: TC CONDITION C, -65C TO 150C, PRE COND 192 HRS, 30C/60%RH, MSL3</b>							
CY8C29466 (8C29466A)	2552819	610652214	CML-RA	300	45	0	
CY8C29466 (8C29466A)	2552819	610652198	CML-RA	300	44	0	
CY8C29466 (8C29466A)	2552819	610652199	CML-RA	300	45	0	
<b>STRESS: X-RAY</b>							
CY8C29466 (8C29466A)	2552819	610652214	CML-RA	COMP	15	0	
CY8C29466 (8C29466A)	2552819	610652198	CML-RA	COMP	15	0	



## Document History Page

Document Title: QTP No. 063711: 20/28-Lead (SSOP) (209 mils), NiPdAu, MSL3, 260C, CML-RA  
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Rev.	ECN No.	Orig. of Change	Description of Change
**	3840215	HLR	Initial Spec Release.
*A	4621572	JYF	Sunset review: Updated QTP title page and Reliability Tests Performed table (Acoustic, Ball Shear, Bond Pull, EVI/IVI, Physical Dimension, HAST, PCT, TCT) for template alignment.

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