

# **Cypress Semiconductor Package Qualification Report**

**QTP# 080302 VERSION 1.0**

**June 2008**

**28-Lead TSOP (8 x 13.4mm)**

**(with downbond)**

**NiPdAu, MSL3, 260C Reflow**

**CML-R**

## **CYPRESS TECHNICAL CONTACT FOR QUALIFICATION DATA:**

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**PACKAGE QUALIFICATION HISTORY**

<b>QUAL REPORT</b>	<b>DESCRIPTION OF QUALIFICATION PURPOSE</b>	<b>DATE COMP.</b>
021903	28-Lead TSOP, 32-Lead STSOP package (126 mil x 134 mil die size) using Hitachi CEL9200 CYR/IV77 and Ni/Pd leadframe and QMI 509 Epoxy with PMC assembled at CML-R	Sept 02
080302	Qualify CML Conventional for 28 TSOP package at MSL 3, 260C Reflow	Jun 08

<b>MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION</b>	
<b>Package Designation:</b>	ZT28
<b>Package Outline, Type, or Name:</b>	28-Lead Thin Small Outline Package (TSOP)
<b>Mold Compound Name/Manufacturer:</b>	Hitachi CEL9200CYR
<b>Mold Compound Flammability Rating:</b>	V-O per UL94
<b>Mold Compound Alpha Emission Rate:</b>	N/A
<b>Oxygen Rating Index:</b>	45
<b>Lead Frame Material:</b>	Copper
<b>Lead Finish, Composition / Thickness:</b>	NiPdAu
<b>Die Backside Preparation Method/Metallization:</b>	Backgrind/Silicon
<b>Die Separation Method:</b>	100% Saw
<b>Die Attach Supplier:</b>	Hysol (Loctite)
<b>Die Attach Material:</b>	QMI 509
<b>Bond Diagram Designation</b>	10-06298
<b>Wire Bond Method:</b>	Thermosonic
<b>Wire Material/Size:</b>	Au, 1.0 mil
<b>Thermal Resistance Theta JA °C/W:</b>	92°C/W
<b>Package Cross Section Yes/No:</b>	N/A
<b>Assembly Process Flow:</b>	11-20047
<b>Name/Location of Assembly (prime) facility:</b>	CML-R

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

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

**RELIABILITY TESTS PERFORMED PER SPECIFICATION REQUIREMENT**

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 3 192 Hrs., 30°C/60%RH+3IR-Reflow, 260°C+5, -0°C	P
High Accelerated Saturation Test	130°C, 3.63V,85%RH Precondition: JESD22 Moisture Sensitivity MSL 3 192 Hrs., 30°C/60%RH+3IR-Reflow, 260°C+5, -0°C	P
Pressure Cooker	121 C, 100%RH, 15 PSIG Precondition: JESD22 Moisture Sensitivity MSL 3 192 Hrs., 30°C/60%RH+3IR-Reflow, 260°C+5, -0°C	P
High Temperature Storage	150°C, no bias	P
Adhesion of lead finish	Cypress Spec 25-00029	P
External Visual	Cypress Spec 25-00038	P
X-Ray	Cypress Spec 12-00292	P
Solderability, Steam Aged	Cypress Spec. 25-00018	P
Acoustic Microscopy	Cypress Spec 25-00104	P
SEM X-Section	MIL-STD-883, Method 883-2018-2	P

## Reliability Test Data

QTP #: 021903

<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>							
CY62128BLL-ZAC (7C62128H)	4128416	610211476	CML-R	COMP	15	0	
CY62128BLL-ZAC (7C62128H)	4128416	610211476M	CML-R	COMP	15	0	
<b>STRESS: HI-ACCEL SATURATION TEST, 130C, 85%RH, 3.63V, PRE COND 192 HR 30C/60%RH, MSL3</b>							
CY62128BLL-ZAC (7C62128H)	4128416	610211476	CML-R	128	47	0	
CY62128BLL-ZAC (7C62128H)	4128416	610211476M	CML-R	128	44	0	
<b>STRESS: PRESSURE COOKER TEST, 121C, 100%RH, PRE COND 192 HR 30C/60%RH, MSL3</b>							
CY62128BLL-ZAC (7C62128H)	4128416	610211476	CML-R	174	44	0	
<b>STRESS: SOLDERABILITY</b>							
CY62128BLL-ZAC (7C62128H)	4128416	610211476	CML-R	COMP	3	0	
CY62128BLL-ZAC (7C62128H)	4128416	610211476M	CML-R	COMP	3	0	
<b>STRESS: ADHESION OF LEAD FINISH</b>							
CY62128BLL-ZAC (7C62128H)	4128416	610211476	CML-R	COMP	3	0	
CY62128BLL-ZAC (7C62128H)	4128416	610211476M	CML-R	COMP	3	0	
<b>STRESS: EXTERNAL VISUAL</b>							
CY62128BLL-ZAC (7C62128H)	4128416	610211476	CML-R	COMP	288	0	
CY62128BLL-ZAC (7C62128H)	4128416	610211476M	CML-R	COMP	48	0	
<b>STRESS: HIGH TEMPERATURE STORAGE, 150C, no bias</b>							
CY62128BLL-ZAC (7C62128H)	4128416	610211476	CML-R	500	45	0	
CY62128BLL-ZAC (7C62128H)	4128416	610211476	CML-R	1000	45	0	
<b>STRESS: X-RAY</b>							
CY62128BLL-ZAC (7C62128H)	4128416	610211476	CML-R	COMP	48	0	
CY62128BLL-ZAC (7C62128H)	4128416	610211476M	CML-R	COMP	288	0	
<b>STRESS: TC CONDITION C, -65C TO 150C, PRE COND. 192 HRS 30C/60% RH, MSL3</b>							
CY62128BLL-ZAC (7C62128H)	4128416	610211476	CML-R	300	50	0	
CY62128BLL-ZAC (7C62128H)	4128416	610211476	CML-R	500	50	0	
CY62128BLL-ZAC (7C62128H)	4128416	610211476	CML-R	1000	50	0	
CY62128BLL-ZAC (7C62128H)	4128416	610211476M	CML-R	300	50	0	
CY62128BLL-ZAC (7C62128H)	4128416	610211476M	CML-R	500	50	0	
CY62128BLL-ZAC (7C62128H)	4128416	610211476M	CML-R	1000	50	0	
CY62128BLL-ZAC (7C62128H)	4128416	610211476M1	CML-R	300	50	0	
CY62128BLL-ZAC (7C62128H)	4128416	610211476M1	CML-R	500	50	0	
CY62128BLL-ZAC (7C62128H)	4128416	610211476M1	CML-R	1000	50	0	

## Reliability Test Data

QTP #: 080302

<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>							
CY7C1399BNL (7C1399SHC)	4727291	610751858	CML-R	COMP	15	0	
CY7C1399BNL (7C1399SHC)	4723980	610742329	CML-R	COMP	15	0	
CY7C1399BNL (7C1399SHC)	4729990	610751859	CML-R	COMP	15	0	
<b>STRESS: HI-ACCEL SATURATION TEST, (130C, 3.63V), 85%RH, PRE COND 192 HR 30C/60%RH, MSL3</b>							
CY7C1399BNL (7C1399SHC)	4727291	610751858	CML-R	128	77	0	
CY7C1399BNL (7C1399SHC)	4729990	610751859	CML-R	128	80	0	
<b>STRESS: HIGH TEMPERATURE STORAGE, 150C, no bias</b>							
CY7C1399BNL (7C1399SHC)	4727291	610751858	CML-R	500	80	0	
CY7C1399BNL (7C1399SHC)	4727291	610751858	CML-R	1000	80	0	
<b>STRESS: PRESSURE COOKER TEST, 121C, 100%RH, PRE COND 192 HR 30C/60%RH, MSL3</b>							
CY7C1399BNL (7C1399SHC)	4727291	610751858	CML-R	168	80	0	
CY7C1399BNL (7C1399SHC)	4729990	610751859	CML-R	168	80	0	
<b>STRESS: TC CONDITION C, -65C TO 150C, PRE COND. 192 HRS 30C/60% RH, MSL3</b>							
CY7C1399BNL (7C1399SHC)	4727291	610751858	CML-R	500	79	0	
CY7C1399BNL (7C1399SHC)	4727291	610751858	CML-R	1000	79	0	
CY7C1399BNL (7C1399SHC)	4729990	610751859	CML-R	500	80	0	
CY7C1399BNL (7C1399SHC)	4729990	610751859	CML-R	1000	77	0	