

Cypress Semiconductor Package Qualification Report

QTP# 020807 VERSION 1.0

July, 2002

**44-lead Thin Small Outline Package (TSSOP II) using
Hitachi CEL9200CYR / IV77 Molding Compound and
Ni/Pd Leadframe, MSL3
Cypress Philippines (CML-R) Assembly**

CYPRESS TECHNICAL CONTACT FOR QUALIFICATION DATA:

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PACKAGE QUALIFICATION HISTORY

QUAL REPORT	DESCRIPTION OF QUALIFICATION PURPOSE	DATE COMP.
02007	44-lead TSSOP II (435mm) ≤ 133 x 225 mils die size with Ni-Pd leadframe and QMI 509	Jul 02

MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION	
Package Designation:	ZS444
Package Outline, Type, or Name:	44 Lead Thin Small Outline Package (TSSOP II)
Mold Compound Name/Manufacturer:	Hitachi CEL9200CYR/IV77
Mold Compound Flammability Rating:	V-O per UL94
Oxygen Rating Index:	>28%
Lead Frame Material:	Copper base with Ni/Pd and Gold Flash Plating
Lead Finish, Composition / Thickness:	Ni/Pd with Gold Flash
Die Backside Preparation Method/Metallization:	Backgrind to 14 mil thickness
Die Separation Method:	Wafer saw
Die Attach Supplier:	Dexter
Die Attach Material:	QMI 509
Bond Diagram Designation	10-03494
Wire Bond Method:	Thermosonic
Wire Material/Size:	Au, 1.0 mil
Thermal Resistance Theta JA °C/W:	66.5°C/W
Package Cross Section Yes/No:	Yes
Assembly Process Flow:	11-20007
Name/Location of Assembly (prime) facility:	Cypress Philippines (CML-R)

ELECTRICAL TEST / FINISH DESCRIPTION	
Test Location:	Cypress Philippines (CML-R)
Fault Coverage:	100%

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	Precondition: JESD22 Moisture Sensitivity MSL 3 192 Hrs., 30°C/60%RH+3IR-Reflow, 235°C+5, -0°C	P
High Accelerated Saturation Test	Precondition: JESD22 Moisture Sensitivity MSL 3 192 Hrs., 30°C/60%RH+3IR-Reflow, 235°C+5, -0°C	P
Pressure Cooker	Precondition: JESD22 Moisture Sensitivity MSL 3 192 Hrs., 30°C/60%RH+3IR-Reflow, 235°C+5, -0°C	P
High Temperature Storage	150°C, no bias	P
Adhesion of lead finish	Cypress Spec 25-00029	P
Solderability, Steam Aged	Cypress Spec. 25-00018	P
Physical Dimensions	Cypress Spec. 25-00031	P
X-Ray	MIL-STD-883C, Method 2012, Cypress Spec 12-000292	P
External Visual	Cypress Spec 25-00038	P
SEM X-Section	MIL-STD-883, Method 883-2018-2	P
Acoustic Microscopy Test (C-SAM) MSL3	Cypress Spec 25-00104	P

Reliability Test Data

QTP #: 020807

<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>
STRESS: ACOUSTIC, MSL3							
CY7C62136VLL-ZSC (7C62136A)	4135681	610208751	CSPI-R	COMP	15	0	
CY7C62136VLL-ZSC (7C62136A)	4135681	610208811	CSPI-R	COMP	15	0	
CY7C62136VLL-ZSC (7C62136A)	4135681	610208812	CSPI-R	COMP	15	0	
STRESS: HI-ACCEL SATURATION TEST, 130C, 85%RH, 3.63V, PRE COND 192 HR 30C/60%RH, MSL3							
CY7C62136VLL-ZSC (7C62136A)	4135681	610208751	CSPI-R	128	43	0	
CY7C62136VLL-ZSC (7C62136A)	4135681	610208811	CSPI-R	128	45	0	
STRESS: PRESSURE COOKER TEST, 121C, 100%RH, PRE COND 192 HR 30C/60%RH, MSL3							
CY7C62136VLL-ZSC (7C62136A)	4135681	610208751	CSPI-R	168	45	0	
STRESS: SOLDERABILITY							
CY7C62136VLL-ZSC (7C62136A)	4135681	610208751	CSPI-R	COMP	3	0	
CY7C62136VLL-ZSC (7C62136A)	4135681	610208811	CSPI-R	COMP	3	0	
STRESS: ADHESION OF LEAD FINISH							
CY7C62136VLL-ZSC (7C62136A)	4135681	610208751	CSPI-R	COMP	3	0	
CY7C62136VLL-ZSC (7C62136A)	4135681	610208811	CSPI-R	COMP	3	0	
STRESS: EXTERNAL VISUAL							
CY7C62136VLL-ZSC (7C62136A)	4135681	610208751	CSPI-R	COMP	1288	0	
CY7C62136VLL-ZSC (7C62136A)	4135681	610208811	CSPI-R	COMP	1263	0	
STRESS: HIGH TEMPERATURE STORAGE, 150C							
CY7C62136VLL-ZSC (7C62136A)	4135681	610208751	CSPI-R	500	45	0	
CY7C62136VLL-ZSC (7C62136A)	4135681	610208751	CSPI-R	1000	45	0	
STRESS: X-RAY							
CY7C62136VLL-ZSC (7C62136A)	4135681	610208751	CSPI-R	COMP	32	0	
CY7C62136VLL-ZSC (7C62136A)	4135681	610208811	CSPI-R	COMP	32	0	

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<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>
STRESS: TC CONDITION C, 150C TO -65C, PRE COND 192 HR 30C/60%RH, MSL3							
CY7C62136VLL-ZSC (7C62136A)	4135681	610208751	CSPI-R	300	45	0	
CY7C62136VLL-ZSC (7C62136A)	4135681	610208751	CSPI-R	500	45	0	
CY7C62136VLL-ZSC (7C62136A)	4135681	610208811	CSPI-R	300	42	0	
CY7C62136VLL-ZSC (7C62136A)	4135681	610208811	CSPI-R	500	42	0	
CY7C62136VLL-ZSC (7C62136A)	4135681	610208812	CSPI-R	300	44	0	
CY7C62136VLL-ZSC (7C62136A)	4135681	610208812	CSPI-R	500	44	0	
CY7C62136VLL-ZSC (7C62136A)	4135681	610208812	CSPI-R	1000	43	0	