

# **Cypress Semiconductor Package Qualification Report**

**QTP# 050709 VERSION 1.0  
March 2005**

**8-28 Lead Thin Small Outline Package (TSSOP)**

**Sn/Pb Lead Finish, 260°C Reflow, MSL1**

**Hitachi CEL9200THF Molding Compound**

**OSE Taiwan (TAIWN-T)**

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

Sabbas Daniel  
Quality Engineering Director  
(408) 943-2685

Rene Rodgers  
Principal Reliability Engineer  
(408) 943-2732

**PACKAGE QUALIFICATION HISTORY**

<b>QUAL REPORT</b>	<b>DESCRIPTION OF QUALIFICATION PURPOSE</b>	<b>DATE COMP.</b>
024701	Qualify 8-28 Lead TSSOP with Sn/Bi lead frame at MSL1, 260°C solder reflow peak temperature at OSE Taiwan	Apr 03
050709	Qualify 8-28 Lead TSSOP with Sn/Pb lead finish at MSL1, 260°C solder reflow peak temperature at OSE Taiwan	Mar 05

<b>MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION</b>	
<b>Package Designation:</b>	Z2813
<b>Package Outline, Type, or Name:</b>	28-lead Thin Small Outline Package (TSSOP)
<b>Mold Compound Name/Manufacturer:</b>	Hitachi CEL9200THF
<b>Mold Compound Flammability Rating:</b>	V-O per UL94
<b>Oxygen Rating Index:</b>	>28%
<b>Lead Frame Material:</b>	Copper
<b>Lead Finish, Composition / Thickness:</b>	97% Sn, 3% Bi
<b>Die Backside Preparation Method/Metallization:</b>	N/A
<b>Die Separation Method:</b>	Wafer Saw
<b>Die Attach Supplier:</b>	Ablestik
<b>Die Attach Material:</b>	8340
<b>Bond Diagram Designation</b>	10-04455
<b>Wire Bond Method:</b>	Thermosonic
<b>Wire Material/Size:</b>	Au, 1.2mil
<b>Thermal Resistance Theta JA °C/W</b>	97.37°C/W
<b>Package Cross Section Yes/No:</b>	N/A
<b>Assembly Process Flow:</b>	49-35999
<b>Name/Location of Assembly (prime) facility:</b>	OSE Taiwan (TAIWN-T)

<b>ELECTRICAL TEST / FINISH DESCRIPTION</b>	
<b>Test Location:</b>	OSE Taiwan (TAIWN-T)
<b>Fault Coverage:</b>	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 1 168 Hrs., 85°C/85%RH+3IR-Reflow, <b>260°C</b> +5, -0°C	P
High Accelerated Saturation Test	128Hrs 3.63V Precondition: JESD22 Moisture Sensitivity MSL 1 168 Hrs., 85°C/85%RH+3IR-Reflow, <b>260°C</b> +5, -0°C	P
Pressure Cooker	168Hrs 100% RH Precondition: JESD22 Moisture Sensitivity MSL 1 168 Hrs., 85°C/85%RH+3IR-Reflow, <b>260°C</b> +5, -0°C	P
Adhesion of lead finish	Cypress Spec 25-00029	P
Solderability, Steam Aged	Cypress Spec. 25-00018	P
External Visual	Cypress Spec 25-00038	P
SEM X-Section	MIL-STD-883, Method 883-2018-2	P
Acoustic Microscopy Test	Cypress Spec 25-00104	P

## Reliability Test Data

QTP #: 024701

<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, MSL1</b>							
IMIC9716C-ZC (7C8C9716C)	9140641	610240875-1	TAIWN-T	COMP	15	0	
IMIC9716C-ZC (7C8C9716C)	9140641	610240875-2	TAIWN-T	COMP	15	0	
IMIC9716C-ZC (7C8C9716C)	9140641	610240875-3	TAIWN-T	COMP	15	0	
<b>STRESS: SOLDERABILITY</b>							
IMIC9716C-ZC (7C8C9716C)	9140641	610240875-1	TAIWN-T	COMP	5	0	
IMIC9716C-ZC (7C8C9716C)	9140641	610240875-2	TAIWN-T	COMP	5	0	
<b>STRESS: ADHESION OF LEAD FINISH</b>							
IMIC9716C-ZC (7C8C9716C)	9140641	610240875-1	TAIWN-T	COMP	5	0	
IMIC9716C-ZC (7C8C9716C)	9140641	610240875-2	TAIWN-T	COMP	5	0	
<b>STRESS: EXTERNAL VISUAL</b>							
IMIC9716C-ZC (7C8C9716C)	9140641	610240875-1	TAIWN-T	COMP	15	0	
IMIC9716C-ZC (7C8C9716C)	9140641	610240875-2	TAIWN-T	COMP	15	0	
<b>STRESS: HI-ACCEL SATURATION TEST, 130C, 85%RH, 3.63V, PRE COND 168 HR 85C/85%RH, MSL1</b>							
IMIC9716C-ZC (7C8C9716C)	9151563	610144814	TAIWN-T	128	42	0	
IMIC9716C-ZC (7C8C9716C)	9151563	610144868	TAIWN-T	128	43	0	
<b>STRESS: PRESSURE COOKER TEST, 121C, 100%RH, PRE COND 168 HR 85C/85%RH, MSL1</b>							
IMIC9716C-ZC (7C8C9716C)	9140641	610240875-1	TAIWN-T	168	50	0	
<b>STRESS: TC CONDITION C, 150C TO -65C, PRE COND 168 HR 85C/85%RH, MSL1</b>							
IMIC9716C-ZC (7C8C9716C)	9140641	610240875-1	TAIWN-T	300	45	0	
IMIC9716C-ZC (7C8C9716C)	9140641	610240875-1	TAIWN-T	500	45	0	
IMIC9716C-ZC (7C8C9716C)	9140641	610240875-1	TAIWN-T	1000	45	0	
IMIC9716C-ZC (7C8C9716C)	9140641	610240875-2	TAIWN-T	300	45	0	
IMIC9716C-ZC (7C8C9716C)	9140641	610240875-2	TAIWN-T	500	45	0	
IMIC9716C-ZC (7C8C9716C)	9140641	610240875-2	TAIWN-T	1000	45	0	
IMIC9716C-ZC (7C8C9716C)	9140641	610240875-3	TAIWN-T	300	45	0	
IMIC9716C-ZC (7C8C9716C)	9140641	610240875-3	TAIWN-T	500	45	0	
IMIC9716C-ZC (7C8C9716C)	9140641	610240875-3	TAIWN-T	1000	45	0	