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# Cypress Semiconductor Package Qualification Report

**QTP# 024701 VERSION\*A  
September 2014**

**8/28-Lead Thin Small Outline Package (TSSOP)  
Pure Matte , MSL3  
235C & 260C Reflow  
OSE Taiwan (T)**

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

QUAL REPORT	DESCRIPTION OF QUALIFICATION PURPOSE	DATE COMP.
043102	ALL TSSOP & SSOP (MSL1), ALL TSOP (MSL3) Packages, New Lead Finish Option for Pb-Free, using Matte Sn with Post Plate Bake and Annealing Process, 260C Reflow temperature assembled in OSE-Taiwan	Dec 04
024701	Qualify all $\leq 28$ -Lead TSSOP with Sn/Bi Lead frame at MSL1, 260°C solder reflow peak temperature at OSE Taiwan	Apr 03
024701	Cypress established policy requiring MSL and Reflow Peak Temperature alignment for Cypress and its Assembly Subcontractors. Downgrade from MSL1 to MSL3	Nov 06

MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION	
Package Designation:	Z2813
Package Outline, Type, or Name:	28-lead Thin Small Outline Package (TSSOP)
Mold Compound Name/Manufacturer:	Hitachi CEL9200THF
Mold Compound Flammability Rating:	V-O per UL94
Oxygen Rating Index:	>28%
Lead Frame Material:	Copper
Lead Finish, Composition / Thickness:	97%Sn, 3%Bi
Die Backside Preparation Method/Metallization:	N/A
Die Separation Method:	Wafer Saw
Die Attach Supplier:	Ablestik
Die Attach Material:	8340
Wire Bond Method:	Thermosonic
Wire Material/Size:	Au, 1.2mil
Thermal Resistance Theta JA °C/W	97.37°C/W
Package Cross Section Yes/No:	N/A
Assembly Process Flow:	49-35999
Name/Location of Assembly (prime) facility:	OSE Taiwan (TAIWN-T)
MSL Level	3
Reflow Profile	235C & 260C

ELECTRICAL TEST / FINISH DESCRIPTION	
Test Location:	OSE Taiwan (TAIWN-T)

**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, 260°C+0, -5°C	P
High Accelerated Saturation Test	130C, 3.63V, 85%RH Precondition: JESD22 Moisture Sensitivity MSL 1 168 Hrs 85°C/85%RH+3IR-Reflow, 260°C+0, -5°C	P
Pressure Cooker	168Hrs 100% RH Precondition: JESD22 Moisture Sensitivity MSL 1 168 Hrs 85°C/85%RH+3IR-Reflow, 260°C+0, -5°C	P
Adhesion of lead finish	MIL-STD-883, Method 2025	P
Solderability, Steam Aged	J-STD-002, JESD22-B102	P
External Visual	MIL-PRF-38535, MIL-STD-883, METHOD 2009,	P
SEM X-Section	MIL-STD-883, Method 883-2018-2	P
Acoustic Microscopy Test (C-SAM)	J-STD-020	P

## Reliability Test Data

**QTP #:043102**

Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
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**STRESS: ADHESION OF LEAD FINISH**

CY62148BLL			OSE-T	COMP	3	0	
CY8C27443			OSE-T	COMP	3	0	

**STRESS: EXTERNAL VISUAL**

CY62148BLL			OSE-T	COMP	15	0	
CY8C27443			OSE-T	COMP	15	0	

**STRESS: SOLDERABILITY**

CY62148BLL			OSE-T	COMP	9	0	
CY8C27443			OSE-T	COMP	9	0	

## 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, 15 Psig, 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	

## Document History Page

Document Title: QTP#024701: 8/28-Lead Thin Small Outline Package (TSSOP) Pure Matte, MSL3 235C & 260C  
Reflow OSE Taiwan (T)  
Document Number: 001-89442

Rev.	ECN No.	Orig. of Change	Description of Change
**	4140860	HSTO	Initial Spec Release Initiate report as per memo LGQ-627.
*A	4516872	HSTO	Align qualification report based on the new template in the front page

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