

Cypress Semiconductor Package Qualification Report

**QTP# 030604 VERSION*B
September 2014**

**≤28-Lead SSOP
(209mils) 100% Sn
MSL3, 260C Solder 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.
030604	Qualify OSE-Taiwan for \leq 28-lead SSOP (209mils), Pb-Free, MSL1, 260C Solder Reflow Temperature using 9220HF Mold Compound, 8340 Epoxy with 97% Sn 3% Bi	Mar 04
043102	New Lead Finish Option for Pb-Free, using Matte Sn with Post Plate Bake and Annealing Process, 260C IR- Reflow temperature assembled in OSE-Taiwan	Dec 04
043102	Cypress established policy requiring MSL and Reflow Peak Temperature alignment for Cypress and its Assembly Subcontractors. Downgrade from MSL1 to MSL3	Mar 07



MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION	
Package Designation:	O28
Package Outline, Type, or Name:	28-lead Shrunk Small Outline Package (SSOP) (209mils)
Mold Compound Name/Manufacturer:	CEL 9220HF
Mold Compound Flammability Rating:	V-O per UL 94
Oxygen Rating Index:	>51%
Lead Frame Material:	Copper
Lead Finish, Composition / Thickness:	100% Sn
Die Backside Preparation Method/Metallization:	Backgrind
Die Separation Method:	Wafer Saw
Die Attach Supplier:	Ablestik
Die Attach Material:	8340
Die Attach Method:	Silver Epoxy
Wire Bond Method:	Thermosonic
Wire Material/Size:	Au, 1.0 mils
Thermal Resistance Theta JA °C/W:	90°C/W
Package Cross Section Yes/No:	N/A
Name/Location of Assembly (prime) facility:	OSE-Taiwan (TAIWN-T)
MSL Level	3
Reflow Profile	260C

ELECTRICAL TEST / FINISH DESCRIPTION	
Test Location:	CML-R

Note: Please contact a Cypress Representative for other package availability.

RELIABILITY TESTS PERFORMED PER SPECIFICATION REQUIREMENTS

Stress/Test	Test Condition (Temp/Bias)	Result P/F
Acoustic Microscopy	J-STD-020	P
Adhesion of Lead Finish	MIL-STD-883, Method 2025	P
Die Shear	MIL-STD-883, Method 2019	P
External Visual	MIL-PRF-38535, MILSTD-883, METHOD 2009	P
High Temperature Storage	150C, no bias	P
High Temperature Operating Life Early Failure Rate	Dynamic Operating Condition, Vcc Max = 3.8V, 125C	P
High Temperature Operating Life Latent Failure Rate	Dynamic Operating Condition, Vcc Max= 3.8V, 150C	P
High Accelerated Saturation Test (HAST)	130°C, 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	121°C, 100%RH, 15 Psig Precondition: JESD22 Moisture Sensitivity MSL 1 168 Hrs., 85°C/85%RH+3IR-Reflow, 260°C+0, -5°C	P
Temperature Cycle	Precondition: JESD22 Moisture Sensitivity MSL 1 168 Hrs., 85°C/85%RH+3IR-Reflow, 260°C+0, -5°C	P
Resistance to Solvents	MIL-STD-883 -2015	P
X-Ray	MIL-STD-883 - 2012	P



Reliability Test Data

QTP #:030604

Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: ACOUSTIC, MSL1							
CY2295PVC (7C83000D)	2230116	610240687-1	TAIWN-T	COMP	15	0	
CY2295PVC (7C83000D)	2230116	610240687-2	TAIWN-T	COMP	15	0	
CY2295PVC (7C83000D)	2230116	610240687-3	TAIWN-T	COMP	15	0	
STRESS: ADHESION OF LEAD FINISH							
CY2295PVC (7C83000D)	2230116	610240687-1	TAIWN-T	COMP	5	0	
CY2295PVC (7C83000D)	2230116	610240687-2	TAIWN-T	COMP	5	0	
STRESS: DIE SHEAR							
CY2295PVC (7C83000D)	2230116	610240687-1	TAIWN-T	COMP	5	0	
STRESS: EXTERNAL VISUAL							
CY2295PVC (7C83000D)	2230116	610240687-1	TAIWN-T	COMP	15	0	
STRESS: HI-ACCEL SATURATION TEST, 130C, 85%RH, 3.63V, PRE COND 168 HRS. 85C/85%RH, MSL1							
W320-03H (W320031A)	9304372	610305557	TAIWN-T	128	45	0	
CY828409OC (7C828409D)	4315282	610347876	TAIWN-T	128	42	0	
STRESS: HIGH TEMP DYNAMIC OPERATING LIFE-EARLY FAILURE RATE, 125C, 3.8V, Vcc Max							
CY7C65640 (7C65640C)	4235326	610249056	TAIWN-T	96	259	0	
CY7C65640 (7C65640C)	4235326	610249057	TAIWN-T	120	260	0	
CY828409OC (7C828409D)	4315282	610347876	TAIWN-T	96	494	0	
CY828409OC (7C828409D)	4315282	610347876M	TAIWN-T	96	493	0	
STRESS: HIGH TEMP DYNAMIC OPERATING LIFE-LATENT FAILURE RATE, 150C, 3.8V, Vcc Max							
CY7C65640 (7C65640C)	4235326	610249056	TAIWN-T	80	118	0	
CY7C65640 (7C65640C)	4235326	610249056	TAIWN-T	500	106	0	
CY7C65640 (7C65640C)	4235326	610249057	TAIWN-T	80	115	0	
CY7C65640 (7C65640C)	4235326	610249057	TAIWN-T	500	97	0	
STRESS: HIGH TEMPERATURE STORAGE							
CY2295PVC (7C83000D)	2230116	610240687-1	TAIWN-T	500	45	0	
CY2295PVC (7C83000D)	2230116	610240687-1	TAIWN-T	1000	42	0	
STRESS: PRESSURE COOKER TEST, 121C, 100%RH, 15 Psig, PRE COND 168 Hrs., 85C/85%RH, MSL1							
CY2295PVC (7C83000D)	2230116	610240687-1	TAIWN-T	184	50	0	
CY2295PVC (7C83000D)	2230116	610240687-2	TAIWN-T	176	50	0	

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Reliability Test Data

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Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: SOLDERABILITY							
CY2295PVC (7C83000D)	2230116	610240687-1	TAIWN-T	COMP	5	0	
CY2295PVC (7C83000D)	2230116	610240687-2	TAIWN-T	COMP	5	0	
CY2295PVC (7C83000D)	2230116	610240687-3	TAIWN-T	COMP	5	0	
STRESS: TC CONDITION C, -65C TO 150C, PRE COND 168 HRS. 85C/85%RH, MSL1							
CY2295PVC (7C83000D)	2230116	610240687-1	TAIWN-T	300	46	0	
CY2295PVC (7C83000D)	2230116	610240687-1	TAIWN-T	500	46	0	
CY2295PVC (7C83000D)	2230116	610240687-1	TAIWN-T	1000	46	0	
CY2295PVC (7C83000D)	2230116	610240687-2	TAIWN-T	300	50	0	
CY2295PVC (7C83000D)	2230116	610240687-2	TAIWN-T	500	50	0	
CY2295PVC (7C83000D)	2230116	610240687-2	TAIWN-T	1000	50	0	
CY2295PVC (7C83000D)	2230116	610240687-3	TAIWN-T	300	47	0	
CY2295PVC (7C83000D)	2230116	610240687-3	TAIWN-T	500	46	0	
CY2295PVC (7C83000D)	2230116	610240687-3	TAIWN-T	1000	46	0	
STRESS: X-RAY							
CY2295PVC (7C83000D)	2230116	610240687-1	TAIWN-T	COMP	15	0	
CY2295PVC (7C83000D)	2230116	610240687-2	TAIWN-T	COMP	15	0	
CY2295PVC (7C83000D)	2230116	610240687-3	TAIWN-T	COMP	15	0	



Reliability Test Data

QTP #:043102

<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: 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 #: MR094039

<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>
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STRESS: HI-ACCEL SATURATION TEST, 110C, 85%RH, 5.25V, PRE COND 192 HRS 30C/60%RH, MSL3

CY8C21323 (8C21323BK)	5922005	610932146	TAIWN-T	264	30	0	
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STRESS: HIGH TEMPERATURE STORAGE

CY8C21323 (8C21323BK)	5922005	610932146	TAIWN-T	500	30	0	
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CY8C21323 (8C21323BK)	5922005	610932146	TAIWN-T	1000	30	0	
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Reliability Test Data

QTP #: MR101011

<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: HIGH TEMPERATURE STORAGE							
CY8C21323 (8C21323BK)	5928007	610944628	TAIWN-T	500	30	0	
CY8C21323 (8C21323BK)	5928007	610944628	TAIWN-T	500	30	0	



Reliability Test Data

QTP #: MR104044

<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: HIGH TEMPERATURE STORAGE							
CY8C21323 (8C21323BK)	5026089	611046210	TAIWN-T	500	30	0	
CY8C21323 (8C21323BK)	5026089	611046210	TAIWN-T	1000	30	0	



Reliability Test Data

QTP #: MR111012

<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: HIGH TEMPERATURE STORAGE							
CY8C21323 (8C21323BK)	5031036	611058400	TAIWN-T	500	30	0	
CY8C21323 (8C21323BK)	5031036	611058400	TAIWN-T	1000	30	0	



Document History Page

Document Title:QTP#030604: <28-Lead SSOP (209mils) 100% Sn MSL3, 260C Solder Reflow OSE Taiwan (T)
Document Number:001-89448

Rev.	ECN No.	Orig. of Change	Description of Change
**	4140947	HSTO	Initial Spec Release Initiate report as per memo LGQ-696
*A	4238178	HSTO	Added MR094039, MR101011, MR104044, MR111012 test result data
*B	4517577	HSTO	Align qualification report based on the new template in the front page

Distribution: WEB

Posting: None