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Cypress Semiconductor Package Qualification Report

QTP# 063211 VERSION*A
October, 2014

**≤ 32-Lead RTSOP/TSOP I
(without downbonds)
NiPdAu, MSL3,260C Reflow
OSE-Taiwan**

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

QTP Number	Description of Qualification Purpose	Date
063211	≤32-Lead RTSOP/TSOP I (without down bonds) , NiPdAu, MSL3, 260C Reflow assembled at OSE-Taiwan	Aug 06

MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION

Package Designation:	ZT32/ZY32
Package Outline, Type, or Name:	32-Lead Thin Small Outline Package
Mold Compound Name/Manufacturer:	CEL 9200HF / Hitachi
Mold Compound Flammability Rating:	UL94 – V0
Oxygen Rating Index: >28%	None
Leadframe Material:	Copper
Lead Finish, Composition / Thickness:	NiPdAu
Die Backside Preparation	Backgrind
Die Separation Method:	Saw
Die Attach Supplier:	Hitachi
Die Attach Material:	EN 4900G
Die Attach Method:	Epoxy
Bond Diagram Designation	10-06725
Wire Bond Method:	Thermosonic
Wire Material/Size:	Au. 1.0 mil
Thermal Resistance Theta JA C/W:	92.05/10.46 °C/W
Package Cross Section Yes/No:	N/A
Assembly Process Flow:	49-35999
Name/Location of Assembly (prime) facility:	OSE-Taiwan (T)
MSL Level	3
Reflow Profile	260C

RELIABILITY TESTS PERFORMED PER SPECIFICATION REQUIREMENTS

Stress/Test	Test Condition (Temp/Bias)	Result P/F
Temperature Cycle	MIL-STD-883, Method 1010, Condition C, -65°C to 150°C Precondition: JESD22 Moisture Sensitivity Level 3 192 Hrs, 30C/60%RH+ Reflow, 260°C+0, -5°C	P
Pressure Cooker Test	JESD22-A102 121 °C, 100%RH, 15 Psig Precondition: JESD22 Moisture Sensitivity Level 3 192 Hrs, 30C/60%RH+ Reflow, 260°C+0, -5°C	P
High Accelerated Saturation Test (HAST)	JEDEC STD 22-A110: 130°C, 5.5V, 85%RH Precondition: JESD22 Moisture Sensitivity Level 3 192 Hrs, 30C/60%RH+ Reflow, 260°C+0, -5°C	P
Acoustics Microscopy	J-STD-020 Precondition: JESD22 Moisture Sensitivity Level 192 Hrs, 30C/60%RH+ Reflow, 260°C+0, -5°C	P
Adhesion of Lead Finish	MIL-STD-883, Method 2025	P
Ball Shear	JESD22-B116	P
Bond Pull	MIL-STD-883 – Method 2011, Cpk : 1.33, Ppk : 1.66	P
External Visual	MIL-PRF-38535, MILSTD-883, METHOD 2009	P
Internal Visual	MIL-STD-883-2014	P
Lead Integrity	JESD22-B105, MIL STD 883	P
Physical Dimension	MIL-STD-1835, JESD22-B100	P
Solderability, Steam Aged	J-STD-002, JESD22-B102 95% solder coverage minimum	P
Wetting Balance	J-STD-002, JESD22-B102 95% solder coverage minimum	P
X-ray	MIL-STD-883 - 2012	P

Reliability Test Data

QTP #: 063211

Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: ACOUSTIC, MSL3							
CY7C1019CV33 (7C1019F)	4537388	610602429	TAIWN-T	COMP	15	0	
CY7C1019CV33 (7C1019F)	4537388	610602430	TAIWN-T	COMP	15	0	
CY7C1019CV33 (7C1019F)	4537388	610602431	TAIWN-T	COMP	15	0	
STRESS: ADHESION LEAD FINISH							
CY7C1019CV33 (7C1019F)	4537388	610602429	TAIWN-T	COMP	3	0	
CY7C1019CV33 (7C1019F)	4537388	610602430	TAIWN-T	COMP	3	0	
CY7C1019CV33 (7C1019F)	4537388	610602431	TAIWN-T	COMP	3	0	
STRESS: BALL SHEAR							
CY7C1019CV33 (7C1019F)	4537388	610602429	TAIWN-T	COMP	10	0	
STRESS: BOND PULL							
CY7C1019CV33 (7C1019F)	4537388	610602429	TAIWN-T	COMP	10	0	
STRESS: EXTERNAL VISUAL							
CY7C1019CV33 (7C1019F)	4537388	610602429	TAIWN-T	COMP	15	0	
STRESS: INTERNAL VISUAL							
CY7C1019CV33 (7C1019F)	4537388	610602429	TAIWN-T	COMP	5	0	
CY7C1019CV33 (7C1019F)	4537388	610602430	TAIWN-T	COMP	5	0	
CY7C1019CV33 (7C1019F)	4537388	610602431	TAIWN-T	COMP	5	0	
STRESS: LEAD INTEGRITY							
CY7C1019CV33 (7C1019F)	4537388	610602429	TAIWN-T	COMP	3	0	
CY7C1019CV33 (7C1019F)	4537388	610602430	TAIWN-T	COMP	3	0	
CY7C1019CV33 (7C1019F)	4537388	610602431	TAIWN-T	COMP	3	0	
STRESS: HI-ACCEL SATURATION TEST, 130C, 5.5V, 85%RH, PRE COND 192HR 30C/60%RH, MSL3							
CY7C1019CV33 (7C1019F)	4537388	610602429	TAIWN-T	128	50	0	



Reliability Test Data

QTP #: 063211

Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
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STRESS: PHYSICAL DIMENSION

CY7C1019CV33 (7C1019F)	4537388	610602429	TAIWN-T	COMP	5	0	
CY7C1019CV33 (7C1019F)	4537388	610602430	TAIWN-T	COMP	5	0	
CY7C1019CV33 (7C1019F)	4537388	610602431	TAIWN-T	COMP	5	0	

STRESS: PRESSURE COOKER TEST, 121C, 100%RH, 15 Psig, PRE COND 192HR 30C/60%RH, MSL3

CY7C1019CV33 (7C1019F)	4537388	610602429	TAIWN-T	168	50	0	
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STRESS: SOLDERABILITY

CY7C1019CV33 (7C1019F)	4537388	610602429	TAIWN-T	COMP	3	0	
CY7C1019CV33 (7C1019F)	4537388	610602430	TAIWN-T	COMP	3	0	
CY7C1019CV33 (7C1019F)	4537388	610602431	TAIWN-T	COMP	3	0	

STRESS: SOLDERABILITY (230C)

CY62128ELL (7C62628F)	4538636	610602218	TAIWN-T	COMP	5	0	
CY62128ELL (7C62628F)	4537186	610621799	TAIWN-T	COMP	5	0	
CY62128ELL (7C62628F)	4537186	610621800	TAIWN-T	COMP	5	0	

STRESS: TC COND. C -65C TO 150C, PRE COND 192HR 30C/60%RH, MSL3

CY62128ELL (7C62628F)	4538636	610602218	TAIWN-T	300	50	0	
CY62128ELL (7C62628F)	4537186	610621799	TAIWN-T	300	45	0	
CY62128ELL (7C62628F)	4537186	610621800	TAIWN-T	300	45	0	

STRESS: WETTING BALANCE

CY7C1019CV33 (7C1019F)	4537388	610602429	TAIWN-T	COMP	5	0	
CY7C1019CV33 (7C1019F)	4537388	610602430	TAIWN-T	COMP	5	0	
CY7C1019CV33 (7C1019F)	4537388	610602431	TAIWN-T	COMP	5	0	

STRESS: X-RAY

CY7C1019CV33 (7C1019F)	4537388	610602429	TAIWN-T	COMP	15	0	
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Document History Page

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REFLOW, OSE-TAIWAN
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Rev.	ECN No.	Orig. of Change	Description of Change
**	4148772	JYF	Initial Spec Release.
*A	4526822	JYF	Sunset review: Updated QTP title page for template alignment.

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