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# Cypress Semiconductor Package Qualification Report

**QTP# 064102 VERSION\*A**  
**October, 2014**

**44-Lead TSOP II Stacked Die**  
**(400 mils)**  
**Pure Sn, MSL3, 260C Reflow**  
**ASE-Taiwan (G)**

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

QTP Number	Description of Qualification Purpose	Date
064102	Qualify 44-Lead TSOPII (Stacked Die) (400Mils), Pure Sn, MSL3, 260C Reflow assembled at	Jun 07

MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION	
Package Designation:	ZW44
Package Outline, Type, or Name:	44-Lead TSOPII Stacked Die (Thin Small Outline Package)
Mold Compound Name/Manufacturer:	CEL 9200THF/ HITACHI
Mold Compound Flammability Rating:	UL-94
Mold Compound Alpha Emission Rate :	N/A
Oxygen Rating Index:	V-0
Lead Finish, Composition / Thickness:	Pure Sn
Die Backside Preparation	Backgrind
Die Separation Method:	100% Saw
Die Attach Supplier:	Hitachi
Die Attach Material:	HS231 TAPE FILM
Die Attach Method:	Epoxy Film
Bond Diagram Designation:	001-06440
Wire Bond Method:	Thermosonic
Wire Material/Size:	Au, 1.0 mil
Thermal Resistance Theta JA °C/W:	51.83
Package Cross Section Yes/No:	N/A
Assembly Process Flow:	001-17644
Name/Location of Assembly (prime) facility:	ASE-Taiwan (G)
MSL Level	3
Reflow Profile	260C

ELECTRICAL TEST/FINISH DESCRIPTION	
Test Location	CML-R

### RELIABILITY TESTS PERFORMED PER SPECIFICATION REQUIREMENTS

Stress/Test	Test Condition (Temp/Bias)	Result P/F
Acoustic Microscopy	J-STD-020 Precondition: JESD22 Moisture Sensitivity MSL3 192 Hrs, 30 °C/60%RH+ Reflow, 260 °C+0, -5 °C	P
Die Shear	MIL-STD-883, Method 2019 Per die size: <ul style="list-style-type: none"> <li>&lt;3000 sq. mils = 1.2 kgf</li> <li>30001-5000 sq. mils = 1.2 kgf</li> <li>&gt;5001 sq. mils = 1.2 kgf</li> </ul>	P
Electrostatic Discharge Charge Device Model (ESD-CDM)	500V JESD22-A101	P
Electrostatic Discharge Human Body Model (ESD-HBM)	2,200V JESD-22 Method A114	P
Electrostatic Discharge Human Body Model (ESD-HBM)	2,200V MIL-STD-883, Method 3015.7	P
External Visual	MIL-PRF-38535, MILSTD-883, METHOD 2009	P
Internal Visual	MIL-STD-883-2014	P
High Accelerated Saturation Test (HAST)	JEDEC STD 22-A110: 130 °C, 3.65V, 85% RH Precondition: JESD22 Moisture Sensitivity MSL3 192 Hrs, 30 °C/60%RH+ Reflow, 260 °C+0, -5 °C	P
High Temperature Storage	JESD22-A103:150C, no bias	P
High Temperature Operating Life Early Failure Rate	Dynamic Operating Condition, Vcc Max = 3.77V, 125 °C JESD22-A108	P
High Temperature Operating Life Latent Failure Rate	Dynamic Operating Condition, Vcc Max = 3.77V, 125 °C JESD22-A108	P
Physical Dimension	MIL-STD-1835, JESD22-B100	P
Pressure Cooker	JESD22-A102: 121 °C, 100%RH, 15 Psig Precondition: JESD22 Moisture Sensitivity MSL3 192 Hrs, 30 °C/60%RH+ Reflow, 260 °C+0, -5 °C	P
Solderability, Steam Aged	J-STD-002, JESD22-B102 95% solder coverage minimum	P
Temperature Cycle	MIL-STD-883, Method 1010, Condition C, -65 C to 150 C Precondition: JESD22 Moisture Sensitivity MSL3 192 Hrs, 30 °C/60%RH+ Reflow, 260 °C+0, -5 °C	P
Thermal Shock	MIL-STD-883, Method 1011, Condition B, -55 C to 125C and JESD22-A106, Condition C, -55 C to 125C	P
X-Ray	MIL-STD-883 2012	P

## Reliability Test Data

QTP #: 064102

<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>
<b>STRESS: ACOUSTIC, MSL3</b>							
CY7C1051DV33 (7C1351NC)	4530733	610614989	TAIWAN-G	COMP	15	0	
CY7C1051DV33 (7C1351NC)	4530733	610614995	TAIWAN-G	COMP	15	0	
CY7C1051DV33 (7C1351NC)	4530733	610614991	TAIWAN-G	COMP	15	0	
<b>STRESS: DIE SHEAR</b>							
CY7C1051DV33 (7C1351NC)	4530733	610614989	TAIWAN-G	COMP	15	0	
<b>STRESS: ESD-CHARGE DEVICE MODEL, 500V</b>							
CY7C1051DV33 (7C1351NC)	4602732	610621059	TAIWAN-G	COMP	9	0	
<b>STRESS: ESD-HUMAN BODY CIRCUIT PER JESD22, METHOD A114-E, 2,200V</b>							
CY7C1051DV33 (7C1351NC)	4602732	610621059	TAIWAN-G	COMP	6	0	
<b>STRESS: ESD-HUMAN BODY CIRCUIT PER MIL STD 883, METHOD 3015, 2,200V</b>							
CY7C1051DV33 (7C1351NC)	4602732	610621059	TAIWAN-G	COMP	3	0	
<b>STRESS: HIGH TEMP DYNAMIC OPERATING LIFE-EARLY FAILURE RATE, 125C, 3.77V, Vcc Max</b>							
CY7C1051DV33 (7C1351NC)	4630421	610667062	TAIWAN-G	96	1349	0	
<b>STRESS: HIGH TEMP DYNAMIC OPERATING LIFE-LATENT FAILURE RATE, 125C, 3.77V, Vcc Max</b>							
CY7C1051DV33 (7C1351NC)	4630421	610667062	TAIWAN-G	160	200	0	
CY7C1051DV33 (7C1351NC)	4630421	610667062	TAIWAN-G	1000	198	0	
<b>STRESS: EXTERNAL VISUAL</b>							
CY7C1051DV33 (7C1351NC)	4530733	610614989	TAIWAN-G	COMP	15	0	
<b>STRESS: HI-ACCEL SATURATION TEST (130C, 85%RH, 3.65V), PRE COND 192 HR 30C/60%RH, MSL3</b>							
CY7C1051DV33 (7C1351NC)	4530733	610614989	TAIWAN-G	96	45	0	
CY7C1051DV33 (7C1351NC)	4530733	610614989	TAIWAN-G	128	45	0	
CY7C1051DV33 (7C1351NC)	4530733	610614995	TAIWAN-G	96	45	0	
CY7C1051DV33 (7C1351NC)	4530733	610614995	TAIWAN-G	128	45	0	
<b>STRESS: HIGH TEMPERATURE STORAGE</b>							
CY7C1051DV33 (7C1351NC)	4530733	610614989	TAIWAN-G	500	50	0	
CY7C1051DV33 (7C1351NC)	4530733	610614989	TAIWAN-G	1000	50	0	
<b>STRESS: INTERNAL VISUAL</b>							
CY7C1051DV33 (7C1351NC)	4530733	610614989	TAIWAN-G	COMP	5	0	

## Reliability Test Data

**QTP #: 064102**

<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: PRESSURE COOKER TEST, 121C, 100%RH, PRE COND 192 HR 30C/60%RH, MSL3</b>							
CY7C1051DV33 (7C1351NC)	4530733	610614989	TAIWAN-G	96	49	0	
CY7C1051DV33 (7C1351NC)	4530733	610614989	TAIWAN-G	168	49	0	
CY7C1051DV33 (7C1351NC)	4530733	610614995	TAIWAN-G	96	49	0	
CY7C1051DV33 (7C1351NC)	4530733	610614995	TAIWAN-G	168	49	0	
<b>STRESS: PHYSICAL DIMENSIONS</b>							
CY7C1051DV33 (7C1351NC)	4530733	610614989	TAIWAN-G	COMP	5	0	
CY7C1051DV33 (7C1351NC)	4530733	610614995	TAIWAN-G	COMP	5	0	
CY7C1051DV33 (7C1351NC)	4530733	610614991	TAIWAN-G	COMP	5	0	
<b>STRESS: SOLDERABILITY</b>							
CY7C1051DV33 (7C1351NC)	4530733	610614989	TAIWAN-G	COMP	3	0	
CY7C1051DV33 (7C1351NC)	4530733	610614995	TAIWAN-G	COMP	3	0	
CY7C1051DV33 (7C1351NC)	4530733	610614991	TAIWAN-G	COMP	3	0	
<b>STRESS: TC COND. C -65C TO 150C, PRE COND 192 HRS 30C/60%RH, MSL3</b>							
CY7C1051DV33 (7C1351NC)	4530733	610614989	TAIWAN-G	300	50	0	
CY7C1051DV33 (7C1351NC)	4530733	610614989	TAIWAN-G	500	50	0	
CY7C1051DV33 (7C1351NC)	4530733	610614989	TAIWAN-G	1000	50	0	
CY7C1051DV33 (7C1351NC)	4530733	610614995	TAIWAN-G	300	50	0	
CY7C1051DV33 (7C1351NC)	4530733	610614995	TAIWAN-G	500	50	0	
CY7C1051DV33 (7C1351NC)	4530733	610614995	TAIWAN-G	1000	50	0	
CY7C1051DV33 (7C1351NC)	4530733	610614991	TAIWAN-G	300	49	0	
CY7C1051DV33 (7C1351NC)	4530733	610614991	TAIWAN-G	500	49	0	
CY7C1051DV33 (7C1351NC)	4530733	610614991	TAIWAN-G	1000	49	0	
<b>STRESS: THERMAL SHOCK</b>							
CY7C1051DV33 (7C1351NC)	4530733	610614989	TAIWAN-G	100	45	0	
CY7C1051DV33 (7C1351NC)	4530733	610614989	TAIWAN-G	200	45	0	
<b>STRESS: X-RAY</b>							
CY7C1051DV33 (7C1351NC)	4530733	610614989	TAIWAN-G	COMP	15	0	
CY7C1051DV33 (7C1351NC)	4530733	610614995	TAIWAN-G	COMP	15	0	
CY7C1051DV33 (7C1351NC)	4530733	610614991	TAIWAN-G	COMP	15	0	



## Document History Page

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ASE-TAIWAN (G)  
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