Please note that Cypress is an Infineon Technologies Company.
The document following this cover page is marked as “Cypress” document as this is the company that originally developed the product. Please note that Infineon will continue to offer the product to new and existing customers as part of the Infineon product portfolio.

Continuity of document content
The fact that Infineon offers the following product as part of the Infineon product portfolio does not lead to any changes to this document. Future revisions will occur when appropriate, and any changes will be set out on the document history page.

Continuity of ordering part numbers
Infineon continues to support existing part numbers. Please continue to use the ordering part numbers listed in the datasheet for ordering.

Cypress Semiconductor Automotive Package Qualification Report

**QTP# 154605 VERSION **
November 2016**

32L TSOP (400mil)

NiPdAu leadfinish, Au Wire

MSL3, 260C Reflow

OSE-Taiwan (T)

FOR ANY QUESTIONS ON THIS REPORT, PLEASE CONTACT
reliability@cypress.com or via a CYLINK CRM CASE

Prepared By:
Honesto Sintos
Reliability Engineer

Reviewed By:
Rene Rodgers
Reliability Manager

Approved By:
David Hoffman
Reliability Director

PACKAGE QUALIFICATION HISTORY

QTP Number	Description of Qualification Purpose	Date
154605	Qualification of 32L-TSOP (400mil) Automotive Package in OSE-Taiwan (T) using 1.0mil Au wire with G700L mold compound, CRM-1076W die attach material, Roughened leadframe (PPF) and NiPdAu leadfinish at MSL3, 260C Reflow Temperature.	Oct 2016

MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION	
Package Designation:	ZW32
Package Outline, Type, or Name:	32L-TSOP (400mil)
Mold Compound Name/Manufacturer:	G700L / Sumitomo
Mold Compound Flammability Rating:	V-0
Mold Compound Alpha Emission Rate:	N/A (Not low alpha mold compound)
Oxygen Rating Index: >28%	54%
Lead Frame Designation:	Full Metal Pad
Lead Frame Material:	Copper
Substrate Material:	N/A
Lead Finish, Composition / Thickness:	Roughened-PPF NiPdAu
Die Backside Preparation Method/Metallization:	Backgrind
Die Separation Method:	Sawing
Die Attach Supplier:	Sumitomo
Die Attach Material:	CRM-1076W
Bond Diagram Designation	001-54166
Wire Bond Method:	Thermosonic
Wire Material/Size:	Au / 1 mil
Thermal Resistance Theta JA °C/W:	80.41
Package Cross Section Yes/No:	Yes
Assembly Process Flow:	49-41999
Name/Location of Assembly (prime) facility:	OSE-Taiwan (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
High Temperature Operating Life Early Failure Rate	AEC-Q100-008 and JESD22-A108, 150°C Dynamic Operating Condition, Vcc Max = 2.3V	P
High Temperature Operating Life Latent Failure Rate	JESD22-A108, 150°C Dynamic Operating Condition, Vcc Max = 2.3V	P
High Accelerated Saturation Test (HAST)	JESD22-A110, 130C, 3.65V, 85%RH Precondition: JESD22-A113 Moisture Sensitivity MSL 3 192 Hrs, 30C/60%RH+3IR-Reflow, 260°C+0, -5°C	P
Temperature Cycle	JESD22-A104, -65°C to 150°C Precondition: JESD22-A113 Moisture Sensitivity MSL 3 192 Hrs, 30C/60%RH+3IR-Reflow, 260°C+0, -5°C	P
Pressure Cooker	JESD22-A102, 121C, 100%RH, 15 Psig Precondition: JESD22-A113 Moisture Sensitivity MSL 3 192 Hrs, 30C/60%RH+3IR-Reflow, 260°C+0, -5°C	P
Acoustic	J-STD-020 Precondition: JESD22-A113 Moisture Sensitivity MSL 3 192 Hrs, 30C/60%RH+3IR-Reflow, 260C+0, -5C	P
High Temp Storage	JESD22-A103: 150 C, no bias	P
Wire Bond Pull	Mil-Std 883, Method 2011	P
Post Temperature Cycle Wire Bond Pull	Mil-Std 883, Method 2011	P
Dye Penetrant Test	Criteria: No Package Crack	P
Electrical Distribution	AEC-Q100-009	P
Wire Ball Shear	AEC-Q100-001	P
Constructional Analysis	Criteria: Meet external and internal characteristics of Cypress package	P
Solderability	JESD22-B102	P

Reliability Test Data

QTP #: 154605

Device	Package	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: ACOUSTIC, MSL3								
CY7C1019CV33 (7A1319GC)	ZW32	4503947	611532738	OSE-T	COMP	22	0	
CY7C1019CV33 (7A1319GC)	ZW32	4503947	611532739	OSE-T	COMP	22	0	
CY7C1019CV33 (7A1319GC)	ZW32	4503947	611532740	OSE-T	COMP	22	0	
STRESS: BALL SHEAR								
CY7C1019CV33 (7A1319GC)	ZW32	4503947	611532738	OSE-T	COMP	100	0	
CY7C1019CV33 (7A1319GC)	ZW32	4503947	611532739	OSE-T	COMP	100	0	
CY7C1019CV33 (7A1319GC)	ZW32	4503947	611532740	OSE-T	COMP	100	0	
STRESS: BOND PULL								
CY7C1019CV33 (7A1319GC)	ZW32	4503947	611532738	OSE-T	COMP	100	0	
CY7C1019CV33 (7A1319GC)	ZW32	4503947	611532739	OSE-T	COMP	100	0	
CY7C1019CV33 (7A1319GC)	ZW32	4503947	611532740	OSE-T	COMP	100	0	
STRESS: CONSTRUCTIONAL ANALYSIS								
CY7C1019CV33 (7A1319GC)	ZW32	4503947	611532738	OSE-T	COMP	5	0	
STRESS: DYE PENETRANT								
CY7C1019CV33 (7A1319GC)	ZW32	4503947	611532738	OSE-T	COMP	15	0	
CY7C1019CV33 (7A1319GC)	ZW32	4503947	611532739	OSE-T	COMP	15	0	
CY7C1019CV33 (7A1319GC)	ZW32	4503947	611532740	OSE-T	COMP	15	0	
STRESS: HIGH TEMP DYNAMIC OPERATING LIFE-EARLY FAILURE RATE, 150C, 2.3V, Vcc Max								
CY7C1019CV33 (7A1319GC)	ZW32	4503947	611532738	OSE-T	48	800	0	
CY7C1019CV33 (7A1319GC)	ZW32	4503947	611532739	OSE-T	48	798	0	
CY7C1019CV33 (7A1319GC)	ZW32	4503947	611532740	OSE-T	48	796	0	
STRESS: ELECTRICAL DISTRIBUTION								
CY7C1019CV33 (7A1319GC)	ZW32	4503947	611532738	OSE-T	COMP	30	0	
CY7C1019CV33 (7A1319GC)	ZW32	4503947	611532739	OSE-T	COMP	30	0	
CY7C1019CV33 (7A1319GC)	ZW32	4503947	611532740	OSE-T	COMP	30	0	

Reliability Test Data

QTP #: 154605

Device	Package	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: HI-ACCEL SATURATION TEST, 130C, 3.65V, 85%RH, PRE COND 192 HR 30C/60%RH, MSL3								
CY7C1019CV33 (7A1319GC)	ZW32	4503947	611532738	OSE-T	96	80	0	
CY7C1019CV33 (7A1319GC)	ZW32	4503947	611532739	OSE-T	96	80	0	
CY7C1019CV33 (7A1319GC)	ZW32	4503947	611532740	OSE-T	96	80	0	
STRESS: HIGH TEMPERATURE STORAGE								
CY7C1019CV33 (7A1319GC)	ZW32	4503947	611532738	OSE-T	1000	80	0	
STRESS: HIGH TEMP DYNAMIC OPERATING LIFE-LATENT FAILURE RATE, 150C, 2.3V, Vcc Max								
CY7C1019CV33 (7A1319GC)	ZW32	4503947	611532738	OSE-T	408	80	0	
CY7C1019CV33 (7A1319GC)	ZW32	4503947	611532739	OSE-T	408	80	0	
STRESS: PRESSURE COOKER TEST								
CY7C1019CV33 (7A1319GC)	ZW32	4503947	611532738	OSE-T	96	80	0	
CY7C1019CV33 (7A1319GC)	ZW32	4503947	611532738	OSE-T	168	80	0	
CY7C1019CV33 (7A1319GC)	ZW32	4503947	611532739	OSE-T	96	80	0	
CY7C1019CV33 (7A1319GC)	ZW32	4503947	611532739	OSE-T	168	80	0	
CY7C1019CV33 (7A1319GC)	ZW32	4503947	611532740	OSE-T	96	80	0	
CY7C1019CV33 (7A1319GC)	ZW32	4503947	611532740	OSE-T	168	80	0	
STRESS: POST HIGH TEMPERATURE STORAGE BALL SHEAR								
CY7C1019CV33 (7A1319GC)	ZW32	4503947	611532738	OSE-T	1000	5	0	
STRESS: POST HIGH TEMPERATURE STORAGE BOND PULL								
CY7C1019CV33 (7A1319GC)	ZW32	4503947	611532738	OSE-T	1000	5	0	
STRESS: POST TCT BALL SHEAR								
CY7C1019CV33 (7A1319GC)	ZW32	4503947	611532738	OSE-T	1000	5	0	
CY7C1019CV33 (7A1319GC)	ZW32	4503947	611532739	OSE-T	1000	5	0	
CY7C1019CV33 (7A1319GC)	ZW32	4503947	611532740	OSE-T	1000	5	0	
STRESS: POST TCT BOND PULL								
CY7C1019CV33 (7A1319GC)	ZW32	4503947	611532738	OSE-T	1000	5	0	
CY7C1019CV33 (7A1319GC)	ZW32	4503947	611532739	OSE-T	1000	5	0	
CY7C1019CV33 (7A1319GC)	ZW32	4503947	611532740	OSE-T	1000	5	0	

Reliability Test Data

QTP #: 154605

Device	Package	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: POST PRESSURE COOKER BALL SHEAR								
CY7C1019CV33 (7A1319GC)	ZW32	4503947	611532738	OSE-T	168	5	0	
CY7C1019CV33 (7A1319GC)	ZW32	4503947	611532739	OSE-T	168	5	0	
CY7C1019CV33 (7A1319GC)	ZW32	4503947	611532740	OSE-T	168	5	0	
STRESS: POST PRESSURE COOKER BOND PULL								
CY7C1019CV33 (7A1319GC)	ZW32	4503947	611532738	OSE-T	168	5	0	
CY7C1019CV33 (7A1319GC)	ZW32	4503947	611532739	OSE-T	168	5	0	
CY7C1019CV33 (7A1319GC)	ZW32	4503947	611532740	OSE-T	168	5	0	
STRESS: POST HI-ACCEL SATURATION TEST BALL SHEAR								
CY7C1019CV33 (7A1319GC)	ZW32	4503947	611532738	OSE-T	96	5	0	
CY7C1019CV33 (7A1319GC)	ZW32	4503947	611532739	OSE-T	96	5	0	
CY7C1019CV33 (7A1319GC)	ZW32	4503947	611532740	OSE-T	96	5	0	
STRESS: POST HI-ACCEL SATURATION TEST BOND PULL								
CY7C1019CV33 (7A1319GC)	ZW32	4503947	611532738	OSE-T	96	5	0	
CY7C1019CV33 (7A1319GC)	ZW32	4503947	611532739	OSE-T	96	5	0	
CY7C1019CV33 (7A1319GC)	ZW32	4503947	611532740	OSE-T	96	5	0	
STRESS: POST TCT BOND PULL								
CY7C1019CV33 (7A1319GC)	ZW32	4503947	611532738	OSE-T	500	5	0	
CY7C1019CV33 (7A1319GC)	ZW32	4503947	611532739	OSE-T	500	5	0	
CY7C1019CV33 (7A1319GC)	ZW32	4503947	611532740	OSE-T	500	5	0	
STRESS: PRE/POST LFR CRITICAL PARAMETERS								
CY7C1019CV33 (7A1319GC)	ZW32	4503947	611532738	OSE-T	COMP	30	0	
CY7C1019CV33 (7A1319GC)	ZW32	4503947	611532739	OSE-T	COMP	30	0	
CY7C1019CV33 (7A1319GC)	ZW32	4503947	611532740	OSE-T	COMP	30	0	
STRESS: SOLDERABILITY								
CY7C1019CV33 (7A1319GC)	ZW32	4503947	611532738	OSE-T	COMP	15	0	
CY7C1019CV33 (7A1319GC)	ZW32	4503947	611532739	OSE-T	COMP	15	0	
CY7C1019CV33 (7A1319GC)	ZW32	4503947	611532740	OSE-T	COMP	15	0	

Reliability Test Data

QTP #: 154605

Device	Package	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: TC COND. C -65C TO 150C, PRECONDITION 192 HRS 30C/60%RH								
CY7C1019CV33 (7A1319GC)	ZW32	4503947	611532738	OSE-T	500	85	0	
CY7C1019CV33 (7A1319GC)	ZW32	4503947	611532738	OSE-T	1000	80	0	
CY7C1019CV33 (7A1319GC)	ZW32	4503947	611532739	OSE-T	500	85	0	
CY7C1019CV33 (7A1319GC)	ZW32	4503947	611532739	OSE-T	1000	79	0	
CY7C1019CV33 (7A1319GC)	ZW32	4503947	611532740	OSE-T	500	85	0	
CY7C1019CV33 (7A1319GC)	ZW32	4503947	611532740	OSE-T	1000	80	0	

Document History Page

Document Title:QTP#154605: AUTOMOTIVE 32L TSOP (400mil) NiPdAu leadfinish, Au Wire MSL3, 260C Reflow OSE-Taiwan (T)
Document Number: 002-17025

Rev.	ECN No.	Orig. of Change	Description of Change
**	5516555	HSTO	Initial spec release