

Cypress Semiconductor Package Qualification Report

**QTP# 082109 VERSION 1.0
October 2008**

**32-Lead QFN
(5 x 5 x 0.6mm)
NiPdAu, MSL3, 260°C Reflow
Carsem-Malaysia**

CYPRESS TECHNICAL CONTACT FOR QUALIFICATION DATA:

Rene Rodgers
Reliability Engineer, MTS
(408) 943-2732

Mira Ben-Tzur
Quality Engineering Director
(408) 943-2675

PACKAGE QUALIFICATION HISTORY

QUAL REPORT	DESCRIPTION OF QUALIFICATION PURPOSE	DATE COMP.
072202	32 Lead QFN (5x5x0.6mm) NiPdAu, MSL3, 260C Reflow, using QMI-519 Epoxy and EME-G770H Mold Compound assembled at Carsem , Malaysia	Sep 07
082109	Saw Type New Leadframe Qual 32 Lead QFN (5x5x0.6mm) NiPdAu, MSL3, 260C Reflow, using QMI-519 Epoxy and EME-G770H Mold Compound assembled at Carsem , Malaysia	Oct 08

MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION

Package Designation:	LQ32
Package Outline, Type, or Name:	32-lead Quad Flat No Lead (QFN)
Mold Compound Name/Manufacturer:	EME-G770H Sumitomo
Mold Compound Flammability Rating:	V-0 UL-94
Oxygen Rating Index:	N/A
Lead Frame Material:	Copper
Lead Finish, Composition / Thickness:	NiPdAu
Die Backside Preparation Method/Metallization:	Backgrind
Die Separation Method:	100% Saw
Die Attach Supplier:	Henkel
Die Attach Material:	QM1-519
Die Attach Method:	Dispensing
Bond Diagram Designation:	001-45381
Wire Bond Method:	Thermosonic
Wire Material/Size:	Au/1.0mil
Thermal Resistance Theta JA °C/W :	21.58 °C/W
Package Cross Section Yes/No:	N/A
Assembly Process Flow:	001-11286
Name/Location of Assembly (prime) facility:	Carsem, Malaysia (CA)
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
Electrostatic Discharge Charge Device Model (ESD-CDM)	500V Cypress Spec. 25-00020	P
Electrostatic Discharge Human Body Model (ESD-HBM)	2,200V MIL-STD-883, Method 3015 JESD22, Method A114-E	P
High Accelerated Saturation Test (HAST)	130°C, 5.25V, 85%RH Precondition: JESD22 Moisture Sensitivity MSL 3 192 Hrs, 30°C/60%RH + 3IR-Reflow, 260°C+0, -5°C	P
High Temp Storage	150C, no bias	P
Pressure Cooker	121°C, 100%RH, 15 PSIG Precondition: JESD22 Moisture Sensitivity MSL 3 192 Hrs, 30°C /60%RH + 3IR-Reflow, 260°C+0, -5°C	P
Temperature Cycle	MIL-STD-883C, Method 1010, Condition C, -65°C to +- 150°C Precondition: JESD22 Moisture Sensitivity MSL3 192 Hrs 30°C/60%RH + 3IR-Reflow, 260°C+0, -5°C	P
Acoustic Microscopy	Cypress Spec 25-00104	P
Ball Shear	Cypress Spec 12-00292	P
Bond Pull	Cypress Spec 12-00292	P
Constructional Analysis	Cypress Spec 25-20035	P
Die Shear	Cypress Spec 12-00292	P
Dye Penetrant Test	Cypress Spec 25-00046	P
External Visual	Cypress Spec 12-00292	P
Internal Visual	Cypress Spec 12-00292	P
Lead Integrity	Cypress Spec 25-00004	P
Physical Dimension	Cypress Spec 25-00031	P
Solderability	Cypress Spec 25-00018	P
Thermal Shock	Cypress Spec 25-00014	P
X-Ray	MIL-STD-883-2012	P

Reliability Test Data

QTP #: 072202

<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: ACOUSTIC							
CY8C21434A (8C214345AK)	5649020	610722728	CARSEM	COMP	15	0	
CY8C21434A (8C214345AK)	5649020	610722737	CARSEM	COMP	15	0	
CY8C21434A (8C214345AK)	5649020	610726704	CARSEM	COMP	15	0	
STRESS: BALL SHEAR							
CY8C21434A (8C214345AK)	5649020	610722728	CARSEM	COMP	10	0	
STRESS: BOND PULL							
CY8C21434A (8C214345AK)	5649020	610722728	CARSEM	COMP	10	0	
STRESS: CONSTRUCTIONAL ANALYSIS							
CY8C21434A (8C214345AK)	5649020	610722728	CARSEM	COMP	5	0	
STRESS: DIE SHEAR							
CY8C21434A (8C214345AK)	5649020	610722728	CARSEM	COMP	10	0	
STRESS: DYE PENETRANT TEST							
CY8C21434A (8C214345AK)	5649020	610722728	CARSEM	COMP	15	0	
CY8C21434A (8C214345AK)	5649020	610722737	CARSEM	COMP	15	0	
CY8C21434A (8C214345AK)	5649020	610726704	CARSEM	COMP	15	0	
STRESS: ESD-CHARGE DEVICE MODEL, 500V							
CY8C21434A (8C214345AK)	5649020	610722728	CARSEM	COMP	9	0	
STRESS: ESD-HUMAN BODY CIRCUIT PER JESD22, METHOD A114-E, 2,200V							
CY8C21434A (8C214345AK)	5649020	610722728	CARSEM	COMP	8	0	
STRESS: EXTERNAL VISUAL							
CY8C21434A (8C214345AK)	5649020	610722728	CARSEM	COMP	779	0	
STRESS: HIGH TEMP STORAGE							
CY8C21434A (8C214345AK)	5649020	610722728	CARSEM	500	77	0	
CY8C21434A (8C214345AK)	5649020	610722728	CARSEM	1000	77	0	
STRESS: HI-ACCEL SATURATION TEST, (130C, 5.25V), 85%RH, PRE COND 192 HR 30C/60%RH, MSL3							
CY8C21434A (8C214345AK)	5649020	610722728	CARSEM	128	77	0	
CY8C21434A (8C214345AK)	5649020	610722737	CARSEM	128	77	0	

Reliability Test Data

QTP #: 072202

Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: INTERNAL VISUAL							
CY8C21434A (8C214345AK)	5649020	610722728	CARSEM	COMP	5	0	
CY8C21434A (8C214345AK)	5649020	610722737	CARSEM	COMP	5	0	
CY8C21434A (8C214345AK)	5649020	610726704	CARSEM	COMP	5	0	
STRESS: LEAD INTEGRITY							
CY8C21434A (8C214345AK)	5649020	610722728	CARSEM	COMP	5	0	
CY8C21434A (8C214345AK)	5649020	610722737	CARSEM	COMP	5	0	
CY8C21434A (8C214345AK)	5649020	610726704	CARSEM	COMP	5	0	
STRESS: PHYSICAL DIMENSIONS							
CY8C21434A (8C214345AK)	5649020	610722728	CARSEM	COMP	25	0	
CY8C21434A (8C214345AK)	5649020	610722737	CARSEM	COMP	25	0	
CY8C21434A (8C214345AK)	5649020	610726704	CARSEM	COMP	25	0	
STRESS: PRESSURE COOKER TEST (121C, 100%RH), PRE COND 192HRS 30C/60%RH, MSL3							
CY8C21434A (8C214345AK)	5649020	610722728	CARSEM	168	77	0	
CY8C21434A (8C214345AK)	5649020	610722737	CARSEM	168	77	0	
STRESS: SOLDERABILITY							
CY8C21434A (8C214345AK)	5649020	610722728	CARSEM	COMP	3	0	
CY8C21434A (8C214345AK)	5649020	610722737	CARSEM	COMP	3	0	
CY8C21434A (8C214345AK)	5649020	610726704	CARSEM	COMP	3	0	
STRESS: TC COND. -65C TO 150 C, PRECONDITION 192 HRS 30C/60%RH, MSL3							
CY8C21434A (8C214345AK)	5649020	610722728	CARSEM	500	77	0	
CY8C21434A (8C214345AK)	5649020	610722728	CARSEM	1000	77	0	
CY8C21434A (8C214345AK)	5649020	610722737	CARSEM	500	77	0	
CY8C21434A (8C214345AK)	5649020	610722737	CARSEM	1000	77	0	
CY8C21434A (8C214345AK)	5649020	610726704	CARSEM	500	77	0	
STRESS: THERMAL SHOCK							
CY8C21434A (8C214345AK)	5649020	610722728	CARSEM	200	76	0	
CY8C21434A (8C214345AK)	5649020	610722728	CARSEM	1000	76	0	
STRESS: X-RAY							
CY8C21434A (8C214345AK)	5649020	610722728	CARSEM	COMP	15	0	
CY8C21434A (8C214345AK)	5649020	610722737	CARSEM	COMP	15	0	
CY8C21434A (8C214345AK)	5649020	610726704	CARSEM	COMP	15	0	

Reliability Test Data

QTP #: 082109

<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: ACOUSTIC							
CY8C204345 (8C204345AK)	4736795	610831496	CARSEM	COMP	15	0	
CY8C204345 (8C204345AK)	4736795	610831497	CARSEM	COMP	15	0	
CY8C204345 (8C204345AK)	4736795	610831498	CARSEM	COMP	15	0	
STRESS: BALL SHEAR							
CY8C204345 (8C204345AK)	4736795	610831496	CARSEM	COMP	10	0	
STRESS: BOND PULL							
CY8C204345 (8C204345AK)	4736795	610831496	CARSEM	COMP	10	0	
STRESS: CONSTRUCTIONAL ANALYSIS							
CY8C204345 (8C204345AK)	4736795	610831496	CARSEM	COMP	5	0	
STRESS: DYE PENETRANT TEST							
CY8C204345 (8C204345AK)	4736795	610831496	CARSEM	COMP	15	0	
CY8C204345 (8C204345AK)	4736795	610831497	CARSEM	COMP	15	0	
CY8C204345 (8C204345AK)	4736795	610831498	CARSEM	COMP	15	0	
STRESS: FINAL VISUAL							
CY8C204345 (8C204345AK)	4736795	610831496	CARSEM	COMP	180	0	
CY8C204345 (8C204345AK)	4736795	610831497	CARSEM	COMP	135	0	
CY8C204345 (8C204345AK)	4736795	610831498	CARSEM	COMP	135	0	
STRESS: INTERNAL VISUAL							
CY8C204345 (8C204345AK)	4736795	610831496	CARSEM	COMP	5	0	
STRESS: PHYSICAL DIMENSIONS							
CY8C204345 (8C204345AK)	4736795	610831496	CARSEM	COMP	25	0	
CY8C204345 (8C204345AK)	4736795	610831497	CARSEM	COMP	25	0	
CY8C204345 (8C204345AK)	4736795	610831498	CARSEM	COMP	25	0	
STRESS: TC COND. -65C TO 150 C, PRECONDITION 192 HRS 30C/60%RH, MSL3							
CY8C204345 (8C204345AK)	4736795	610831496	CARSEM	500	80	0	
CY8C204345 (8C204345AK)	4736795	610831497	CARSEM	500	80	0	
CY8C204345 (8C204345AK)	4736795	610831498	CARSEM	500	80	0	
STRESS: X-RAY							
CY8C204345 (8C204345AK)	4736795	610831496	CARSEM	COMP	15	0	