

Cypress Semiconductor Package Qualification Report

**QTP# 053102 VERSION 3.0
March 2007**

**Automotive \leq 44-Lead TSOP II Package
NiPdAu, MSL3, 260°C Reflow Profile
CML-R**

CYPRESS TECHNICAL CONTACT FOR QUALIFICATION DATA:

Rene Rodgers
Principal Reliability Engineer
(408) 943-2732

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

PACKAGE QUALIFICATION HISTORY

QUAL REPORT	DESCRIPTION OF QUALIFICATION PURPOSE	DATE COMP.
053102	Qualify Automotive 44-Lead TSOP II using CEL9200HF9, MSL3, 260C Reflow Profile at CML-R	Oct 05
070902	Qualify 6-Dot Reduced Metal Pad Leadframe on 44-TSOPII using Automotive Requirements	Mar 07

MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION	
Package Designation:	ZW44
Package Outline, Type, or Name:	44-Lead Thin Small Outline Package (TSOP II)
Mold Compound Name/Manufacturer:	Hitachi CEL9200HF9
Mold Compound Flammability Rating:	V-O
Oxygen Rating Index:	N/A
Lead Frame Material:	Copper
Lead Finish, Composition / Thickness:	Ni/Pd/Au
Die Backside Preparation Method/Metallization:	Backgrind
Die Separation Method:	Sawing 100%
Die Attach Supplier:	Dexter
Die Attach Material:	QMI 509
Die Attach Method:	Epoxy Dispense
Bond Diagram Designation	10-06629
Wire Bond Method:	Thermosonic
Wire Material/Size:	Au. 1.0mil
Thermal Resistance Theta JA °C/W:	76.87°C/W
Package Cross Section Yes/No:	N/A
Assembly Process Flow:	11-21006M
Name/Location of Assembly (prime) facility:	Cypress Philippines (CML-R)
MSL Level	3
Reflow Profile	260C

ELECTRICAL TEST / FINISH DESCRIPTION	
Test Location:	Cypress Philippines (CML-R)

Note: Please contact a Cypress Representative for other packages availability

RELIABILITY TESTS PERFORMED PER SPECIFICATION REQUIREMENT

Stress/Test	Test Condition (Temp/Bias)	Result P/F
High Accelerated Saturation Test (HAST)	JESD22-A110, 130°C, 3.63V, 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, 121°C, 100%RH, 15 Psig Precondition: JESD22-A113 Moisture Sensitivity MSL 3 192 Hrs, 30C/60%RH+3IR-Reflow, 260°C+0, -5°C	P
Acoustics Microscopy	Cypress Spec. 25-00104	P
Bond Pull	Mil-Std 883, Method 2011	P
External Visual	Cypress Spec 12-00292	P
High Temperature Storage	JESD22-A103, 150°C ± 5°C	P
Physical Dimensions	JESD22B100 and B108	P
Solderability	JESD22-B102	P
X-ray	Cypress Spec. 12-00292	P

Reliability Test Data

QTP #: 053102

Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: ACOUSTIC, MSL3							
CY62137VLL (7A62137B)	4515488	610528919	CML-R	COMP	20	0	
CY62137VLL (7A62137B)	4515488	610528918	CML-R	COMP	20	0	
CY62137VLL (7A62137B)	4515488	610528920	CML-R	COMP	20	0	
STRESS: EXTERNAL VISUAL							
CY62137VLL (7A62137B)	4515488	610528919	CML-R	COMP	265	0	
CY62137VLL (7A62137B)	4515488	610528918	CML-R	COMP	95	0	
CY62137VLL (7A62137B)	4515488	610528920	CML-R	COMP	80	0	
STRESS: PHYSICAL DIMENSION							
CY62137VLL (7A62137B)	4515488	610528919	CML-R	COMP	10	0	
CY62137VLL (7A62137B)	4515488	610528918	CML-R	COMP	10	0	
CY62137VLL (7A62137B)	4515488	610528920	CML-R	COMP	10	0	
STRESS: SOLDERABILITY							
CY62137VLL (7A62137B)	4515488	610528919	CML-R	COMP	15	0	
STRESS: BOND PULL							
CY62137VLL (7A62137B)	4515488	610528919	CML-R	COMP	5	0	
STRESS: X-RAY							
CY62137VLL (7A62137B)	4515488	610528919	CML-R	COMP	15	0	
CY62137VLL (7A62137B)	4515488	610528918	CML-R	COMP	15	0	
STRESS: TC COND. C -65C TO 150C, PRE COND 192 HR 30C/60%RH, MSL 3							
CY62137VLL (7A62137B)	4515488	610528919	CML-R	300	50	0	
CY62137VLL (7A62137B)	4515488	610528919	CML-R	500	50	0	
CY62137VLL (7A62137B)	4515488	610528919	CML-R	1000	50	0	
CY62137VLL (7A62137B)	4515488	610528918	CML-R	300	50	0	
CY62137VLL (7A62137B)	4515488	610528918	CML-R	500	50	0	
CY62137VLL (7A62137B)	4515488	610528918	CML-R	1000	50	0	
CY62137VLL (7A62137B)	4515488	610528920	CML-R	300	50	0	
CY62137VLL (7A62137B)	4515488	610528920	CML-R	500	50	0	
CY62137VLL (7A62137B)	4515488	610528920	CML-R	1000	50	0	

Reliability Test Data

QTP #: 053102

Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
--------	-----------	------------	----------	----------	------	-----	-------------------

STRESS: POST TC BOND PULL

CY62137VLL (7A62137B)	4515488	610528919	CML-R	COMP	5	0	
-----------------------	---------	-----------	-------	------	---	---	--

STRESS: HI-ACCEL SATURATION TEST, (130C, 3.63V), 85%RH, PRE COND 192 HR 30C/60%RH, MSL 3

CY62137VLL (7A62137B)	4515488	610528919	CML-R	96	49	0	
-----------------------	---------	-----------	-------	----	----	---	--

CY62137VLL (7A62137B)	4515488	610528919	CML-R	128	49	0	
-----------------------	---------	-----------	-------	-----	----	---	--

STRESS: HIGH TEMPERATURE STORAGE, PLASTIC, 150C

CY62137VLL (7A62137B)	4515488	610528919	CML-R	1000	50	0	
-----------------------	---------	-----------	-------	------	----	---	--

STRESS: PRESSURE COOKER TEST, (121C, 100%RH), 15 Psig, PRE COND 192 HR 30C/60%RH, MSL 3

CY62137VLL (7A62137B)	4515488	610528919	CML-R	96	50	0	
-----------------------	---------	-----------	-------	----	----	---	--

CY62137VLL (7A62137B)	4515488	610528919	CML-R	168	50	0	
-----------------------	---------	-----------	-------	-----	----	---	--

Reliability Test Data

QTP #: 070902

Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: ACOUSTIC, MSL3							
CY62137VNLL (7A62137N)	4644890	610673692	CML-R	COMP	22	0	
CY62137VNLL (7A62137N)	4644890	610705125	CML-R	COMP	22	0	
CY62137VNLL (7A62137N)	4647040	610702734	CML-R	COMP	22	0	
STRESS: PRESSURE COOKER TEST, (121C, 100%RH), 15 Psig, PRE COND 192 HR 30C/60%RH, MSL 3							
CY62137VNLL (7A62137N)	4644890	610673692	CML-R	96	78	0	
CY62137VNLL (7A62137N)	4644890	610673692	CML-R	168	77	0	
CY62137VNLL (7A62137N)	4644890	610705125	CML-R	96	80	0	
CY62137VNLL (7A62137N)	4644890	610705125	CML-R	168	80	0	
CY62137VNLL (7A62137N)	4647040	610702734	CML-R	96	80	0	
CY62137VNLL (7A62137N)	4647040	610702734	CML-R	168	80	0	
STRESS: TC COND. C -65C TO 150C, PRE COND 192 HR 30C/60%RH, MSL 3							
CY62137VNLL (7A62137N)	4644890	610673692	CML-R	500	79	0	
CY62137VNLL (7A62137N)	4644890	610705125	CML-R	500	78	0	
CY62137VNLL (7A62137N)	4647040	610702734	CML-R	500	80	0	