Cypress Semiconductor
Package Qualification Report

QTP# 041202 VERSION 3.0 (G3)
October 2004

44-Lead Molded Small Outline J-Bend (V-SOJ)

(AEC-Q100 Automotive)

Cypress Philippines (CML-R) Assembly

CYPRESS TECHNICAL CONTACT FOR QUALIFICATION DATA:

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(408) 943-2732

PACKAGE QUALIFICATION HISTORY

QUAL REPORT		DESCRIPTION OF QUALIFICATION PURPOSE		DATE COMP.
041202		Qualify 44-lead Molded SOJ using CY7C1021CV33, 64K X 16, R7FD-3R for AEC-Q100 Automotive assembled @ CML-R		Apr 04

MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION	
Package Designation:	V444
Package Outline, Type, or Name:	44-Pin Small Outline J-Bend Package (V-SOJ)
Mold Compound Name/Manufacturer:	Sumitomo EME 6600HR
Mold Compound Flammability Rating:	V-O per UL94
Oxygen Rating Index:	>28%
Lead Frame Material:	Copper
Lead Finish, Composition / Thickness:	85% Sn, 15% Pb
Die Backside Preparation Method/Metallization:	Grinding
Die Separation Method:	Sawing
Die Attach Supplier:	Dexter
Die Attach Material:	QMI 509
Bond Diagram Designation	10-04251
Wire Bond Method:	Thermo sonic
Wire Material/Size:	Au, 1. 0 mil
Thermal Resistance Theta JA °C/W:	56.68 °C/W
Package Cross Section Yes/No:	No
Assembly Process Flow:	11-20002
Name/Location of Assembly (prime) facility:	Cypress Philippines (CML-R)

RoHS PPM level:

Package	Package Weight	Solder Plating	Assembly Site	Lead (Pb)	Mercury (Hg)	Chromium (Cr VI)	Cadmium (Cd)
SOJ 44	1.80 gm	Sn/Pb	**CML**	9 ppm	< 0.05 ppm	< 2 ppm	< 1 ppm

Polychlorinated biphenyls (PCB)	Polybrominated biphenyls (PBB)	Polybrominated diphenylethers (PBDE)
< 1 ppm	< 1 ppm	< 1 ppm

ELECTRICAL TEST / FINISH DESCRIPTION	
Test Location:	Cypress Philippines (CML-R)
Fault Coverage:	100%

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
Ball Shear	Cypress Spec 24-00018	P
Bond Pull	Cypress Spec 24-00002	P
External Visual	Cypress Spec 25-00038	P
Electrostatic Discharge Charge Device Model (ESD-CDM)	250V/500V/750V (Corner Pins) Cypress Spec. 25-00020	P
Electrical Distribution	AEC-Q100-009	P
Electrostatic Discharge Human Body Model (ESD-HBM)	500V/1000V/1500V/2,000V JESD22, Method A114-B	P
Static Latch-up	125C, 4.95V, ± 100mA In accordance with JEDEC 17. Cypress Spec. 01-00081	P
Physical Dimensions	Cypress Spec. 25-00031	P
Pressure Cooker	Precondition: JESD22 Moisture Sensitivity MSL 3 192 Hrs., 30°C/60%RH+3IR-Reflow, 235°C+5, -0°C	P
Solderability	Cypress Spec. 25-00018	P
Temperature Cycle	Precondition: JESD22 Moisture Sensitivity MSL 3 192 Hrs., 30°C/60%RH+3IR-Reflow, 235°C+5, -0°C	P

Reliability Test Data

QTP #: 041202

Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: BALL SHEAR							
CY7C1021CV33 (7C1321G)	4351580	*610411416*	CML-R	COMP	30	0	
STRESS: BOND PULL							
CY7C1021CV33 (7C1321G)	4351580	*610411416*	CML-R	COMP	30	0	
STRESS: ELECTRICAL DISTRIBUTION							
CY7C1021CV33 (7C1321G)	4351580	*610411416*	CML-R	COMP	30	0	
CY7C1021CV33 (7C1321G)	4319075	*610412773Q*	CML-R	COMP	30	0	
CY7C1021CV33 (7C1321G)	4349248	*610404018*	CML-R	COMP	30	0	
STRESS: ESD-CHARGE DEVICE MODEL, 250V							
CY7C1021CV33 (7C1321G)	4351580	*610411416*	CML-R	COMP	3	0	
STRESS: ESD-CHARGE DEVICE MODEL, 500V							
CY7C1021CV33 (7C1321G)	4351580	*610411416*	CML-R	COMP	3	0	
STRESS: ESD-CHARGE DEVICE MODEL, 750V (Corner Pins)							
CY7C1021CV33 (7C1321G)	4351580	*610411416*	CML-R	COMP	6	0	
STRESS: ESD-HUMAN BODY CIRCUIT PER JESD22, METHOD A114-B, 500V							
CY7C1021CV33 (7C1321G)	4351580	*610411416*	CML-R	COMP	3	0	
STRESS: ESD-HUMAN BODY CIRCUIT PER JESD22, METHOD A114-B, 1000V							
CY7C1021CV33 (7C1321G)	4351580	*610411416*	CML-R	COMP	3	0	
STRESS: ESD-HUMAN BODY CIRCUIT PER JESD22, METHOD A114-B, 1500V							
CY7C1021CV33 (7C1321G)	4351580	*610411416*	CML-R	COMP	3	0	
STRESS: ESD-HUMAN BODY CIRCUIT PER JESD22, METHOD A114-B, 2000V							
CY7C1021CV33 (7C1321G)	4351580	*610411416*	CML-R	COMP	3	0	
STRESS: EXTERNAL VISUAL							
CY7C1021CV33 (7C1321G)	4351580	*610411416*	CML-R	COMP	239	0	
CY7C1021CV33 (7C1321G)	4319075	*610412773Q*	CML-R	COMP	105	0	
CY7C1021CV33 (7C1321G)	4349248	*610404018*	CML-R	COMP	105	0	
STRESS: PHYSICAL DIMENSIONS							
CY7C1021CV33 (7C1321G)	4351580	*610411416*	CML-R	COMP	10	0	
CY7C1021CV33 (7C1321G)	4319075	*610412773Q*	CML-R	COMP	10	0	
CY7C1021CV33 (7C1321G)	4349248	*610404018*	CML-R	COMP	10	0	

Reliability Test Data

QTP #: 041202

Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: PRESSURE COOKER TEST, 121C, 100%RH, PRE COND 192 HR 30C/60%RH, MSL3							
CY7C1021CV33 (7C1321G)	4351580	*610411416*	CML-R	96	50	0	
STRESS: SOLDERABILITY							
CY7C1021CV33 (7C1321G)	4351580	*610411416*	CML-R	COMP	15	0	
CY7C1021CV33 (7C1321G)	4319075	*610412773Q*	CML-R	COMP	15	0	
CY7C1021CV33 (7C1321G)	4349248	*610404018*	CML-R	COMP	15	0	
STRESS: STATIC LATCH-UP TESTING, 125C, 4.95V, ±100mA							
CY7C1021CV33 (7C1321G)	4351580	*610411416*	CML-R	COMP	3	0	
STRESS: TC CONDITION C, 150C TO -65C, PRE COND 192 HR 30C/60%RH, MSL3							
CY7C1021CV33 (7C1321G)	4351580	*610411416*	CML-R	500	50	0	
CY7C1021CV33 (7C1321G)	4319075	*610412773Q*	CML-R	500	50	0	
CY7C1021CV33 (7C1321G)	4349248	*610404018*	CML-R	500	50	0	