Cypress Semiconductor
Package Qualification Report

QTP# 025101 VERSION 2.0 (G1)
October 2004

18/20/24-lead SOIC Package using Sumitomo EME6600HR Molding Compound, MSL1
Cypress Philippines (CML-R)

CYPRESS TECHNICAL CONTACT FOR QUALIFICATION DATA:

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Principal Reliability Engineer
(408) 943-2675

PACKAGE QUALIFICATION HISTORY

QUAL REPORT		Description of Qualification Purpose		DATE COMP.
010610		20/24-lead SOIC package CML-R Autoline Assembly, MSL1		Mar 01
025101		18-lead SOIC package qualified by extension		Dec 02

MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION	
Package Designation:	S24
Package Outline, Type, or Name:	24-lead Plastic Small Outline ICs (SOIC)
Mold Compound Name/Manufacturer:	Sumitomo 6600HR
Mold Compound Flammability Rating:	V-O per UL94
Oxygen Rating Index:	>28%
Lead Frame Material:	Silver spot plated Copper
Lead Finish, Composition / Thickness:	Solder Plate, 85% Sn - 15% Pb
Die Backside Preparation Method/Metallization:	N/A
Die Separation Method:	Wafer Saw
Die Attach Supplier:	Dexter
Die Attach Material:	QMI 509 (Snap Cure Die Attach material, No PMC)
Bond Diagram Designation	10-03721
Wire Bond Method:	Thermosonic
Wire Material/Size:	Gold/ 1.0 mil
Thermal Resistance Theta JA °C/W:	59°C/W
Package Cross Section Yes/No:	N/A
Assembly Process Flow:	11-20023
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)
SOIC 24	0.99 gm	Sn/Pb	**CML**	3.6 ppm	0.1 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
Temperature Cycle	MIL-STD-883C, Method 1010, Condition C, -65°C to 150°C Precondition: JESD22 Moisture Sensitivity Level 1 168 Hrs., 85°C/85%RH+3IR-Reflow, 220°C+5, -0°C	P
High Accelerated Saturation Test	130°C, 85%RH, 3.63V Precondition: JESD22 Moisture Sensitivity Level 1 168 Hrs., 85°C/85%RH+3IR-Reflow, 220°C+5, -0°C	P
Pressure Cooker Test	No bias, 121°C, 100%, Precondition: JESD22 Moisture Sensitivity Level 1 168 Hrs., 85°C/85%RH+3IR-Reflow, 220°C+5, -0°C	P
Internal Visual	Cypress Specification 25-00017	P
Thermal Shock	Cypress Spec 25-00014	P
X-Ray	MIL-STD-883-2012	P
High Temperature Storage	150°C, no bias	P
Physical Dimensions	Cypress Specification 25-00031	P
Acoustic Microscopy Test (C-SAM)	Cypress Spec 25-00104	P

Reliability Test Data

QTP #: 010610

Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: ACOUSTIC - MICROSCOPE MSL1							
CY7C63613-SC (7C63613C)	2033100	*610103551*	CML-R	COMP	15	0	
CY7C63613-SC (7C63613C)	2033100		CML-R	COMP	15	0	
CY7C63613-SC (7C63613C)	2033100		CML-R	COMP	15	0	
STRESS: HI-ACCEL SATURATION TEST, 130C, 85%RH, 5.5V, PRE COND 168 HR 85C/85%RH, MSL1							
CY7C63613-SC (7C63613C)	2033100	*610103551*	CMLI-R	128	50	0	
STRESS: HIGH TEMP STORGAGE, PLASTIC, 150C							
CY7C63613-SC (7C63613C)	2033100	*610103551*	CML-R	500	50	0	
STRESS: PRESSURE COOKER TEST, 121C, 100%RH), PRE COND 168HRS 85C/85%RH, MSL1							
CY7C63613-SC (7C63613C)	2033100	*610103551*	CML-R	168	50	0	
CY7C63613-SC (7C63613C)	2033100		CML-R	168	50	0	
STRESS: THERMAL SHOCK, CONDITION B 125C, -55C							
CY7C63613-SC (7C63613C)	2033100	*610103551*	CML-R	100	50	0	
STRESS: PHYSICAL DIMENTIONS							
CY7C63613-SC (7C63613C)	2033100	*610103551*	CML-R	COMP	15	0	
CY7C63613-SC (7C63613C)	2033100		CML-R	COMP	15	0	
CY7C63613-SC (7C63613C)	2033100		CML-R	COMP	15	0	
STRESS: X-RAY							
CY7C63613-SC (7C63613C)	2033100	*610103551*	CML-R	COMP	15	0	
CY7C63613-SC (7C63613C)	2033100		CMLI-R	COMP	15	0	
STRESS: INTERNAL VISUAL							
CY7C63613-SC (7C63613C)	2033100	*610103551*	CML-R	COMP	15	0	
CY7C63613-SC (7C63613C)	2033100		CMLI-R	COMP	15	0	
CY7C63613-SC (7C63613C)	2033100		CMLI-R	COMP	15	0	

Reliability Test Data

QTP #: 010610

Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: TC CONDITION C, -65C, +150C, PRE COND. 168 HRS 85C/85% RH, MSL1							
CY7C63613-SC (7C63613C)	2033100	*610103551*	CML-R	300	50	0	
CY7C63613-SC (7C63613C)	2033100	*610103551*	CML-R	500	50	0	
CY7C63613-SC (7C63613C)	2033100	*610103551*	CML-R	1000	50	0	
CY7C63613-SC (7C63613C)	2033100		CMLR	300	50	0	
CY7C63613-SC (7C63613C)	2033100		CML-R	500	50	0	
CY7C63613-SC (7C63613C)	2033100		CML-R	1000	50	0	
CY7C63613-SC (7C63613C)	2033100		CML-R	300	47	0	
CY7C63613-SC (7C63613C)	2033100		CML-R	500	47	0	
CY7C63613-SC (7C63613C)	2033100		CML-R	1000	47	0	