

Cypress Semiconductor Package Qualification Report

**QTP# 023401 VERSION 2.0 (GI)
July, 2004**

**32-lead SOIC package using
Sumitomo EME 6600HR Mold Compound, MSL1
Cypress Philippines CML-R**

CYPRESS TECHNICAL CONTACT FOR QUALIFICATION DATA:

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Principal Reliability Engineer
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PRODUCT QUALIFICATION HISTORY

Qual Report	Description of Qualification Purpose	Date Comp.
010601	Qualify EME 6600HR Molding Compound for 28-44lead SOJ with die size $\leq 253.3 \times 265.2$ mils, 20-28 and 32.4 lead SOIC with die size $\leq 201.8 \times 635$ mils and 28 lead SNC package, MSL 3 at CML-R	Aug 01
023401	Upgrade 32-lead SOIC package with die size $\leq 201.8 \times 635$ mils from MSL3 to MSL1	Oct 02

MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION	
Package Designation:	S32
Package Outline, Type, or Name:	32-lead Small Outline IC package (SOIC)
Mold Compound Name/Manufacturer:	Sumitomo EME 6600HR
Mold Compound Flammability Rating:	V-O per UL 94
Oxygen Rating Index:	>28%
Lead Frame Material:	Copper
Lead Finish, Composition / Thickness:	Solder Plated, 90%Sn, 10%Pb
Die Backside Preparation Method/Metallization:	N/A
Die Separation Method:	Wafer Saw
Die Attach Supplier:	Dexter
Die Attach Material:	QMI 509
Die Attach Method:	Epoxy
Bond Diagram Designation	10-03682
Wire Bond Method:	Ultrasonic
Wire Material/Size:	Au, 1.0 Mil
Thermal Resistance Theta JA °C/W:	48.8°C/W
Package Cross Section Yes/No:	N/A
Assembly Process Flow:	11-21000
Name/Location of Assembly (prime) facility:	Cypress Philippines (CML-R)

RoHS PPM level:

Package	Package Weight	Solder Plating	Lead (Pb)	Mercury (Hg)	Chromium (CrVI)	Cadmium (Cd)
SOIC 32	1.4 gm	Sn/Pb	525.4 ppm	1.1 ppm	<0.01 ppm	<0.05 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
High Accelerated Saturation Test (HAST)	Precondition: JESD22 Moisture Sensitivity MSL 1 168 Hrs., 85°C/85%RH+3IR-Reflow, 220°C+5, -0°C 130°C, 3.63V/5.5V, 85%RH Precondition: JESD22 Moisture Sensitivity MSL 3 192 Hrs., 30°C/60%RH+3IR-Reflow, 220°C+5, -0°C	P
Temperature Cycle	Precondition: JESD22 Moisture Sensitivity MSL 1 168 Hrs., 85°C/85%RH+3IR-Reflow, 220°C+5, -0°C Precondition: JESD22 Moisture Sensitivity MSL 3 192 Hrs., 30°C/60%RH+3IR-Reflow, 220°C+5, -0°C MIL-STD-883C, Method 1010, Condition C, -65°C to 150°C	P
Pressure Cooker	Precondition: JESD22 Moisture Sensitivity MSL 1 168 Hrs., 85°C/85%RH+3IR-Reflow, 220°C+5, -0°C Precondition: JESD22 Moisture Sensitivity MSL 3 192 Hrs., 30°C/60%RH+3IR-Reflow, 220°C+5, -0°C 121°C, 100%RH	P
High Temperature Storage	150C, no bias	P
Acoustic Microscopy (C-SAM)	Cypress Spec. 25-00104	P
X-Ray	Cypress Spec 12-00292	P

Reliability Test Data

QTP #: 010601

<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, MSL3							
CY7C63001A-SC	2030735	610102366M	CSPI-R	COMP	15	0	
CY7C199-VC	2048928	610103577	CSPI-R	COMP	15	0	
CY7C1041BV33-VC	4046432	610105580	CSPI-R	COMP	15	0	
CY7C62148-SC	4102298	610107778	CSPI-R	COMP	15	0	
STRESS: HIGH TEMPERATURE STORAGE, 150C							
CY7C1041BV33-VC	4046432	610105580	CSPI-R	500	50	0	
CY7C1041BV33-VC	4046432	610105580	CSPI-R	1000	50	0	
STRESS: HI-ACCEL SATURATION TEST, 130C, 85%RH, 3.63V / 5.5V, 168 HRS., 85C/85%RH, MSL1							
CY7C63001A-SC	2030735	610102366M	CSPI-R	128	48	0	
CY7C1041BV33-VC	4046432	610105580	CSPI-R	128	50	0	
STRESS: X-RAY							
CY7C63001A-SC	2030735	610102366M	CSPI-R	COMP	15	0	
CY7C199-VC	2048928	610103577	CSPI-R	COMP	15	0	
CY7C62148-SC	4102298	610107778	CSPI-R	COMP	15	0	
STRESS: PRESSURE COOKER TEST, 121C, 100%RH, 168 HRS., 85C/85%R, MSL1							
CY7C63001A-SC	2030735	610102366M	CSPI-R	168	50	0	
CY7C1041BV33-VC	4046432	610105580	CSPI-R	168	50	0	
STRESS: TC CONDITION C, -65C TO 150C, PRE COND. 168 HRS., 85C/85%RH, MSL1							
CY7C63001A-SC	2030735	610102366M	CSPI-R	300	50	0	
CY7C63001A-SC	2030735	610102366M	CSPI-R	500	50	0	
CY7C63001A-SC	2030735	610102366M	CSPI-R	1000	50	0	
CY7C199-VC	2048928	610103577	CSPI-R	300	50	0	
CY7C199-VC	2048928	610103577	CSPI-R	500	50	0	
CY7C199-VC	2048928	610103577	CSPI-R	1000	50	0	
CY7C62148-SC	4102298	610107778	CSPI-R	300	50	0	
CY7C62148-SC	4102298	610107778	CSPI-R	500	50	0	
CY7C62148-SC	4102298	610107778	CSPI-R	1000	50	0	

Reliability Test Data

QTP #: 023401

<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, MSL1							
CY62128BLL-SI	4146752	610221867	CML-R	COMP	15	0	
CY62128BLL-SI	4146752	610221865	CML-R	COMP	15	0	
CY62128BLL-SI	4134559	610221877M	CML-R	COMP	15	0	
CY62128BLL-SI	4134433	610221754	CML-R	COMP	15	0	
CY62128BLL-SI	4134559	610221877	CML-R	COMP	15	0	
CY62148LL-SC	4102298	610107778	CML-R	COMP	15	0	
STRESS: HIGH TEMPERATURE STORAGE, 150C							
CY62128BLL-SI	4146752	610221867	CML-R	500	50	0	
CY62128BLL-SI	4146752	610221867	CML-R	1000	50	0	
STRESS: HI-ACCEL SATURATION TEST, 130C, 85%RH, 3.63V / 5.5VV, 168 HRS., 85C/85%RH, MSL1							
CY62128BLL-SI	4146752	610221867	CML-R	128	50	0	
STRESS: PRESSURE COOKER TEST, 121C, 100%RH, 168 Hrs., 85C/85%RH, MSL1							
CY62128BLL-SI	4146752	610221867	CML-R	168	48	0	
STRESS: TC CONDITION C, -65C TO 150C, PRE COND. 168 HRS., 85C/85%RH, MSL1							
CY62128BLL-SI	4146752	610221867	CML-R	300	49	0	
CY62128BLL-SI	4146752	610221867	CML-R	500	49	0	
CY62128BLL-SI	4146752	610221867	CML-R	1000	49	0	
CY62128BLL-SI	4146752	610221865	CML-R	300	49	0	
CY62128BLL-SI	4146752	610221865	CML-R	500	49	0	
CY62128BLL-SI	4146752	610221865	CML-R	1000	49	0	
CY62128BLL-SI	4134559	610221877M	CML-R	300	50	0	
CY62128BLL-SI	4134559	610221877M	CML-R	500	50	0	
CY62128BLL-SI	4134559	610221877M	CML-R	1000	50	0	
CY62128BLL-SI	4134433	610221754	CML-R	300	50	0	
CY62128BLL-SI	4134433	610221754	CML-R	500	50	0	
CY62128BLL-SI	4134433	610221754	CML-R	1000	50	0	
CY62128BLL-SI	4134559	610221877	CML-R	300	50	0	
CY62128BLL-SI	4134559	610221877	CML-R	500	50	0	
CY62128BLL-SI	4134559	610221877	CML-R	1000	50	0	
CY62148LL-SC	4102298	610107778	CML-R	300	50	0	
CY62148LL-SC	4102298	610107778	CML-R	500	50	0	
CY62148LL-SC	4102298	610107778	CML-R	1000	50	0	