

Cypress Semiconductor Package Qualification Report

**QTP# 041007 VERSION 1.0
September 2004**

**28Ld SNC, 32Ld SOIC, 28/32/36/44Ld SOJ Packages
11 mils Wafer Thickness and Saw Step Cut
MSL 3, 220C Reflow
Cypress Philippines (CML-R)**

CYPRESS TECHNICAL CONTACT FOR QUALIFICATION DATA:

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Principal Reliability Engineer
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Package Qualification History

Qual Report	Description of Qualification Purpose	Date Comp.
041007	Qualify 11 mils Wafer Thickness and Saw Step Cut of ALL 28L SOIC, 32L SNC, 28/32/36/44L SOJ packages, MSL3, 220C Reflow Temperature assembled at Cypress, Phil. (CML-R)	Apr 04

MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION	
Package Designation:	S324513
Package Outline, Type, or Name:	32-Lead Plastic Small Outline Ic's (SOIC)
Mold Compound Name/Manufacturer:	Sumitomo EME6600HR
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:	Wafer Saw – Step Cut
Die Attach Method:	Epoxy
Die Attach Supplier:	Dexter
Die Attach Material:	QMI 509
Bond Diagram Designation	10-03682
Wire Bond Method:	Thermosonic
Wire Material/Size:	0.80 mil
Thermal Resistance Theta JA °C/W:	36.95°C/W
Package Cross Section Yes/No:	N/A
Assembly Process Flow:	11-21014
Name/Location of Assembly (prime) facility:	Cypress Philippines (CML-R) (Conventional Line)

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

Note: Please contact a Cypress Representative for other packages availability.

MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION	
Package Designation:	V3233
Package Outline, Type, or Name:	32-Lead Plastic Small Outline J-Bend (SOJ)
Mold Compound Name/Manufacturer:	Sumitomo EME6600HR
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:	Wafer Saw
Die Attach Method:	Epoxy
Die Attach Supplier:	Dexter
Die Attach Material:	QMI 509
Bond Diagram Designation	10-02612
Wire Bond Method:	Thermosonic
Wire Material/Size:	1.0 mil
Thermal Resistance Theta JA °C/W:	44.38°C/W
Package Cross Section Yes/No:	N/A
Assembly Process Flow:	11-21016
Name/Location of Assembly (prime) facility:	Cypress Philippines (CML-R) (Conventional Line)

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

Note: Please contact a Cypress Representative for other packages availability.

MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION	
Package Designation:	V3644
Package Outline, Type, or Name:	32-Lead Plastic Small Outline Ic's (SOJ)
Mold Compound Name/Manufacturer:	Sumitomo EME6600HR
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:	Wafer Saw
Die Attach Method:	Epoxy
Die Attach Supplier:	Dexter
Die Attach Material:	QMI 509
Bond Diagram Designation	10-03636
Wire Bond Method:	Thermosonic
Wire Material/Size:	0.80 mil
Thermal Resistance Theta JA °C/W:	31.98°C/W
Package Cross Section Yes/No:	N/A
Assembly Process Flow:	11-21016
Name/Location of Assembly (prime) facility:	Cypress Philippines (CML-R) (Conventional Line)

ELECTRICAL TEST / FINISH DESCRIPTION	
Test Location:	Cypress Philipines (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 MSL 3 192 Hrs., 30°C/60%RH+3IR-Reflow, 220°C+5, -0°C	P
Pressure Cooker Test	No bias, 121°C, 100%, Precondition: JESD22 Moisture Sensitivity MSL 3 192 Hrs., 30°C/60%RH+3IR-Reflow, 220°C+5, -0°C	P
High Accelerated Saturation Test	130°C, 85%RH, 5.5V 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, 220°C+5, -0°C	P
Acoustic Microscopy Test	Cypress Spec 25-00104	P
Die Shear	Cypress Spec 12-00292	P

Reliability Test Data

QTP #: 041007

Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: ACOUSTIC, MSL3							
CY7C188 (7C188B)	2119378	610412703	CML-R	COMP	15	0	
CY62128BLL (7C621268H)	4401987	610410373	CML-R	COMP	15	0	
CY7C1049DV33 (7C1049C)	4339960	610407677	CML-R	COMP	15	0	
STRESS: DIE SHEAR							
CY7C188 (7C188B)	2119378	610412703	CML-R	COMP	3	0	
STRESS: HI-ACCEL SATURATION TEST, 130C, 85%RH, 5.5V, PRE COND 192 HR 30C/60%RH, MSL3							
CY7C188 (7C188B)	2119378	610412703	CML-R	128	49	0	
CY62128BLL (7C621268H)	4401987	610410373	CML-R	128	43	0	
STRESS: PRESSURE COOKER TEST, 121C, 100%RH, PRE COND 192 HR 30C/30%RH, MSL3							
CY7C188 (7C188B)	2119378	610412703	CML-R	168	50	0	
CY62128BLL (7C621268H)	4401987	610410373	CML-R	168	50	0	
STRESS: TC CONDITION C, -65C TO 150C, PRE COND 192 HR 30C/30%RH, MSL3							
CY7C188 (7C188B)	2119378	610412703	CML-R	300	50	0	
CY62128BLL (7C621268H)	4401987	610410373	CML-R	300	50	0	
CY62128BLL (7C621268H)	4401987	610410373	CML-R	500	50	0	
CY7C1049DV33 (7C1049C)	4339960	610407677	CML-R	300	50	0	
CY7C1049DV33 (7C1049C)	4339960	610407677	CML-R	500	50	0	