

Cypress Semiconductor Package Qualification Report

QTP# 000101 VERSION 1.1

June, 2000

**16 Lead, 150 mil, Plastic Small Outline IC (SOIC)
OSE Philippines Assembly**

CYPRESS TECHNICAL CONTACT FOR QUALIFICATION DATA:

Ed Russell
Reliability Director
(408) 432-7069

PLASTIC PACKAGE/ASSEMBLY DESCRIPTION			
Package Outline, Type, or Name:	16L Plastic Small Outline IC (SOIC) in 150mil package body with die size $\leq 79 \times 82$ mils.		
Mold Compound Name/Manufacturer:	Sumitomo EME6300H		
Mold Compound Tg, °C:	165C		
Lead Frame material:	Copper		
Lead Finish, composition:	85% Sn / 15% Pb		
Percentage Pb/Sb per Unit:	0.95%/0.69%		
Die Attach Area Plating:	Silver	Die Attach Material:	84-1LMISR4
Die Attach Method:	Silver Epoxy	Wire Material/Size:	Au 1.0 mil
Wire Bond Method:	Thermosonic		
Moisture Level :	Level 1		
Thermal Resistance JA °C/W:	107.3 (220°C+ 5,-0°C)		
Name/Location of All Assembly Facilities by Pkg.:	OSE, Philippines		

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	Bias : 5.5V, 130°C, 85%RH Precondition: JESD22 Moisture Sensitivity Level 1 168 Hrs., 85°C/85%RH+ 3IR-Reflow, 220°C+ 5, - 0°C	P
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
Pressure Cooker	121°C, 100RH Precondition: JESD22 Moisture Sensitivity Level 1 168 Hrs., 85°C/85%RH + 3IR-Reflow/220°C+ 5, -0°C	P
High Temperature Storage	150C ± 5C, No bias	P
Thermal Shock	Cypress Spec 25-00014	P
Internal Visual	Cypress Spec 25-00017	P
External Visual	Cypress Spec 25-00038	P
Solderability	Cypress Spec 25-00018	P
Bond Pull	12-00292	P
Age Ball Shear	12-00292	P
Die Shear	12-00292	P
Physical Dimensions	Cypress Spec 25-00031	P
Mark/Perm	12-00292	P
X-Ray	12-00292	P
Acoustic Microscopy, Level 1	Cypress Spec. 25-00104	P

Reliability Test Data

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<i>Device</i>	<i>Fab Lot #</i>	<i>Assy Lot #</i>	<i>Assy Loc</i>	<i>Duration</i>	<i>Samp</i>	<i>Re</i>	<i>Failure Mechanism</i>
STRESS: AGE BALL SHEAR							
CY2292SC	2946437	610000529	PHIL-OP	DATA	15	0	
STRESS: BOND PULL							
CY2292SC	2946437	610000529	PHIL-OP	DATA	10	0	
STRESS: PHYSICAL DIMENSIONS							
CY2292SC	2946437	610000529	PHIL-OP	COMP	5	0	
CY2292SC	2946437	610000530	PHIL-OP	COMP	5	0	
CY2292SC	2946437	610000531	PHIL-OP	COMP	5	0	
STRESS: DIE SHEAR							
CY2292SC	2946437	610000529	PHIL-OP	COMP	15	0	
STRESS: EXTERNAL VISUAL							
CY2292SC	2946437	610000529	PHIL-OP	COMP	15	0	
STRESS: HI-ACCEL SATURATION TEST (130C, 85%RH, 5.5V), PRE COND 168 HR 85C/85%RH							
CY2292SC	2946437	610000529	PHIL-OP	128	45	0	
CY2292SC	2946437	610000530	PHIL-OP	128	45	0	
STRESS: HIGH TEMPERATURE STORAGE, PLASTIC, 150C							
CY2292SC	2946437	610000529	PHIL-OP	500	50	0	
CY2292SC	2946437	610000529	PHIL-OP	1000	50	0	
STRESS: INTERNAL VISUAL							
CY2292SC	2946437	610000529	PHIL-OP	COMP	5	0	
CY2292SC	2946437	610000530	PHIL-OP	COMP	5	0	
CY2292SC	2946437	610000531	PHIL-OP	COMP	5	0	

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STRESS: MARK/PERM							
Y2292SC	2946437	610000529	PHIL-OP	COMP	12	0	
CY2292SC	2946437	610000530	PHIL-OP	COMP	12	0	
CY2292SC	2946437	610000531	PHIL-OP	COMP	12	0	
STRESS: PRESSURE COOKER TEST (121C, 100%RH), PRE COND 168 HR 85C/85%RH							
CY2292SC	2946437	610000529	PHIL-OP	168	50	0	
CY2292SC	2946437	610000530	PHIL-OP	168	50	0	
STRESS: SLDERBILTY							
CY2292SC	2946437	610000529	PHIL-OP	COMP	3	0	
CY2292SC	2946437	610000530	PHIL-OP	COMP	3	0	
CY2292SC	2946437	610000531	PHIL-OP	COMP	3	0	
STRESS: TC COND. C -65C TO 150C, PRECONDITION 168 HRS 85C/85%RH (MSL1)							
CY2292SC	2946437	610000529	PHIL-OP	300	50	0	
CY2292SC	2946437	610000530	PHIL-OP	300	50	0	
CY2292SC	2946437	610000531	PHIL-OP	300	50	0	
STRESS: THERMAL SHOCK, CONDITION B (-55C - 150C)							
CY2292SC	2946437	610000529	PHIL-OP	100	50	0	
CY2292SC	2946437	610000529	PHIL-OP	200	50	0	
STRESS: X-RAY							
CY2292SC	2946437	610000529	PHIL-OP	DATA	15	0	
CY2292SC	2946437	610000530	PHIL-OP	DATA	15	0	
CY2292SC	2946437	610000531	PHIL-OP	DATA	15	0	