Cypress Semiconductor
Package Qualification Report

QTP# 041301 VERSION 2.0
September 2004

28-Lead Exposed Pad Plastic Small Outline Ics
MSL3 , 220C Solder Reflow
Anam Manila Philippines Assembly

CYPRESS TECHNICAL CONTACT FOR QUALIFICATION DATA:

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Principal Reliability Engineer
(408) 943-2675

PRODUCT QUALIFICATION HISTORY

Qual Report		Description of Qualification Purpose		Date Comp
041301		28-lead Exposed Pad SOIC, 300mils package, MSL5, 220C reflow assembled in Anam Manila Philippines (PHIL-M)		May 04
043602		ATP 28-lead Exposed Pad SOIC, 300mils package with slotted design leadframe, MSL3, 220C reflow assembled in Anam Manila Philippines (PHIL-M)		Sep 04

MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION	
Package Designation:	SE283
Package Outline, Type, or Name:	28-lead Exposed Pad Plastic Small Outline Ics (ESOIC)
Mold Compound Name/Manufacturer:	Sumitomo G600
Mold Compound Flammability Rating:	V-O per UL94
Oxygen Rating Index:	N/A
Lead Frame Designation:	N/A
Lead Frame Material:	Copper Base
Lead Finish, Composition / Thickness:	Sn 85%, Pb 15%
Die Backside Preparation Method/Metallization:	Grinding
Die Separation Method:	Sawing
Die Attach Supplier:	Ablestik
Die Attach Material:	8290
Die Attach Method:	Dispensing
Bond Diagram Designation	10-05114
Wire Bond Method:	Thermosonic
Wire Material/Size:	Au 1.0mil
Thermal Resistance Theta JA °C/W:	26.5 °C/W
Package Cross Section Yes/No:	N/A
Assembly Process Flow:	49-24027
Name/Location of Assembly (prime) facility:	Anam Manila Phil. (PHIL-M)

PACKAGE AVAILABILITY

PACKAGE	ASSEMBLY SITE FACILITY
28-lead ESOIC	CML-R, PHIL-M

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

RELIABILITY TESTS PERFORMED PER SPECIFICATION REQUIREMENTS

Stress/Test	Test Condition (Temp/Bias)	Result P/F
Acoustic Microscopy	Cypress Spec. 25-00104	P
Age Bond Pull	MIL-STD-883C, Method 2011	P
Ball Shear	Cypress Spec 24-00018	P
Die Shear	Cypress Spec 12-00292	P
Electrostatic Discharge Charge Device Model (ESD-CDM)	500V Cypress Spec. 25-00020	P
External Visual	Cypress Spec. 12-00292	P
High Accelerated Saturation Test	130°C, 85%RH, 3.63V MIL-STD-883C, Method 1010, Condition C, -65°C to 150°C Precondition: JESD22 Moisture Sensitivity **Level 5** 72 Hrs., 30°C/60%RH+3IR-Reflow, 220°C+5, -0°C Precondition: JESD22 Moisture Sensitivity **Level 3** 192 Hrs., 30°C/60%RH+3IR-Reflow, 220°C+5, -0°C	P
High Temperature Storage	150°C, no bias	P
High Temperature Operating Life Early Failure Rate	Dynamic Operating Condition, Vcc Max = 5.75V, 150°C	P
High Temperature Operating LifeLatent Failure Rate	Dynamic Operating Condition, Vcc Max = 5.75V, 150°C	P
Internal Visual	Cypress Spec 12-00292	P
Lead Integrity	Cypress Spec 25-00004	P
Physical Dimensions	Cypress Spec. 25-00031	P
Pressure Cooker	121°C, 100%RH MIL-STD-883C, Method 1010, Condition C, -65°C to 150°C Precondition: JESD22 Moisture Sensitivity **Level 5** 72 Hrs., 30°C/60%RH+3IR-Reflow, 220°C+5, -0°C Precondition: JESD22 Moisture Sensitivity **Level 3** 192 Hrs., 30°C/60%RH+3IR-Reflow, 220°C+5, -0°C	P
Solderability	Cypress Spec. 25-00018	P
Thermal Shock	Cypress Spec. 25-00014	P
X-Ray	MIL-STD-883, Method 32012, Cypress Spec. 12-00292	P

Reliability Test Data

QTP #: 041301

Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: ACOUSTIC, MSL5							
CYWUSB6934	4343915	*610410677*	PHIL-M	COMP	15	0	
CYWUSB6934	4343915	*610409595*	PHIL-M	COMP	15	0	
CYWUSB6934	4343915	*610409596*	PHIL-M	COMP	15	0	
STRESS: BALL SHEAR							
CYWUSB6934	4343915	*610410677*	PHIL-M	COMP	10	0	
STRESS: BOND PULL							
CYWUSB6934	4343915	*610410677*	PHIL-M	COMP	10	0	
STRESS: DIE SHEAR							
CYWUSB6934	4343915	*610410677*	PHIL-M	COMP	10	0	
STRESS: ESD-CHARGE DEVICE MODEL (500V)							
CYWUSB6934	4343915	*610409595*	PHIL-M	COMP	9	0	
STRESS: EXTERNAL VISUAL							
CYWUSB6934	4343915	*610410677*	PHIL-M	COMP	15	0	
STRESS: HI-ACCEL SATURATION TEST, 130C, 85%RH, 3.63V, PRE COND 72 HR 30C/60%RH, MSL5							
CYWUSB6934	4343915	*610410677*	PHIL-M	128	50	0	
CYWUSB6934	4343915	*610409595*	PHIL-M	128	49	0	
STRESS: HIGH TEMP DYNAMIC OPERATING LIFE-EARLY FAILURE RATE, 150C, 5.75V, Vcc Max							
CY7C421	2119352	*610349196*	PHIL-M	48	817	0	
CY7C136	2124768	*610349419*	PHIL-M	48	799	0	
STRESS: HIGH TEMP DYNAMIC OPERATING LIFE-LATENT FAILURE RATE, 150C, 5.75V, Vcc Max							
CY7C421	2119352	*610349196*	PHIL-M	80	355	0	
CY7C421	2119352	*610349196*	PHIL-M	500	120	0	
CY7C136	2124768	*610349419*	PHIL-M	80	120	0	
CY7C136	2124768	*610349419*	PHIL-M	500	120	0	
STRESS: HIGH TEMPERATURE STORAGE, PLASTIC, 150C							
CYWUSB6934	4343915	*610410677*	PHIL-M	100	50	0	
CYWUSB6934	4343915	*610410677*	PHIL-M	200	50	0	

Reliability Test Data

QTP #: 041301

Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: INTERNAL VISUAL							
CYWUSB6934	4343915	*610410677*	PHIL-M	COMP	15	0	
STRESS: LEAD INTEGRITY							
CYWUSB6934	4343915	*610410677*	PHIL-M	COMP	3	0	
STRESS: PHYSICAL DIMENSION							
CYWUSB6934	4343915	*610410677*	PHIL-M	COMP	5	0	
STRESS: PRESSURE COOKER, 121C,100%RH, PRECONDITION 72HRS 30C/60%RH, MSL5							
CYWUSB6934	4343915	*610409596*	PHIL-M	168	49	0	
STRESS: SOLDERABILITY							
CYWUSB6934	4343915	*610410677*	PHIL-M	COMP	3	0	
STRESS: TC COND. C, -65C TO 150C, PRECONDITION 72HRS 30C/60%RH, MSL5							
CYWUSB6934	4343915	*610409595*	PHIL-M	300	50	0	
CYWUSB6934	4343915	*610409596*	PHIL-M	300	50	0	
STRESS: TC COND. B, -55C TO 125C, PRECONDITION 72HRS 30C/60%RH, MSL5							
CYWUSB6934	4343915	*610410677*	PHIL-M	300	49	0	
CYWUSB6934	4343915	*610409595*	PHIL-M	200	50	0	
STRESS: THERMAL SHOCK, 125C / -55C							
CYWUSB6934	4343915	*610410677*	PHIL-M	100	50	0	
CYWUSB6934	4343915	*610410677*	PHIL-M	200	50	0	
STRESS: X-RAY							
CYWUSB6934	4343915	*610410677*	PHIL-M	COMP	15	0	
CYWUSB6934	4343915	*610409595*	PHIL-M	COMP	15	0	

Reliability Test Data

QTP #: 043602

Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: ACOUSTIC, MSL3							
CYWUSB6934	4343415	*610435886*	PHIL-M	COMP	15	0	
CYWUSB6934	4343415	*610435886M*	PHIL-M	COMP	15	0	
CYWUSB6934	4343415	*610435886M1*	PHIL-M	COMP	15	0	
STRESS: BALL SHEAR							
CYWUSB6934	4343415	*610435886*	PHIL-M	COMP	10	0	
STRESS: BOND PULL							
CYWUSB6934	4343415	*610435886*	PHIL-M	COMP	10	0	
STRESS: DIE SHEAR							
CYWUSB6934	4343415	*610435886*	PHIL-M	COMP	5	0	
CYWUSB6934	4343415	*610435886M*	PHIL-M	COMP	5	0	
CYWUSB6934	4343415	*610435886M1*	PHIL-M	COMP	5	0	
STRESS: ESD-CHARGE DEVICE MODEL (500V)							
CYWUSB6934	4343915	*61049595*	PHIL-M	COMP	9	0	
STRESS: EXTERNAL VISUAL							
CYWUSB6934	4343415	*610435886*	PHIL-M	COMP	15	0	
STRESS: HI-ACCEL SATURATION TEST, 130C, 85%RH, 3.63V, PRE COND 192 HR 30C/60%RH, MSL3							
CYWUSB6934	4343415	*610435886*	PHIL-M	128	45	0	
STRESS: HIGH TEMPERATURE STORAGE, PLASTIC, 150C							
CYWUSB6934	4343915	*610409596*	PHIL-M	500	50	0	
CYWUSB6934	4343915	*610409596*	PHIL-M	1000	50	0	
STRESS: INTERNAL VISUAL							
CYWUSB6934	4343415	*610435886*	PHIL-M	COMP	5	0	
STRESS: PHYSICAL DIMENSION							
CYWUSB6934	4343415	*610435886*	PHIL-M	COMP	5	0	
STRESS: PRESSURE COOKER, 121C,100%RH, PRECONDITION 192HRS 30C/60%RH, MSL3							
CYWUSB6934	4343415	*610435886*	PHIL-M	168	45	0	

Reliability Test Data

QTP #: 043602

Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: SOLDERABILITY							
CYWUSB6934	4343415	*610435886*	PHIL-M	COMP	3	0	
STRESS: TC COND. C -65C TO 150C, PRECONDITION 192HRS 30C/60%RH, MSL3							
CYWUSB6934	4343415	*610435886*	PHIL-M	300	45	0	
CYWUSB6934	4343415	*610435886M*	PHIL-M	300	45	0	
CYWUSB6934	4343415	*610435886M1*	PHIL-M	300	45	0	
STRESS: THERMAL SHOCK, 125C / -55C							
CYWUSB6934	4343915	*610409596*	PHIL-M	100	50	0	
CYWUSB6934	4343915	*610409596*	PHIL-M	200	50	0	
STRESS: X-RAY							
CYWUSB6934	4343415	*610435886*	PHIL-M	COMP	15	0	