Cypress Semiconductor
Package Qualification Report

QTP# 052801 VERSION 2.0
February 2007

≤28-Lead SOJ Package (300mils) **(11mils Wafer Thickness)** **Pure Sn, MSL3, 260C Reflow**
INDNS-O

CYPRESS TECHNICAL CONTACT FOR QUALIFICATION DATA:

Mira Ben-Tzur
Quality Engineering Director
(408) 943-2675

Rene Rodgers
Principal Reliability Engineer
(408) 943-2732

PACKAGE QUALIFICATION HISTORY

QUAL REPORT	DESCRIPTION OF QUALIFICATION PURPOSE	DATE COMP.
052801	24-Lead (300mil) SOJ package using Pure Sn, G600 Mold Compound, 8361H Die Attach Epoxy, @ 260C Solder Reflow Peak, MSL3 assembled at Omedata-Indonesia	Oct 05
070309	Qualify Omedata-Indonesia for ≤28-Lead SOJ (300mils) using larger die and 11mils wafer thickness, Pure Sn, G600 Mold Compound, 8361H Epoxy @MSL3, 260C Reflow	Jan 07

MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION	
Package Designation:	VZ28
Package Outline, Type, or Name:	28-Lead Plastic Small Outline J-Bend Package (SOJ)
Mold Compound Name/Manufacturer:	G600
Mold Compound Flammability Rating:	V0 UL94
Oxygen Rating Index:	None
Lead Frame Material:	Copper
Lead Finish, Composition / Thickness:	Pure Sn
Die Backside Preparation Method/Metallization:	Backgrind
Die Separation Method:	Sawing
Die Attach Supplier:	Ablestik
Die Attach Material:	8361H
Die Attach Method:	Epoxy
Bond Diagram Designation	001-09278
Wire Bond Method:	Thermosonic
Wire Material/Size:	Au. 1.3mil
Thermal Resistance Theta JA °C/W:	58 °C/W
Package Cross Section Yes/No:	N/A
Assembly Process Flow:	49-70999
Name/Location of Assembly (prime) facility:	INDNS-O
MSL Level	3
Reflow Profile	260C

ELECTRICAL TEST / FINISH DESCRIPTION	
Test Location:	CML-R

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
Temperature Cycle	MIL-STD-883C, Method 1010, Condition C, -65°C to 150°C Precondition: JESD22 Moisture Sensitivity MSL 1 168 Hrs, 85°C/85%RH+3IR-Reflow, 260°C+0, -5°C Precondition: JESD22 Moisture Sensitivity MSL 3 192 Hrs, 30°C/60%RH+3IR-Reflow, 260°C+0, -5°C	P
Pressure Cooker	121°C, 100%RH, 15 Psig Precondition: JESD22 Moisture Sensitivity MSL 1 168 Hrs, 85°C/85%RH+3IR-Reflow, 260°C+0, -5°C Precondition: JESD22 Moisture Sensitivity MSL 3 192 Hrs, 30°C/60%RH+3IR-Reflow, 260°C+0, -5°C	P
High Accelerated Saturation Test (HAST)	130°C, 5.5V, 85%RH Precondition: JESD22 Moisture Sensitivity MSL 1 168 Hrs, 85°C/85%RH+3IR-Reflow, 260°C+0, -5°C Precondition: JESD22 Moisture Sensitivity MSL 3 192 Hrs, 30°C/60%RH+3IR-Reflow, 260°C+0, -5°C	P
Acoustic Microscopy	Cypress Spec. 25-00104	P
Adhesion of Lead Finish	Cypress Spec. 25-00029	P
Ball Shear	Cypress Spec. 24-00018	P
Bond Pull	Cypress Spec. 12-00292	P
Constructional Analysis	Cypress Spec. 25-20035	P
Die Shear	Cypress Spec. 12-00215	P
Dye Penetration	Cypress Spec. 25-00046	P
External Visual	Cypress Spec. 12-00292/25-00103	P
High Temperature Storage	150C, No Bias	P
Internal Visual	Cypress Spec. 25-00017	P
Solderability	Cypress Spec. 25-00018	P
Thermal Shock	Cypress Spec. 25-00014	P
Wetting Balance	Cypress Spec. 25-20037	P
X-ray	Cypress Spec. 12-00292	P

Reliability Test Data

QTP #: 052801

Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: ACOUSTIC, MSL1							
CY7C197B (7C1975M)	4437452	*510501008*	INDNS-O	COMP	15	0	
CY7C197B (7C1975M)	4437452	*510501009*	INDNS-O	COMP	15	0	
CY7C197B (7C1975M)	4437452	*510501010*	INDNS-O	COMP	15	0	
STRESS: ADHESION OF LEAD FINISH							
CY7C197B (7C1975M)	4437452	*510501008*	INDNS-O	COMP	3	0	
CY7C197B (7C1975M)	4437452	*510501009*	INDNS-O	COMP	3	0	
STRESS: EXTERNAL VISUAL							
CY7C197B (7C1975M)	4437452	*510501008*	INDNS-O	COMP	15	0	
CY7C197B (7C1975M)	4437452	*510501009*	INDNS-O	COMP	15	0	
STRESS: HI-ACCEL SATURATION TEST. 130C, 5.5V, 85%RH, PRE COND 168 HR 85C/85%RH, MSL1							
CY7C197B (7C1975M)	4437452	*510501008*	INDNS-O	128	50	0	
CY7C197B (7C1975M)	4437452	*510501009*	INDNS-O	128	50	0	
STRESS: HIGH TEMPERATURE STORAGE, No Bias							
CY7C197B (7C1975M)	4437452	*510501008*	INDNS-O	500	50	0	
CY7C197B (7C1975M)	4437452	*510501008*	INDNS-O	1000	50	0	
STRESS: PRESSURE COOKER TEST, 121C, 100%RH, 15 Psig, PRE COND 168 HR 85C/85%RH, MSL1							
CY7C197B (7C1975M)	4437452	*510501008*	INDNS-O	168	50	0	
STRESS: SOLDERABILITY							
CY7C197B (7C1975M)	4437452	*510501008*	INDNS-O	COMP	3	0	
CY7C197B (7C1975M)	4437452	*510501009*	INDNS-O	COMP	3	0	
STRESS: WETTING BALANCE							
CY7C197B (7C1975M)	4437452	*510501008*	INDNS-O	COMP	3	0	
CY7C197B (7C1975M)	4437452	*510501009*	INDNS-O	COMP	3	0	
STRESS: X-RAY							
CY7C197B (7C1975M)	4437452	*510501008*	INDNS-O	COMP	15	0	
CY7C197B (7C1975M)	4437452	*510501009*	INDNS-O	COMP	15	0	
CY7C197B (7C1975M)	4437452	*510501010*	INDNS-O	COMP	15	0	

Reliability Test Data

QTP #: 052801

Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: TC COND. C -65C TO 150C, PRE COND 168 HR 85C/85%RH, MSL1							
CY7C197B (7C1975M)	4437452	*510501008*	INDNS-O	300	50	0	
CY7C197B (7C1975M)	4437452	*510501008*	INDNS-O	500	50	0	
CY7C197B (7C1975M)	4437452	*510501008*	INDNS-O	1000	50	0	
CY7C197B (7C1975M)	4437452	*510501009*	INDNS-O	300	50	0	
CY7C197B (7C1975M)	4437452	*510501009*	INDNS-O	500	50	0	
CY7C197B (7C1975M)	4437452	*510501009*	INDNS-O	1000	50	0	
CY7C197B (7C1975M)	4437452	*510501010*	INDNS-O	300	50	0	
CY7C197B (7C1975M)	4437452	*510501010*	INDNS-O	500	50	0	
CY7C197B (7C1975M)	4437452	*510501010*	INDNS-O	1000	50	0	

Reliability Test Data

QTP #: 070309

Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: ACOUSTIC, MSL3							
CY7C192 (7C192H)	2628777	*510605006*	INDNS-O	COMP	15	0	
CY7C192 (7C192H)	2628777	*510605007*	INDNS-O	COMP	15	0	
CY7C192 (7C192H)	2628777	*510605008*	INDNS-O	COMP	15	0	
STRESS: BALL SHEAR							
CY7C192 (7C192H)	2628777	*510605006*	INDNS-O	COMP	10	0	
STRESS: BOND PULL							
CY7C192 (7C192H)	2628777	*510605006*	INDNS-O	COMP	10	0	
STRESS: CONSTRUCTIONAL ANALYSIS							
CY7C192 (7C192H)	2628777	*510605006*	INDNS-O	COMP	1	0	
STRESS: DIE SHEAR							
CY7C192 (7C192H)	2628777	*510605006*	INDNS-O	COMP	15	0	
STRESS: DYE PENETRATION							
CY7C192 (7C192H)	2628777	*510605006*	INDNS-O	COMP	15	0	
CY7C192 (7C192H)	2628777	*510605007*	INDNS-O	COMP	15	0	
CY7C192 (7C192H)	2628777	*510605008*	INDNS-O	COMP	15	0	
STRESS: EXTERNAL VISUAL							
CY7C192 (7C192H)	2628777	*510605006*	INDNS-O	COMP	15	0	
STRESS: INTERNAL VISUAL							
CY7C192 (7C192H)	2628777	*510605006*	INDNS-O	COMP	5	0	
STRESS: HI-ACCEL SATURATION TEST. 130C, 5.5V, 85%RH, PRE COND 192 HR 30C/60%RH, MSL3							
CY7C192 (7C192H)	2628777	*510605006*	INDNS-O	128	45	0	
STRESS: HIGH TEMPERATURE STORAGE, No Bias							
CY7C192 (7C192H)	2628777	*510605006*	INDNS-O	500	45	0	
CY7C192 (7C192H)	2628777	*510605006*	INDNS-O	1000	45	0	
STRESS: PRESSURE COOKER TEST, 121C, 100%RH, 15 Psig, PRE COND 192 HR 30C/60%RH, MSL3							
CY7C192 (7C192H)	2628777	*510605006*	INDNS-O	168	45	0	

Reliability Test Data

QTP #: 070309

Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: TC COND. C -65C TO 150C, PRE COND 192 HR 30C/60%RH, MSL3							
CY7C192 (7C192H)	2628777	*510605006*	INDNS-O	300	44	0	
CY7C192 (7C192H)	2628777	*510605006*	INDNS-O	1000	44	0	
CY7C192 (7C192H)	2628777	*510605007*	INDNS-O	300	45	0	
CY7C192 (7C192H)	2628777	*510605007*	INDNS-O	1000	45	0	
CY7C192 (7C192H)	2628777	*510605008*	INDNS-O	300	45	0	
CY7C192 (7C192H)	2628777	*510605008*	INDNS-O	1000	45	0	
STRESS: THERMAL SHOCK, COND. B –55C TO 125C							
CY7C192 (7C192H)	2628777	*510605006*	INDNS-O	100	45	0	
CY7C192 (7C192H)	2628777	*510605006*	INDNS-O	200	43	0	
STRESS: X-RAY							
CY7C192 (7C192H)	2628777	*510605006*	INDNS-O	COMP	15	0	