Cypress Semiconductor
Package Qualification Report

QTP# 034706 VERSION 1.0
December, 2003

48-lead Thin Small Outline Package (TSOP),
(12 x 20 x 1.2mm)
235ºC Reflow, MSL3
OSE-Taiwan

CYPRESS TECHNICAL CONTACT FOR QUALIFICATION DATA:

Rene Rodgers
Staff Reliability Engineer
(408 943-2732

PACKAGE QUALIFICATION HISTORY

Qual Report		Description of Qualification Purpose		Date Comp
034706		48-lead TSOP (12 x 20 x 1.2mm) package, assembled at OSE-Taiwan, @235ºC Reflow, MSL3		Dec 03

MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION	
Package Designation:	Z48A
Package Outline, Type, or Name:	48-lead Thin Small Outline Package (TSOP)
Mold Compound Name/Manufacturer:	Sumitomo 7351LS
Mold Compound Flammability Rating:	V-O per UL94
Oxygen Rating Index:	>28%
Lead Frame Material:	Copper
Lead Finish, Composition / Thickness:	Solder Plated 85% +10/-5Sn, 15% +5/-10Pb
Die Backside Preparation Method/Metallization:	Grinding
Die Separation Method:	Sawing
Die Attach Supplier:	Ablestik
Die Attach Material:	Ablebond 8340
Die Attach Methond:	Dispensing
Bond Diagram Designation	10-05183
Wire Bond Method:	Thermosonic
Wire Material/Size:	Au, 1.0mil
Thermal Resistance Theta JA °C/W:	35.85°C/W
Package Cross Section Yes/No:	N/A
Assembly Process Flow:	49-35006
Name/Location of Assembly (prime) facility:	OSE-Taiwan

PACKAGE AVAILABILITY

PACKAGE	ASSEMBLY SITE FACILITY
48-lead TSOP	OSE-Taiwan

RELIABILITY TESTS PERFORMED PER SPECIFICATION REQUIREMENT

Stress/Test	Test Condition (Temp/Bias)	Result P/F
Temperature Cycle	Precondition: JESD22 Moisture Sensitivity MSL 3 192 Hrs., 30°C/60%RH+3IR-Reflow, 235°C+5, 0°C MIL-STD-883C, Method 1010, Condition C, -65°C to 150°C	P
Pressure Cooker	Precondition: JESD22 Moisture Sensitivity MSL 3 192 Hrs., 30°C/60%RH+3IR-Reflow, 235°C+5, -0°C 121°C, 100%RH	P
High Accelerated Saturation Test (HAST)	130°C, 3.6V, 85%RH Precondition: JESD22 Moisture Sensitivity MSL 3 192 Hrs, 85C/85%RH+3IR-Reflow, 235°C+5, 0°C	P
Electrostatic Discharge Charge Device Model (ESD-CDM)	500V Cypress Spec. 25-00020	P
Electrostatic Discharge Human Body Model (ESD-HBM)	2,200V MIL-STD-883, Method 3015.7	P
High Temperature Storage	150°C, no bias	P
Thermal Shock	-55C to +125C Cypress Spec. 25-00014	P
Physical Dimensions	Cypress Spec 25-00031	P
Ball Shear	Cypress Spec 12-00292	P
Die Shear	Cypress Spec 12-00292	P
External Visual	Cypress Spec 12-00292	P
Internal Visual	Cypress Spec 12-00292	P
Solderability	Cypress Spec 12-00292	P
X-ray	MIL-STD-883C, Method 2012, Cypress Spec 12-00292	P
Acoustic Microscopy MSL3	Cypress Spec 12-00292	

Reliability Test Data

QTP #: 034706

Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: ACOUSTIC-MSL3							
CY62167DV30LL	4314972	610330190	TAIWN-T	COMP	15	0	
CY62167DV30LL	4318891	610330005	TAIWN-T	COMP	15	0	
CY62167DV30LL	4318891	610330006	TAIWN-T	COMP	15	0	
STRESS : INTERNAL VISUAL							
CY62167DV30LL	4314972	610330190	TAIWN-T	COMP	5	0	
STRESS : EXTERNAL VISUAL							
CY62167DV30LL	4314972	610330190	TAIWN-T	COMP	15	0	
STRESS: PHYSICAL DIMENSION							
CY62167DV30LL	4314972	610330190	TAIWN-T	COMP	5	0	
STRESS: BALL SHEAR							
CY62167DV30LL	4314972	610330190	TAIWN-T	COMP	10	0	
STRESS: DIE SHEAR							
CY62167DV30LL	4314972	610330190	TAIWN-T	COMP	15	0	
STRESS: X-RAY							
CY62167DV30LL	4314972	610330190	TAIWN-T	COMP	15	0	
STRESS: SOLDERABILITY							
CY62167DV30LL	4314972	610330190	TAIWN-T	COMP	3	0	
STRESS: THERMAL SHOCK, 125C, -55C							
CY62167DV30LL	4319109	610340080	TAIWN-T	100	50	0	
CY62167DV30LL	4319109	610340080	TAIWN-T	200	50	0	
STRESS: ESD-HUMAN BODY CIRCUIT PER MIL STD 883, METHOD 3015, 2,200V							
CY62167DV30LL	4318891	610330005	TAIWN-T	COMP	9	0	
STRESS: ESD-CHARGE DEVICE MODEL, 500V							
CY62167DV30LL	4318891	610330005	TAIWN-T	COMP	9	0	

Reliability Test Data

QTP #: 034706

Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: HIGH TEMPERATURE STORAGE, 150C							
CY62167DV30LL	4314972	610330190	TAIWN-T	500	43	0	
CY62167DV30LL	4314972	610330190	TAIWN-T	1000	43	0	
STRESS: PRESSURE COOKER TEST, 121C, 100%RH, PRE COND 192 HR 30C/60%RH, MSL3							
CY62167DV30LL	4318891	610330006	TAIWN-T	168	44	0	
STRESS: HI-ACCEL SATURATION TEST (130C, 85%RH, 3.6V), PRE COND 192 HR 30C/60%RH, MSL3							
CY62167DV30LL	4318891	610330007	TAIWN-T	128	43	0	
STRESS: TC COND. C -65C TO 150C, PRECONDITION 192 HRS 30C/60%RH, MSL3							
CY62167DV30LL	4319109	610339693	TAIWN-T	300	44	0	
CY62167DV30LL	4319109	610339693	TAIWN-T	500	44	0	
CY62167DV30LL	4319109	610339695	TAIWN-T	300	49	0	
CY62167DV30LL	4319109	610339695	TAIWN-T	500	49	0	
CY62167DV30LL	4319109	610340080	TAIWN-T	300	48	0	
CY62167DV30LL	4319109	610340080	TAIWN-T	500	48	0	