

Cypress Semiconductor Package Qualification Report

**QTP# 032102 VERSION 1.0
October, 2003**

128-lead Thin Quad Flat Pack

14 x 20 x 1.4mm, MSL3

OSE-Taiwan Assembly

CYPRESS TECHNICAL CONTACT FOR QUALIFICATION DATA:

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PACKAGE QUALIFICATION HISTORY

QUAL REPORT	DESCRIPTION OF QUALIFICATION PURPOSE	DATE COMP.
032102	128-lead TQFP (14mm x 20mm x 1.4mm), OSE-Taiwan Assembly, MSL3	Sep 03

MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION	
Package Designation:	A128
Package Outline, Type, or Name:	128-lead Thin Quad Flat Pack (TQFP)
Mold Compound Name/Manufacturer:	Sumitomo EME 7351LS
Mold Compound Flammability Rating:	V-O per UL 94
Oxygen Rating Index:	>28%
Lead Frame Material:	Copper
Lead Finish, Composition / Thickness:	Solder Plated, 85%Sn, 15%Pb
Die Backside Preparation Method/Metallization:	Grinding
Die Separation Method:	Wafer Saw
Die Attach Supplier:	Ablestik
Die Attach Material:	8340
Bond Diagram Designation	10-04107
Wire Bond Method:	Thermosonic
Wire Material/Size:	Au 1.0 mil
Thermal Resistance Theta JA °C/W:	96 °C/W
Package Cross Section Yes/No:	N/A
Assembly Process Flow:	49-35999
Name/Location of Assembly (prime) facility:	OSE-Taiwan

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

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 3 192 Hrs., 30°C/60%RH+3IR-Reflow, 220°C+5, -0°C	P
Pressure Cooker	121°C, 100%RH Precondition: JESD22 Moisture Sensitivity MSL 3 192 Hrs, 30C/60%RH+3IR-Reflow, 220°C+5, 0°C	P
High Accelerated Saturation Test (HAST)	130°C, 3.63V, 85%RH Precondition: JESD22 Moisture Sensitivity MSL 3 192 Hrs, 30C/60%RH+3IR-Reflow, 220°C+5, 0°C	P
Acoustic Microscopy, MSL 3	Cypress Spec. 25-00104	P
Ball Shear	Cypress Spec 12-00292	P
Bond Pull	Cypress Spec 12-00292	P
Die Shear	Cypress Spec 12-00292	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
External Visual	Cypress Spec. 12-00292	P
High Temperature Storage	150C, no bias	P
Internal Visual	Cypress Spec 12-00292	P
Physical Dimensions	Cypress Spec. 25-00031	P
Solderability	Cypress Spec. 25-00018	P
Thermal Shock	-55C to +125C Cypress Spec. 25-00014	P
X-Ray	MIL-STD-883, Method 32012, Cypress Spec. 12-00292	P

Reliability Test Data

QTP #: 032102

<i>Device</i>	<i>Fab Lot #</i>	<i>Assy Lot #</i>	<i>Ass Loc</i>	<i>Duration</i>	<i>Samp</i>	<i>Rej</i>	<i>Failure Mechanism</i>
STRESS: ACOUSTIC, MSL3							
CY7C68013-AC (7C680131E)	4314014	610321748	OSE-T	COMP	15	0	
CY7C68013-AC (7C680131E)	4314014	610321748M	OSE-T	COMP	15	0	
CY7C68013-AC (7C680131E)	4314014	610321748M1	OSE-T	COMP	15	0	
STRESS: BALL SHEAR							
CY7C68013-AC (7C680131E)	4314014	610321748	OSE-T	COMP	9	0	
STRESS: BOND PULL							
CY7C68013-AC (7C680131E)	4314014	610321748	OSE-T	COMP	9	0	
STRESS: DIE SHEAR							
CY7C68013-AC (7C680131E)	4314014	610321748	OSE-T	COMP	9	0	
STRESS: ESD-CHARGE DEVICE MODEL, 500V							
CY7C68013-AC (7C680131E)	4314014	610321748	OSE-T	COMP	9	0	
STRESS: ESD-HUMAN BODY CIRCUIT PER MIL STD 883, METHOD 3015, 2,200V							
CY7C68013-AC (7C680131E)	4314014	610321748	OSE-T	COMP	9	0	
STRESS: EXTERNAL VISUAL							
CY7C68013-AC (7C680131E)	4314014	610321748	OSE-T	COMP	15	0	
STRESS: HI-ACCEL SATURATION TEST (130C, 85%RH, 3.63V), PRE COND 192 HR 30C/60%RH, MSL3							
CY7C68013-AC (7C680131E)	4314014	610321748	OSE-T	128	50	0	
STRESS: HIGH TEMPERATURE STORAGE, 150C							
CY7C68013-AC (7C680131E)	4314014	610321748	OSE-T	500	50	0	
CY7C68013-AC (7C680131E)	4314014	610321748	OSE-T	1000	50	0	
STRESS: INTERNAL VISUAL							
CY7C68013-AC (7C680131E)	4314014	610321748	OSE-T	COMP	5	0	
CY7C68013-AC (7C680131E)	4314014	610321748M	OSE-T	COMP	5	0	
CY7C68013-AC (7C680131E)	4314014	610321748M1	OSE-T	COMP	5	0	
STRESS: PHYSICAL DIMENSIONS							
CY7C68013-AC (7C680131E)	4314014	610321748	OSE-T	COMP	5	0	
CY7C68013-AC (7C680131E)	4314014	610321748M	OSE-T	COMP	5	0	
CY7C68013-AC (7C680131E)	4314014	610321748M1	OSE-T	COMP	5	0	
STRESS: PRESSURE COOKER TEST (121C, 100%RH), PRE COND 192 HR 30C/60%RH							
CY7C68013-AC (7C680131E)	4314014	610321748	OSE-T	168	50	0	

Reliability Test Data

QTP #: 032102

<i>Device</i>	<i>Fab Lot #</i>	<i>Assy Lot #</i>	<i>Ass Loc</i>	<i>Duration</i>	<i>Samp</i>	<i>Rej</i>	<i>Failure Mechanism</i>
STRESS: SOLDERABILITY							
CY7C68013-AC (7C680131E)	4314014	610321748	OSE-T	COMP	3	0	
CY7C68013-AC (7C680131E)	4314014	610321748M	OSE-T	COMP	3	0	
CY7C68013-AC (7C680131E)	4314014	610321748M1	OSE-T	COMP	3	0	
STRESS: X-RAY							
CY7C68013-AC (7C680131E)	4314014	610321748	OSE-T	COMP	10	0	
CY7C68013-AC (7C680131E)	4314014	610321748M	OSE-T	COMP	10	0	
CY7C68013-AC (7C680131E)	4314014	610321748M1	OSE-T	COMP	10	0	
STRESS: THERMAL SHOCK, +125C/-55C							
CY7C68013-AC (7C680131E)	4314014	610321748	OSE-T	100	50	0	
CY7C68013-AC (7C680131E)	4314014	610321748	OSE-T	200	50	0	
STRESS: TC COND. C -65C TO 150C, PRECONDITION 192 HRS 30C/60%RH (MSL3)							
CY7C68013-AC (7C680131E)	4314014	610321748	OSE-T	300	50	0	
CY7C68013-AC (7C680131E)	4314014	610321748	OSE-T	500	50	0	
CY7C68013-AC (7C680131E)	4314014	610321748M	OSE-T	300	50	0	
CY7C68013-AC (7C680131E)	4314014	610321748M	OSE-T	500	50	0	
CY7C68013-AC (7C680131E)	4314014	610321748M1	OSE-T	300	50	0	
CY7C68013-AC (7C680131E)	4314014	610321748M1	OSE-T	500	49	0	