

Cypress Semiconductor Molding Compound Qualification Report

**QTP# 021804 VERSION 1.0
July, 2002**

**Sumitomo EME 7351T Molding Compound
≤ 32-lead TSOP Package, MSL 3
Amkor Korea (KOREA-GQ)**

CYPRESS TECHNICAL CONTACT FOR QUALIFICATION DATA:

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PACKAGE QUALIFICATION HISTORY

Qual Report	Description of Qualification Purpose	Date Comp
93275	32-lead TSOP package with die size $\leq 140 \times 188$ mls assembled at KOREA-GQ	Oct 93
97351	Sumitomo EME7351 and S351, die size $\leq 161 \times 438.4$ mls using 4-1LMISR4 die attach material	Nov 97
021804	Sumitomo EME 7351T, die size $\leq 116.2 \times 141.7$ mls, using Ablestik 8361 die attach material, MSL3	May 02

MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION	
Package Designation:	Z32
Package Outline, Type, or Name:	32-lead Thin Small Outline Package (TSOP)
Mold Compound Name/Manufacturer:	Sumitomo EME7351T
Mold Compound Flammability Rating:	V-O per UL94
Oxygen Rating Index:	>28%
Lead Frame Material:	Copper
Lead Finish, Composition / Thickness:	Solder Plate, 85 %Sn, 15%Pb
Die Backside Preparation Method/Metallization:	N/A
Die Separation Method:	Wafer Saw
Die Attach Supplier:	Ablestik
Die Attach Material:	Ablestik 8361
Die Attach Method:	Epoxy
Bond Diagram Designation:	10-03393
Wire Bond Method:	Thermosonic
Wire Material/Size:	Au, 1.0mil
Thermal Resistance Theta JA °C/W:	46°C/W
Package Cross Section Yes/No:	N/A
Assembly Process Flow:	49-10029
Name/Location of Assembly (prime) facility:	Anam Korea (KOREA-GQ)

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

RELIABILITY TESTS PERFORMED PER SPECIFICATION REQUIREMENTS

Stress/Test	Test Condition (Temp/Bias)	Result P/F
Temperature Cycle	1) QTP #021804, QTP #97351 MIL-STD-883C, Method 1010, Condition C, -55°C to 125°C Precondition: JESD22 Moisture Sensitivity MSL 3 192 Hrs., 30°C/60%RH+3IR-Reflow, 235°C+5, -0°C	P
Pressure Cooker	1) QTP #021804 121C, 100%RH Precondition: JESD22 Moisture Sensitivity MSL 3 192 Hrs., 30°C/60%RH+3IR-Reflow, 235°C+5, -0°C	P
High Accelerated Saturation Test	1) QTP #97351 130°C/85%RH/5.5V Precondition: JESD22 Moisture Sensitivity MSL 3 192 Hrs., 30°C/60%RH+3IR-Reflow, 235°C+5, -0°C	
Thermal Shock	1) QTP #97351 150C/-55C Cypress Spec. 25-00014	P
High Temperature Storage	1) QTP #021804 150°C, no bias 2) QTP #97351 165°C, no bias	P
Physical Dimension	1) QTP #97351 Cypress Spec. 25-00031	P
Die Shear	1) QTP #97351 Cypress Spec 24-00004	P
Ball Shear	1) QTP # QTP #97351 Cypress Spec 12-00292	P
Solderability	1) QTP #97351 Cypress Spec 24-00018	P
External Visual	1) QTP #97351 Cypress Specification 12-00292	P
Internal Visual	1) QTP #97351 Cypress Specification 12-00292	P

RELIABILITY TESTS PERFORMED PER SPECIFICATION REQUIREMENTS (continuation)

Stress/Test	Test Condition (Temp/Bias)	Result P/F
Resistance to Solvents	1) QTP #021804 Cypress Spec. 25-00016	P
Resistance to Solvents	1) QTP #021804 Cypress Spec. 25-00016	P
Acoustic Microscopy, MSL3	1) QTP #021804 Cypress Spec. 25-00104	P
X-Ray	1) QTP #97351 Cypress Spec 12-000149	P

Reliability Test Data

QTP #: 021804

<i>Device</i>	<i>Fab Lot #</i>	<i>Assy Lot #</i>	<i>Assy Loc</i>	<i>Duration</i>	<i>Samp</i>	<i>Rej</i>	<i>Failure Mechanism</i>
STRESS: ACOUSTIC, MSL3							
CY62128V*-ZC (7C621295C)	4207085	610211135	KOREA-GQ	COMP	15	0	
CY62128V*-ZC (7C621295C)	4207085	610211753	KOREA-GQ	COMP	15	0	
CY62128V*-ZC (7C621295C)	4207085	610211752	KOREA-GQ	COMP	15	0	
STRESS: RESISTANCE TO SOLVENTS							
CY62128V*-ZC (7C621295C)	4207085	610211135	KOREA-GQ	COMP	15	0	
STRESS: HIGH TEMPERATURE STORAGE, 150C							
CY62128V*-ZC (7C621295C)	4207085	610211135	KOREA-GQ	500	45	0	
STRESS: STRESS: PRESSURE COOKER TEST, 121C, 100%RH, PRE COND 192 HR 30C/60%RH, MSL3							
CY62128V*-ZC (7C621295C)	4207085	610211135	KOREA-GQ	168	45	0	
CY62128V*-ZC (7C621295C)	4207085	610211753	KOREA-GQ	168	45	0	
STRESS: TC COND. C -65C TO 150C, PRE COND 192 HR 30C/60%RH, MSL3							
CY62128V*-ZC (7C621295C)	4207085	610211135	KOREA-GQ	300	45	0	
CY62128V*-ZC (7C621295C)	4207085	610211753	KOREA-GQ	300	44	0	
CY62128V*-ZC (7C621295C)	4207085	610211752	KOREA-GQ	300	45	0	

RELIABILITY TEST DATA

QTP#: 97351

DEVICE	ASSY-LOC	FABLOT#	ASSYLOT#	DURATION	S/S	REJ	FAIL MODE
STRESS: BALL SHEAR							
CY7C109-ZC	KOREA-Q	3715960	619703878	COMP	10	0	
CY7C109-ZC	KOREA-Q	3715960	619703876	COMP	10	0	
CY7C109-ZC	KOREA-Q	3715960	619703877	COMP	10	0	

STRESS: PHYSICAL DIMENSION							
CY7C109-ZC	KOREA-Q	3715960	619703876	COMP	5	0	

STRESS: EXTERNAL VISUAL							
CY7C109-ZC	KOREA-Q	3715960	619703876	COMP	15	0	

STRESS: INTERNAL VISUAL							
CY7C109-ZC	KOREA-Q	3715960	619703876	COMP	5	0	

STRESS: DIE SHEAR							
CY7C109-ZC	KOREA-Q	3715960	619703878	COMP	15	0	
CY7C109-ZC	KOREA-Q	3715960	619703876	COMP	15	0	
CY7C109-ZC	KOREA-Q	3715960	619703877	COMP	15	0	

STRESS: HIGH TEMPERATURE STORAGE, 165C							
CY7C109-ZC	KOREA-Q	3715960	619703878	336	48	0	
CY7C109-ZC	KOREA-Q	3715960	619703878	1000	48	0	

STRESS: SODERABILITY							
CY7C109-ZC	KOREA-Q	3715960	619703878	COMP	5	0	
CY7C109-ZC	KOREA-Q	3715960	619703876	COMP	5	0	
CY7C109-ZC	KOREA-Q	3715960	619703877	COMP	5	0	

STRESS: THERMAL SHOCK, 150C. -55C							
CY7C109-ZC	KOREA-Q	3715960	619703878	100	48	0	
CY7C109-ZC	KOREA-Q	3715960	619703878	200	48	0	

STRESS: X-RAY							
CY7C109-ZC	KOREA-Q	3715960	619703878	COMP	15	0	
CY7C109-ZC	KOREA-Q	3715960	619703876	COMP	15	0	
CY7C109-ZC	KOREA-Q	3715960	619703877	COMP	15	0	

STRESS: HI-ACCEL SATURATION TEST, 130C, 85%RH, 5.5V, PRECOND. 192 HRS 30C/60%RH,MSL3							
CY7C109-ZC	KOREA-Q	3715960	619703878	128	48	0	

STRESS: TC COND. C, -65 TO 150C, PRECOND. 192 HRS 30C/60%RH,MSL3							
CY7C109-ZC	KOREA-Q	3715960	619703878	300	48	0	
CY7C109-ZC	KOREA-Q	3715960	619703878	1000	48	0	
CY7C109-ZC	KOREA-Q	3715960	619703876	300	48	0	
CY7C109-ZC	KOREA-Q	3715960	619703876	1000	48	0	
CY7C109-ZC	KOREA-Q	3715960	619703877	300	48	0	
CY7C109-ZC	KOREA-Q	3715960	619703877	1000	48	0	