

# **Cypress Semiconductor Package Qualification Report**

**QTP# 014402 VERSION 2.0  
April 2005**

**56-Lead QFN (8 x 8mm) Package, MSL3  
Amkor-Korea**

## **CYPRESS TECHNICAL CONTACT FOR QUALIFICATION DATA:**

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**PACKAGE QUALIFICATION HISTORY**

<b>QUAL REPORT</b>	<b>DESCRIPTION OF QUALIFICATION PURPOSE</b>	<b>DATE COMP.</b>
014402	56-Lead (8 x 8mm) QFN package assembled at Amkor-Korea	Mar 02

<b>MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION</b>	
<b>Package Designation:</b>	LF56
<b>Package Outline, Type, or Name:</b>	56-lead Quad Flat no Lead (QFN)
<b>Mold Compound Name/Manufacturer:</b>	Sumitomo EME G700
<b>Mold Compound Flammability Rating:</b>	V-O per UL94
<b>Oxygen Rating Index:</b>	>28%
<b>Lead Frame Material:</b>	Copper
<b>Lead Finish, Composition / Thickness:</b>	Tin-Lead, 85%Sn, 15%Pb (300~800 uinch)
<b>Die Backside Preparation Method/Metallization:</b>	N/A
<b>Die Separation Method:</b>	Wafer Saw
<b>Die Attach Supplier:</b>	Ablebond
<b>Die Attach Material:</b>	Ablebond 8290
<b>Die Attach Method:</b>	Dispensing
<b>Bond Diagram Designation</b>	10-04394
<b>Wire Bond Method:</b>	Thermosonic
<b>Wire Material/Size:</b>	Gold, 1.0mil
<b>Thermal Resistance Theta JA °C/W:</b>	23.27°C/W
<b>Package Cross Section Yes/No:</b>	N/A
<b>Assembly Process Flow:</b>	49-10045
<b>Name/Location of Assembly (prime) facility:</b>	Amkor Korea (SEOL_L)

<b>ELECTRICAL TEST / FINISH DESCRIPTION</b>	
<b>Test Location:</b>	Cypress USA (USA-C)
<b>Fault Coverage:</b>	98%

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

**RELIABILITY TESTS PERFORMED PER SPECIFICATION REQUIREMENT**

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
High Accelerated Saturation Test	130°C, 3.63V Precondition: JESD22 Moisture Sensitivity MSL 3 192 Hrs., 30°C/60%RH+3IR-Reflow, 220°C+5, -0°C	P
Pressure Cooker Test	121°C, 100% Precondition: JESD22 Moisture Sensitivity MSL 3 192 Hrs., 30°C/60%RH+3IR-Reflow, 220°C+5, -0°C	P
Internal Visual	Cypress Spec 12-00292	P
External Visual	Cypress Spec 12-00292	P
Ball Shear	Cypress Spec 12-00292	P
Bond Pull	Cypress Spec 12-00292	P
Die Shear	Cypress Spec 12-00292	P
High Temperature Storage	150°C, no bias	P
Thermal Shock	125C, -55C	P
Physical Dimensions	Cypress Spec 25-00031	P
X-Ray	MIL-STD-883C, Method 2012, Cypress Spec 12-00292	P

## Reliability Test Data

QTP #: 014402

<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>
<b>STRESS: ACOUSTIC, MSL3</b>							
CY7C65640-LFC (7C65640A)	4133340	610138258	SEOL-L	COMP	15	0	
CY7C65640-LFC (7C65640A)	4133340	610138259	SEOL-L	COMP	15	0	
CY7C65640-LFC (7C65640A)	4133340	610138260	SEOL-L	COMP	15	0	
<b>STRESS: BALL SHEAR</b>							
CY7C65640-LFC (7C65640A)	4133340	610138258	SEOL-L	COMP	10	0	
<b>STRESS: BOND PULL</b>							
CY7C65640-LFC (7C65640A)	4133340	610138258	SEOL-L	COMP	10	0	
<b>STRESS: DIE SHEAR</b>							
CY7C65640-LFC (7C65640A)	4133340	610138258	SEOL-L	COMP	15	0	
<b>STRESS: EXTERNAL VISUAL</b>							
CY7C65640-LFC (7C65640A)	4144354		SEOL-L	COMP	20	0	
<b>STRESS: INTERNAL VISUAL</b>							
CY7C65640-LFC (7C65640A)	4144354		SEOL-L	COMP	5	0	
<b>STRESS: PHYSICAL DIMENSIONS</b>							
CY7C65640-LFC (7C65640A)	4133340	610138258	SEOL-L	COMP	5	0	
<b>STRESS: X-RAY</b>							
CY7C65640-LFC (7C65640A)	4144354		SEOL-L	COMP	15	0	
<b>STRESS: HIGH TEMPERATURE STORAGE, 150C</b>							
CY7C65640-LFC (7C65640A)	4133340	610138258	SEOL-L	500	50	0	
CY7C65640-LFC (7C65640A)	4133340	610138258	SEOL-L	1000	50	0	
<b>STRESS: HI-ACCEL SATURATION TEST. 130C, 3.63V, 85%RH, PRE COND 192 HR 30C/60%RH, MSL3</b>							
CY7C65640-LFC (7C65640A)	4144354		SEOL-L	128	50	0	
<b>STRESS: STRESS: PRESSURE COOKER TEST, 121C, 100%RH, PRE COND 192 HR 30C/60%RH, MSL3</b>							
CY7C65640-LFC (7C65640A)	4133340	610138258	SEOL-L	168	50	0	
CY7C65640-LFC (7C65640A)	4133340	610138259	SEOL-L	168	50	0	
<b>STRESS: THERMAL SHOCK, 125C, -55C</b>							
CY7C65640-LFC (7C65640A)	4133340	610138258	SEOL-L	100	50	0	
CY7C65640-LFC (7C65640A)	4133340	610138258	SEOL-L	200	50	0	

## Reliability Test Data

QTP #: 014402

<b>Device</b>	<b>Fab Lot #</b>	<b>Assy Lot #</b>	<b>Assy Loc</b>	<b>Duration</b>	<b>Samp</b>	<b>Rej</b>	<b>Failure Mechanism</b>
<b>STRESS: TC COND. C -65C TO 150C, PRE COND 192 HR 30C/60%RH, MSL3</b>							
CY7C65640-LFC (7C65640A)	4133340	610138258	SEOL-L	300	49	0	
CY7C65640-LFC (7C65640A)	4133340	610138258	SEOL-L	500	49	0	
CY7C65640-LFC (7C65640A)	4133340	610138258	SEOL-L	1000	49	0	
CY7C65640-LFC (7C65640A)	4133340	610138259	SEOL-L	300	50	0	
CY7C65640-LFC (7C65640A)	4133340	610138259	SEOL-L	500	50	0	
CY7C65640-LFC (7C65640A)	4133340	610138259	SEOL-L	1000	50	0	
CY7C65640-LFC (7C65640A)	4133340	610138260	SEOL-L	300	50	0	
CY7C65640-LFC (7C65640A)	4133340	610138260	SEOL-L	500	49	0	
CY7C65640-LFC (7C65640A)	4133340	610138260	SEOL-L	1000	49	0	