

Cypress Semiconductor Package Qualification Report

**QTP# 022206 VERSION 1.0
November, 2002**

**20-lead (4 x 4) QFN Package, MSL3
Amkor Korea**

CYPRESS TECHNICAL CONTACT FOR QUALIFICATION DATA:

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PACKAGE QUALIFICATION HISTORY

QUAL REPORT	DESCRIPTION OF QUALIFICATION PURPOSE	DATE COMP.
022206	20-lead (4 x 4) QFN package with die size $\leq 73.0 \times 86.0$ mils, Amkor Korea	Oct 02

MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION	
Package Designation:	LF20
Package Outline, Type, or Name:	20-lead Quad Flat no Lead (QFN)
Mold Compound Name/Manufacturer:	Sumitomo EME G700
Mold Compound Flammability Rating:	V-O per UL94
Oxygen Rating Index:	> 28%
Lead Frame Material:	Copper
Lead Finish, Composition / Thickness:	Matte Tin (Sn)
Die Backside Preparation Method/Metallization:	N/A
Die Separation Method:	Wafer Saw
Die Attach Supplier:	Ablestik
Die Attach Material:	Ablestik 8290
Die Attach Method:	Dispensing
Bond Diagram Designation	10-04788
Wire Bond Method:	Thermosonic
Wire Material/Size:	Au, 1.0mil
Thermal Resistance Theta JA °C/W:	38°C/W
Package Cross Section Yes/No:	N/A
Assembly Process Flow:	49-10045
Name/Location of Assembly (prime) facility:	Amkor Korea (SEOL-L)

ELECTRICAL TEST / FINISH DESCRIPTION	
Test Location:	Amkor Korea (SEOL-L), Cypress USA (USA-C)
Fault Coverage:	100%

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, 260°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, 260°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 #: 022206

<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							
CY27028LFC (7C870281A)	9214301	610221687	SEOL-L	COMP	15	0	
CY27028LFC (7C870281A)	9214301	610221688	SEOL-L	COMP	15	0	
CY27028LFC (7C870281A)	9214301	610221689	SEOL-L	COMP	15	0	
STRESS: INTERNAL VISUAL							
CY27028LFC (7C870281A)	9214301	610221687	SEOL-L	COMP	5	0	
STRESS: EXTERNAL VISUAL							
CY27028LFC (7C870281A)	9214301	610221687	SEOL-L	COMP	60	0	
STRESS: PHYSICAL DIMENSIONS							
CY27028LFC (7C870281A)	9214301	610221687	SEOL-L	COMP	5	0	
STRESS: THERMAL SHOCK, 125C, -55C							
CY27028LFC (7C870281A)	9214301	610221687	SEOL-L	100	50	0	
CY27028LFC (7C870281A)	9214301	610221687	SEOL-L	200	50	0	
STRESS: HIGH TEMPERATURE STORAGE, 150C							
CY27028LFC (7C870281A)	9214301	610221687	SEOL-L	500	50	0	
CY27028LFC (7C870281A)	9214301	610221687	SEOL-L	1000	50	0	
STRESS: BALL SHEAR							
CY27028LFC (7C870281A)	9214301	610221687	SEOL-L	COMP	10	0	
STRESS: BOND PULL							
CY27028LFC (7C870281A)	9214301	610221687	SEOL-L	COMP	10	0	
STRESS: DIE SHEAR							
CY27028LFC (7C870281A)	9214301	610221687	SEOL-L	COMP	15	0	
STRESS: X-RAY							
CY27028LFC (7C870281A)	9214301	610221687	SEOL-L	COMP	15	0	

Reliability Test Data

QTP #: 022206

Device **Fab Lot #** **Assy Lot #** **Assy Loc** **Duration** **Samp** **Rej** **Failure Mechanism**

STRESS: STRESS: PRESSURE COOKER TEST, 121C, 100%RH, PRE COND 192 HR 30C/60%RH, MSL3

CY27028LFC (7C870281A) 9214301 610221687 SEOL-L 168 50 0

CY27028LFC (7C870281A) 9214301 610221688 SEOL-L 168 50 0

STRESS: TC COND. C -65C TO 150C, PRE COND 192 HR 30C/60%RH, MSL3

CY27028LFC (7C870281A) 9214301 610221687 SEOL-L 300 50 0

CY27028LFC (7C870281A) 9214301 610221687 SEOL-L 500 50 0

CY27028LFC (7C870281A) 9214301 610221687 SEOL-L 1000 50 0

CY27028LFC (7C870281A) 9214301 610221688 SEOL-L 300 50 0

CY27028LFC (7C870281A) 9214301 610221688 SEOL-L 500 50 0

CY27028LFC (7C870281A) 9214301 610221688 SEOL-L 1000 50 0

CY27028LFC (7C870281A) 9214301 610221689 SEOL-L 300 50 0

CY27028LFC (7C870281A) 9214301 610221689 SEOL-L 500 50 0

CY27028LFC (7C870281A) 9214301 610221689 SEOL-L 1000 50 0