

Cypress Semiconductor Package Qualification Report

**QTP# 054206 VERSION 1.0
December 2005**

**72-LD QFN (Quad Flat No-Lead)
(Punch Version, 10x10mm)
NiPdAu, MSL3, 260°C Reflow
Amkor-Korea (L)**

CYPRESS TECHNICAL CONTACT FOR QUALIFICATION DATA:

Miguel Maldonado
Principal Reliability Engineer
(408) 943-4874

Sabbas Daniel
Quality Engineering Director
(408) 943-2685

PACKAGE QUALIFICATION HISTORY

QUAL REPORT	DESCRIPTION OF QUALIFICATION PURPOSE	DATE COMP.
054206	72-LD QFN (10x10mm), (Punch Version), NiPdAu, MSL3, 260C Reflow assembled at Amkor-Korea (L)	Dec 05

MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION	
Package Designation:	LY72
Package Outline, Type, or Name:	72-Lead Quad Flat No Lead (QFN) 10 x 10mm, Punch Version
Mold Compound Name/Manufacturer:	Sumitomo G700FG
Mold Compound Flammability Rating:	V-O per UL94
Oxygen Rating Index:	NA
Lead Frame Material:	Copper
Lead Finish, Composition / Thickness:	NiPdAu
Die Backside Preparation Method/Metallization:	Backgrind
Die Separation Method:	Saw
Die Attach Supplier:	Ablestik
Die Attach Material:	8290
Die Attach Method:	Epoxy
Bond Diagram Designation	10-06869
Wire Bond Method:	Thermosonic
Wire Material/Size:	Au. 1.0mil
Thermal Resistance Theta JA °C/W:	21.8°C/W
Package Cross Section Yes/No:	N/A
Assembly Process Flow:	49-10999
Name/Location of Assembly (prime) facility:	Amkor-Korea (L)

ELECTRICAL TEST / FINISH DESCRIPTION	
Test Location:	CML-R
Fault Coverage:	100%

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 MSL3 192 Hrs, 30°C/60%RH+3IR-Reflow, 260°C+0, -5°C	P
Pressure Cooker Test	121°C, 100%RH Precondition: JESD22 Moisture Sensitivity MSL3 192 Hrs, 30°C/60%RH+3IR-Reflow, 260°C+0, -5°C	P
High Accelerated Saturation Test (HAST)	130°C, 3.63V, 85% RH Precondition: JESD22 Moisture Sensitivity MSL3 192 Hrs, 30°C/60%RH+3IR-Reflow, 260°C+0, -5°C	P
Acoustics Microscopy	Cypress Spec. 12-00292	P
Ball Shear	Cypress Spec. 24-00018	P
Bond Pull	Cypress Spec. 12-00292	P
Die Shear	Cypress Spec. 12-00292	P
Electrostatic Discharge Human Body Model (ESD-HBM)	2,200V JESD22, Method A114-B	P
Electrostatic Discharge Human Body Model (ESD-HBM)	2,200V MIL-STD-883, Method 3015.7	P
Electrostatic Discharge Charge Device Model (ESD-CDM)	500V Cypress Spec. 25-00020	P
External Visual	Cypress Spec. 12-00292/25-00103	P
High Temperature Storage	150°C, no bias	P
Internal Visual	Cypress Spec. 12-00292	P
Physical Dimension	Cypress Spec. 25-00031	P
Solderability	Cypress Spec. 25-00018	P
Thermal Shock	125C, -55C Cypress Spec. 25-00014	P
Wetting Balance	Cypress Spec. 25-20037	P
X-ray	Cypress Spec. 12-00292	P

Reliability Test Data

QTP #: 054206

<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							
CY28447LFXC (7C828447A)	4447944	610514267	KOREA-L	COMP	15	0	
CY28447LFXC (7C828447A)	4447944	610514268	KOREA-L	COMP	15	0	
CY28447LFXC (7C828447A)	4447944	610514843	KOREA-L	COMP	15	0	
STRESS: BALL SHEAR							
CY28447LFXC (7C828447A)	4447944	610514267	KOREA-L	COMP	10	0	
STRESS: BOND PULL							
CY28447LFXC (7C828447A)	4447944	610514267	KOREA-L	COMP	10	0	
STRESS: DIE SHEAR							
CY28447LFXC (7C828447A)	4447944	610514267	KOREA-L	COMP	15	0	
STRESS: EXTERNAL VISUAL							
CY28447LFXC (7C828447A)	4447944	610514267	KOREA-L	COMP	15	0	
STRESS: INTERNAL VISUAL							
CY28447LFXC (7C828447A)	4447944	610514267	KOREA-L	COMP	15	0	
STRESS: ESD-CHARGE DEVICE MODEL, 500V							
CY28447LFXC (7C828447A)	4447944	610514843	KOREA-L	COMP	9	0	
STRESS: ESD-HUMAN BODY CIRCUIT PER JESD22, METHOD A114-B, 2,200V							
CY28447LFXC (7C828447A)	4447944	610514843	KOREA-L	COMP	9	0	
STRESS: ESD-HUMAN BODY CIRCUIT PER MIL STD 883, METHOD 3015, 2,200V							
CY28447LFXC (7C828447A)	4447944	610514843	KOREA-L	COMP	3	0	
STRESS: HIGH TEMPERATURE STORAGE, 150C, no bias							
CY28447LFXC (7C828447A)	4447944	610514268	KOREA-L	500	50	0	
CY28447LFXC (7C828447A)	4447944	610514268	KOREA-L	1000	50	0	
STRESS: HI-ACCEL SATURATION TEST, 130C, 3.63V, 85%RH, PRE COND 192 HR 30C/60%RH, MSL3							
CY28447LFXC (7C828447A)	4447944	610514267	KOREA-L	128	48	0	
STRESS: PRESSURE COOKER TEST, (121C, 100%RH), PRE COND 192 HR 30C/60%RH, MSL3							
CY28447LFXC (7C828447A)	4447944	610514268	KOREA-L	168	50	0	

Reliability Test Data

QTP #: 054206

Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: PHYSICAL DIMENSION							
CY28447LFXC (7C828447A)	4447944	610514267	KOREA-L	COMP	5	0	
STRESS: SOLDERABILITY							
CY28447LFXC (7C828447A)	4447944	610514267	KOREA-L	COMP	5	0	
STRESS: TC COND. C –65C TO 150C, PRE COND 192 HR 30C/60%RH, MSL3							
CY28447LFXC (7C828447A)	4447944	610514267	KOREA-L	300	50	0	
CY28447LFXC (7C828447A)	4447944	610514267	KOREA-L	500	50	0	
CY28447LFXC (7C828447A)	4447944	610514267	KOREA-L	1000	50	0	
CY28447LFXC (7C828447A)	4447944	610514268	KOREA-L	300	50	0	
CY28447LFXC (7C828447A)	4447944	610514268	KOREA-L	500	50	0	
CY28447LFXC (7C828447A)	4447944	610514268	KOREA-L	1000	50	0	
CY28447LFXC (7C828447A)	4447944	610514843	KOREA-L	300	50	0	
CY28447LFXC (7C828447A)	4447944	610514843	KOREA-L	500	50	0	
CY28447LFXC (7C828447A)	4447944	610514843	KOREA-L	1000	50	0	
STRESS: WETTING BALANCE							
CY28447LFXC (7C828447A)	4447944	610514267	KOREA-L	COMP	5	0	
CY28447LFXC (7C828447A)	4447944	610514268	KOREA-L	COMP	5	0	
CY28447LFXC (7C828447A)	4447944	610514843	KOREA-L	COMP	5	0	
STRESS: THERMAL SHOCK COND. B – 55C TO 125C							
CY28447LFXC (7C828447A)	4447944	610514268	KOREA-L	100	50	0	
CY28447LFXC (7C828447A)	4447944	610514268	KOREA-L	200	50	0	
STRESS: X-RAY							
CY28447LFXC (7C828447A)	4447944	610514267	KOREA-L	COMP	15	0	