Cypress Semiconductor
Package Qualification Report

QTP# 051902 VERSION 1.0
September 2005

52-Lead Thin Quad Flat Pack

(10 x 10 x 1.4mm)

Pb-Free, MSL3, 260°C Reflow

Amkor Bupyong Korea Assembly

CYPRESS TECHNICAL CONTACT FOR QUALIFICATION DATA:

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PACKAGE QUALIFICATION HISTORY

QUAL REPORT		DESCRIPTION OF QUALIFICATION PURPOSE		DATE COMP.
051902		52-Lead TQFP (10 x 10 x1.4mm) Pb-Free, MSL3, 260°C Reflow using G700L Mold Compound, Ablestik 3230 die attach, 100% Matte Tin Plating with Annealing Process (150°C, 1Hour) assembled at Amkor Bupyong Korea		Jul 05

MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION	
Package Designation:	AZ52
Package Outline, Type, or Name:	52-Lead Thin Quad Flat Pack
Mold Compound Name/Manufacturer:	Sumitomo G600L
Mold Compound Flammability Rating:	V-0 per UL94
Oxygen Rating Index:	N/A
Lead frame Material:	Copper
Lead Finish, Composition / Thickness:	100% Sn
Die Backside Preparation Method/Metallization:	Backgrinding
Die Separation Method:	Wafer Sawing
Die Attach Supplier:	Ablestik
Die Attach Material:	3230
Die Attach Method:	Epoxy
Bond Diagram Designation:	10-06584
Wire Bond Method:	Thermosonic
Wire Material/Size:	Au 1.0mil
Thermal Resistance Theta JA ^{o}C/W:	40°C/W
Package Cross Section Yes/No:	Yes
Assembly Process Flow:	001-04159
Name/Location of Assembly (prime) facility:	Anam Bupyong Korea (G)

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

RELIABILITY TESTS PERFORMED PER SPECIFICATION REQUIREMENTS

Stress/Test	Test Condition (Temp/Bias)	Result P/F
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
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
Temperature Cycle	MIL-STD-883C, Method 1010, Condition C, -65°C to 150C Precondition: JESD22 Moisture Sensitivity MSL3 192 Hrs 30°C/60%RH+3IR-Reflow, **260°C**+0, -5°C	P
Acoustic Microscopy Test	Cypress Spec. 25-00104	P
External Visual	Cypress Spec. 12-00292/12-00103	P
Solderability	Cypress Spec. 25-00018	P
Adhesion of Lead Finish	Cypress Spec. 25-00029	P
Wetting Balance	Cypress Spec. 25-20037	P

Reliability Test Data

QTP #: 051902

Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: ACOUSTIC, MSL3							
CY7B9945V (7B9945A)	4443839	610516294	KOREA-Q	COMP	15	0	
CY7B9945V (7B9945A)	4443839	610516295	KOREA-Q	COMP	15	0	
CY7B9945V (7B9945A)	4443839	610516296	KOREA-Q	COMP	15	0	
STRESS: ADHESION OF LEAD FINISH							
CY7B9945V (7B9945A)	4443839	610516294	KOREA-Q	COMP	3	0	
CY7B9945V (7B9945A)	4443839	610516295	KOREA-Q	COMP	3	0	
STRESS: EXTERNAL VISUAL							
CY7B9945V (7B9945A)	4443839	610516294	KOREA-Q	COMP	15	0	
CY7B9945V (7B9945A)	4443839	610516295	KOREA-Q	COMP	15	0	
STRESS: HI-ACCEL SATURATION TEST, 130C, 85%RH, 3.63V, PRE CONDITION 192 HR 30C/60%RH, MSL3							
CY7B9973V (7B9973A)	4121888	610518678	KOREA-Q	128	49	0	
CY7B9973V (7B9973A)	4121888	610518679	KOREA-Q	128	50	0	
STRESS: PRESSURE COOKER TEST, 121C, 100%RH, PRE CONDITION 192 HR 30C/60%RH, MSL3							
CY7B9945V (7B9945A)	4443839	610516294	KOREA-Q	168	50	0	
CY7B9945V (7B9945A)	4443839	610516294	KOREA-Q	288	50	0	
STRESS: SOLDERABILITY							
CY7B9945V (7B9945A)	4443839	610516294	KOREA-Q	COMP	3	0	
CY7B9945V (7B9945A)	4443839	610516295	KOREA-Q	COMP	3	0	
STRESS: TC COND. C -65C TO 150C, PRE CONDITION 192 HR 30C/60%RH, MSL3							
CY7B9945V (7B9945A)	4443839	610516294	KOREA-Q	300	46	0	
CY7B9945V (7B9945A)	4443839	610516294	KOREA-Q	500	46	0	
CY7B9945V (7B9945A)	4443839	610516295	KOREA-Q	300	50	0	
CY7B9945V (7B9945A)	4443839	610516295	KOREA-Q	500	50	0	
CY7B9945V (7B9945A)	4443839	610516296	KOREA-Q	300	50	0	
CY7B9945V (7B9945A)	4443839	610516296	KOREA-Q	500	50	0	
STRESS: WETTING BALANCE							
CY7B9945V (7B9945A)	4443839	610516294	KOREA-Q	COMP	5	0	
CY7B9945V (7B9945A)	4443839	610516295	KOREA-Q	COMP	5	0	