

Cypress Semiconductor Package Qualification Report

**QTP# 034703 VERSION 1.0
April 2004**

**120-lead Thin Quad Flat Pack
14 x 14 x 1.4mm with Heat Slug, MSL3, 220C Reflow
Amkor-Seoul, Korea Assembly**

CYPRESS TECHNICAL CONTACT FOR QUALIFICATION DATA:

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Principal Reliability Engineer
(408) 943-2675

PACKAGE QUALIFICATION HISTORY

QUAL REPORT	DESCRIPTION OF QUALIFICATION PURPOSE	DATE COMP.
034703	120-lead TQFP (14mm x 14mm x 1.4mm) with Heat Slug, MSL3, 220C Reflow, using G700L Mold Compound and 3230 Epoxy assembled at Amkor-Bupyong, Korea, -K1	Mar 04

MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION	
Package Designation:	A120
Package Outline, Type, or Name:	120-lead Thin Quad Flat Pack (TQFP)
Mold Compound Name/Manufacturer:	G700L
Mold Compound Flammability Rating:	V-O per UL 94
Oxygen Rating Index:	N/A
Lead Frame Material:	Copper
Lead Finish, Composition / Thickness:	Sn/Pb 300-800 uinch
Die Backside Preparation Method/Metallization:	Grinding
Die Separation Method:	Sawing
Die Attach Supplier:	Ablestik
Die Attach Material:	3230
Bond Diagram Designation	10-05114
Wire Bond Method:	Thermosonic
Wire Material/Size:	Au 1.2 mil
Thermal Resistance Theta JA °C/W:	61.62 °C/W
Package Cross Section Yes/No:	No
Assembly Process Flow:	49-14999
Name/Location of Assembly (prime) facility:	Amkor-Seoul, Korea (K1) (SEOL-L)

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

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

RELIABILITY TESTS PERFORMED PER SPECIFICATION REQUIREMENTS

Stress/Test	Test Condition (Temp/Bias)	Result P/F
Acoustic Microscopy, MSL 3	Cypress Spec. 25-00104	P
Die Shear	Cypress Spec 12-00292	P
High Temperature Operating Life Early Failure Rate	Dynamic Operating Condition, Vcc Max = 3.8V, 150C	P
High Temperature Operating Life Latent Failure Rate	Dynamic Operating Condition, Vcc Max= 3.8V, 150C	P
High Accelerated Saturation Test (HAST)	130°C, 3.63V, 85%RH Precondition: JESD22 Moisture Sensitivity MSL 3 192 Hrs, 30C/60%RH+3IR-Reflow, 220°C+5, 0°C	P
High Temperature Storage	150C, no bias	P
Internal Visual	Cypress Spec 12-00292	P
Pressure Cooker	121°C, 100%RH Precondition: JESD22 Moisture Sensitivity MSL 3 192 Hrs, 30C/60%RH+3IR-Reflow, 220°C+5, 0°C	P
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
X-Ray	MIL-STD-883, Method 32012, Cypress Spec. 12-00292	P

Reliability Test Data

QTP #: 034703

<i>Device</i>	<i>Fab Lot #</i>	<i>Assy Lot #</i>	<i>Ass Loc</i>	<i>Duration</i>	<i>Samp</i>	<i>Rej</i>	<i>Failure Mechanism</i>
STRESS: ACOUSTIC, MSL3							
CYS25G0101DX (7B9532B)	4243999	610334714	SEOL-L	COMP	15	0	
CYS25G0101DX (7B9532B)	4243999	610334715	SEOL-L	COMP	15	0	
CYS25G0101DX (7B9532B)	4243999	610334716	SEOL-L	COMP	15	0	
STRESS: DIE SHEAR							
CYS25G0101DX (7B9532B)	4243999	610334714	SEOL-L	COMP	15	0	
CYS25G0101DX (7B9532B)	4243999	610334715	SEOL-L	COMP	15	0	
STRESS: HI-ACCEL SATURATION TEST (130C, 85%RH, 3.63V), PRE COND 192 HR 30C/60%RH, MSL3							
CYS25G0101DX (7B9532B)	4243999	610334714	SEOL-L	128	45	0	
CYS25G0101DX (7B9532B)	4243999	610334715	SEOL-L	128	45	0	
STRESS: HIGH TEMP DYNAMIC OPERATING LIFE-EARLY FAILURE RATE, 150C, 3.8V, Vcc Max							
CYWUSB6934 (7B6934A))	4318747	610336918/9/20	SEOL-L	48	795	0	
STRESS: HIGH TEMP DYNAMIC OPERATING LIFE-LATENT FAILURE RATE, 150C, 3.8V, Vcc Max							
CYWUSB6934 (7B6934A))	4318747	610336918/9/20	SEOL-L	168	269	0	
CYWUSB6934 (7B6934A))	4318747	610336918/9/20	SEOL-L	500	266	0	
STRESS: HIGH TEMP DYNAMIC OPERATING LIFE-EARLY FAILURE RATE, 150C, 7V, Vcc Max							
CY7C136 (7C136G)	2127990	610346637	TAIWN-G	48	999	0	
STRESS: HIGH TEMP DYNAMIC OPERATING LIFE-LATENT FAILURE RATE, 150C, 7.V, Vcc Max							
CY7C136 (7C136G)	2127990	610346637	TAIWN-G	80	120	0	
CY7C136 (7C136G)	2127990	610346637	TAIWN-G	500	120	0	
STRESS: HIGH TEMPERATURE STORAGE, 150C							
CYS25G0101DX (7B9532B)	4243999	610334714	SEOL-L	500	44	0	
CYS25G0101DX (7B9532B)	4243999	610334714	SEOL-L	1000	42	0	
STRESS: INTERNAL VISUAL							
CYS25G0101DX (7B9532B)	4243999	610334714	SEOL-L	COMP	5	0	
CYS25G0101DX (7B9532B)	4243999	610334715	SEOL-L	COMP	5	0	
STRESS: PRESSURE COOKER TEST (121C, 100%RH), PRE COND 192 HR 30C/60%RH							
CYS25G0101DX (7B9532B)	4243999	610334714	SEOL-L	168	45	0	
CYS25G0101DX (7B9532B)	4243999	610334715	SEOL-L	168	44	0	

Reliability Test Data

QTP #: 034703

Device	Fab Lot #	Assy Lot #	Ass Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: TC COND. C -65C TO 150C, PRECONDITION 192 HRS 30C/60%RH (MSL3)							
CYS25G0101DX (7B9532B)	4243999	610334714	SEOL-L	300	43	0	
CYS25G0101DX (7B9532B)	4243999	610334714	SEOL-L	500	43	0	
CYS25G0101DX (7B9532B)	4243999	610334715	SEOL-L	300	45	0	
CYS25G0101DX (7B9532B)	4243999	610334715	SEOL-L	500	45	0	
CYS25G0101DX (7B9532B)	4243999	610334716	SEOL-L	300	44	0	
CYS25G0101DX (7B9532B)	4243999	610334716	SEOL-L	500	44	0	
STRESS: X-RAY							
CYS25G0101DX (7B9532B)	4243999	610334714	SEOL-L	COMP	15	0	
CYS25G0101DX (7B9532B)	4243999	610334715	SEOL-L	COMP	15	0	