

Cypress Semiconductor Package Qualification Report

**QTP# 034102 VERSION 2.0
January, 2004**

**80-lead Thin Quad Flat Pack, Pb-Free
260C Solder Reflow Peak, MSL3
NEC Yamagata**

CYPRESS TECHNICAL CONTACT FOR QUALIFICATION DATA:

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Reliability Engineer
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PACKAGE QUALIFICATION HISTORY

QUAL REPORT	DESCRIPTION OF QUALIFICATION PURPOSE	DATE COMP.
034102	80ld Pb-Free TQFP, MSL3, 260C Solder Reflow Peak fabricated @ NEC Yamagata.	Nov 03

MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION	
Package Designation:	A80
Package Outline, Type, or Name:	80-lead Thin Quad Flat Pack (TQFP)
Mold Compound Name/Manufacturer:	Hitachi Chemical / CEL-9200HF9 (FxxGAT)
Mold Compound Flammability Rating:	V-O per UL 94
Oxygen Rating Index:	>28%
Lead Frame Material:	Copper
Lead Finish, Composition / Thickness:	Solder Plated, Sn-2.5Bi / 5 to 25 um
Die Backside Preparation Method/Metallization:	Grinding
Die Separation Method:	Dicing Saw
Die Attach Supplier:	Sumitomo Bakelite
Die Attach Material:	Ag paste
Bond Diagram Designation	10-05022
Wire Bond Method:	UNTC
Wire Material/Size:	Au 28μm
Thermal Resistance Theta JA °C/W:	70.38 °C/W
Package Cross Section Yes/No:	N/A
Assembly Process Flow:	NEC Yamagata UPD84705GK-612-9EU
Name/Location of Assembly (prime) facility:	NEC Yamagata

ELECTRICAL TEST / FINISH DESCRIPTION	
Test Location:	NEC Yamagata
Fault Coverage:	97%

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
Temperature Cycle	MIL-STD-883C, Method 1010, Condition C, -65°C to 150°C Precondition: JESD22 Moisture Sensitivity MSL 3 192 Hrs., 30°C/70%RH+3IR-Reflow, 260°C+5, -0°C	P
Pressure Cooker	121°C, 100%RH Precondition: JESD22 Moisture Sensitivity MSL 3 192 Hrs, 30C/70%RH+3IR-Reflow, 260°C+5, 0°C	P
High Accelerated Saturation Test (HAST)	130°C, 2.7V, 85%RH Precondition: JESD22 Moisture Sensitivity MSL 3 192 Hrs, 30C/70%RH+3IR-Reflow, 260°C+5, 0°C	P
Acoustic Microscopy, MSL 3	Cypress Spec. 25-00104	P
Adhesion of lead finish	Cypress Spec 25-00029	P
Die Shear	Cypress Spec 12-00292	P
External Visual	Cypress Spec. 12-00292	P
High Temperature Operating Life Early Failure Rate	Dynamic Operating Condition, Vcc Max =2.875V, 150°C	P
High Temperature Operating Life Latent Failure Rate	Dynamic Operating Condition, Vcc Max=2.875v, 150°C	P
High Temperature Storage	150C, no bias	P
Lead Integrity	Cypress Spec. 25-00004	P
Solderability	Cypress Spec. 25-00018	P
X-Ray	MIL-STD-883, Method 32012, Cypress Spec. 12-00292	P

Reliability Test Data

QTP #: 034102

Device	Fab Lot #	Assy Lot #	Ass Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: ACOUSTIC, MSL3							
CY7C68310-AC	RF35-7422A-1	0336K3901	NEC	COMP	15	0	
CY7C68310-AC	RF35-7422G-1	0337K3901	NEC	COMP	15	0	
CY7C68310-AC	RF35-7422H-1	0338K3901	NEC	COMP	15	0	
STRESS: ADHESION OF LEAD FINISH							
CY7C68310-AC	RF35-7422A-1	0336K3901	NEC	COMP	45	0	
CY7C68310-AC	RF35-7422G-1	0337K3901	NEC	COMP	45	0	
STRESS: DIE SHEAR							
CY7C68310-AC	RF36-8501		NEC	COMP	15	0	
STRESS: EXTERNAL VISUAL							
CY7C68310-AC	RF35-7422A-1	0336K3901	NEC	COMP	15	0	
CY7C68310-AC	RF35-7422G-1	0337K3901	NEC	COMP	15	0	
STRESS: HI-ACCEL SATURATION TEST (130C, 85%RH, 2.7V), PRE COND 192 HR 30C/70%RH, MSL3							
CY7C68310-AC	RF35-7422A-1	0336K3901	NEC	128	45	0	
STRESS: HIGH TEMP DYNAMIC OPERATING LIFE-EARLY FAILURE RATE, 150C, 2.875V, Vcc Max							
CY7C68310-AC	RF35-7422A-1	0336K3901	NEC	48	1000	0	
CY7C68310-AC	RF35-7422G-1	0337K3901	NEC	48	500	0	
STRESS: HIGH TEMP DYNAMIC OPERATING LIFE-LATENT FAILURE RATE, 150C, 2.875V, Vcc Max							
CY7C68310-AC	RF35-7422A-1	0336K3901	NEC	80	119	0	
CY7C68310-AC	RF35-7422A-1	0336K3901	NEC	500	119	0	
CY7C68310-AC	RF35-7422G-1	0337K3901	NEC	80	119	0	
CY7C68310-AC	RF35-7422G-1	0337K3901	NEC	500	119	0	
STRESS: HIGH TEMPERATURE STORAGE, 150C							
CY7C68310-AC	RF35-7422A-1	0336K3901	NEC	500	45	0	
STRESS: LEAD INTEGRITY							
CY7C68310-AC	RF35-7422A-1	0336K3901	NEC	500	45	0	
STRESS: PRESSURE COOKER TEST (121C, 100%RH), PRE COND 192 HR 30C/70%RH							
CY7C68310-AC	RF35-7422A-1	0336K3901	NEC	168	45	0	
CY7C68310-AC	RF35-7422A-1	0336K3901	NEC	288	45	0	
CY7C68310-AC	RF35-7422G-1	0337K3901	NEC	168	45	0	
CY7C68310-AC	RF35-7422G-1	0337K3901	NEC	288	45	0	

Reliability Test Data

QTP #: 034102

Device	Fab Lot #	Assy Lot #	Ass Loc	Duration	Samp	Rej	Failure Mechanism
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STRESS: SOLDERABILITY

CY7C68310-AC	RF35-7422A-1	0336K3901	NEC	COMP	38	0	
CY7C68310-AC	RF35-7422G-1	0337K3901	NEC	COMP	38	0	
CY7C68310-AC	RF35-7422H-1	0338K3901	NEC	COMP	38	0	

STRESS: X-RAY

CY7C68310-AC	RF35-7422A-1	0336K3901	NEC	COMP	15	0	
CY7C68310-AC	RF35-7422G-1	0337K3901	NEC	COMP	15	0	

STRESS: TC COND. C -65C TO 150C, PRECONDITION 192 HRS 30C/70%RH (MSL3)

CY7C68310-AC	RF35-7422A-1	0336K3901	NEC	300	45	0	
CY7C68310-AC	RF35-7422G-1	0337K3901	NEC	300	45	0	
CY7C68310-AC	RF35-7422H-1	0338K3901	NEC	300	45	0	