Cypress Semiconductor
Package Qualification Report

QTP# 050706 VERSION 1.0
March 2005

ALL Thin Quad Flat Pack (TQFP)

(1.4mm Thick)

MSL3, SnPb Lead Finish, 260C Reflow

ASEK- Taiwan Assembly

CYPRESS TECHNICAL CONTACT FOR QUALIFICATION DATA:

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PACKAGE QUALIFICATION HISTORY

QUAL REPORT		DESCRIPTION OF QUALIFICATION PURPOSE		DATE COMP.
034101		ALL TQFP, 1.4mm Thick, 100% Sn, MSL3, 260C Reflow, using Cel 9200THF Mold Compound and 8340 Epoxy and Matte Tin Plating assembled @ ASE Kaohsiung Taiwan		Mar 04
050706		ALL TQFP, 1.4mm Thick, SnPb Lead Finish, MSL3, 260C Reflow, using Cel 9200THF Mold Compound and 8340 Epoxy and Matte Tin Plating assembled @ ASE Kaohsiung Taiwan		Mar 05

MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION	
Package Designation:	A100
Package Outline, Type, or Name:	100-lead Thin Quad Flat Pack (TQFP)
Mold Compound Name/Manufacturer:	Cel 9200THF
Mold Compound Flammability Rating:	V-O per UL 94
Oxygen Rating Index:	None
Lead Frame Material:	Copper
Lead Finish, Composition / Thickness:	**Pure Sn**
Die Backside Preparation Method/Metallization:	Grinding
Die Separation Method:	Sawing
Die Attach Supplier:	Ablestik
Die Attach Material:	8340
Bond Diagram Designation	10-04115
Wire Bond Method:	Thermosonic
Wire Material/Size:	Au 1.2 mil
Thermal Resistance Theta JA °C/W:	46.7 °C/W
Package Cross Section Yes/No:	Yes
Assembly Process Flow:	49-41999
Name/Location of Assembly (prime) facility:	ASEK Taiwan (G)

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

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

MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION	
Package Designation:	A160
Package Outline, Type, or Name:	160-lead Thin Quad Flat Pack (TQFP)
Mold Compound Name/Manufacturer:	Cel 9200THF
Mold Compound Flammability Rating:	V-O per UL 94
Oxygen Rating Index:	None
Lead Frame Material:	Copper
Lead Finish, Composition / Thickness:	Pure Sn
Die Backside Preparation Method/Metallization:	Grinding
Die Separation Method:	Sawing
Die Attach Supplier:	Ablestik
Die Attach Material:	8340
Bond Diagram Designation	10-03710
Wire Bond Method:	Thermosonic
Wire Material/Size:	Au 1.3 mil
Thermal Resistance Theta JA °C/W:	32.80 °C/W
Package Cross Section Yes/No:	Yes
Assembly Process Flow:	49-41004
Name/Location of Assembly (prime) facility:	ASEK Taiwan (G)

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

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

MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION	
Package Designation:	A176
Package Outline, Type, or Name:	176-lead Thin Quad Flat Pack (TQFP)
Mold Compound Name/Manufacturer:	Cel 9200THF
Mold Compound Flammability Rating:	V-O per UL 94
Oxygen Rating Index:	None
Lead Frame Material:	Copper
Lead Finish, Composition / Thickness:	Pure Sn
Die Backside Preparation Method/Metallization:	Grinding
Die Separation Method:	Sawing
Die Attach Supplier:	Ablestik
Die Attach Material:	8340
Bond Diagram Designation	10-04266
Wire Bond Method:	Thermosonic
Wire Material/Size:	Au 1.2 mil
Thermal Resistance Theta JA °C/W:	30.39 °C/W
Package Cross Section Yes/No:	Yes
Assembly Process Flow:	49-41021
Name/Location of Assembly (prime) facility:	ASEK Taiwan (G)

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
Adhesion of Lead Finish	Cypress Spec 25-00029	P
External Visual	Cypress Spec 12-00292	P
High Accelerated Saturation Test (HAST)	130°C, 3.63V, 85%RH 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
Pressure Cooker	121°C, 100%RH Precondition: JESD22 Moisture Sensitivity MSL 3 192 Hrs, 30°C/60%RH+3IR-Reflow, **260**°C+5, 0°C	P
Solderability	Cypress Spec. 25-00018	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, **260**°C+5, -0°C	P
X-Ray	MIL-STD-883, Method 32012, Cypress Spec. 12-00292	P

Reliability Test Data

QTP #: 034101

Device	Fab Lot #	Assy Lot #	Ass Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: ACOUSTIC, MSL3							
CY7C1372B (7C1372B))	9244935	SWR#19136	TAIWN-G	COMP	15	0	
CY7B993V (7B993A)	4323867	610351300	TAIWN-G	COMP	15	0	
CY37128P160 (7C37637B)	8334828	610347535	TAIWN-G	COMP	15	0	
STRESS: ADHESION OF LEAD FINISH							
CY7C1372B (7C1372B))	9244935	SWR#19136	TAIWN-G	COMP	3	0	
CY7C0852V (7C08523A)	4328799	610346772	TAIWN-G	COMP	3	0	
STRESS: EXTERNAL VISUAL							
CY7C1372B (7C1372B))	9244935	SWR#19136	TAIWN-G	COMP	15	0	
CY7C0852V (7C08523A)	4328799	610346772	TAIWN-G	COMP	15	0	
STRESS: HI-ACCEL SATURATION TEST (130C, 85%RH, 3.63V), PRE COND 192 HR 30C/60%RH, MSL3							
CY7C1372B (7C1372B))	9244935	SWR#19136	TAIWN-G	128	43	0	
CY7B993V (7B993A)	4323867	610351300	TAIWN-G	128	44	0	
STRESS: INTERNAL VISUAL							
CY7C1372B (7C1372B))	9244935	SWR#19136	TAIWN-G	COMP	5	0	
CY7C0852V (7C08523A)	4328799	610346772	TAIWN-G	COMP	5	0	
STRESS: PRESSURE COOKER TEST (121C, 100%RH), PRE COND 192 HR 30C/60%RH							
CY7C1372B (7C1372B))	9244935	SWR#19136	TAIWN-G	168	47	0	
CY37128P160 (7C37637B)	8334828	610347535	TAIWN-G	168	49	0	
STRESS: SOLDERABILITY							
CY7C1372B (7C1372B))	9244935	SWR#19136	TAIWN-G	COMP	3	0	
CY7C0852V (7C08523A)	4328799	610346772	TAIWN-G	COMP	3	0	
STRESS: TC COND. C -65C TO 150C, PRECONDITION 192 HRS 30C/60%RH (MSL3)							
CY7C1372B (7C1372B))	9244935	SWR#19136	TAIWN-G	300	48	0	
CY7B993V (7B993A)	4323867	610351300	TAIWN-G	300	43	0	
CY37128P160 (7C37637B)	8334828	610347535	TAIWN-G	300	50	0	
CY37128P160 (7C37637B)	8334828	610347535	TAIWN-G	500	50	0	
CY37128P160 (7C37637B)	8334828	610347535	TAIWN-G	1000	47	0	
STRESS: X-RAY							
CY7C1372B (7C1372B))	9244935	SWR#19136	TAIWN-G	COMP	15	0	
CY7B993V (7B993A)	4323867	610351300	TAIWN-G	COMP	15	0	