

Cypress Semiconductor Package Qualification Report

QTP# 010803 VERSION 1.0

June, 2001

**48-lead (600mil) Plastic Dual-In-line (PDIP) Package
Alphatec (ALPHA-X)**

CYPRESS TECHNICAL CONTACT FOR QUALIFICATION DATA:

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Cypress Semiconductor
Package: 48-lead, Plastic Dual-In Line Package (PDIP)
Molding Compound: NITTO MP-8000CH
Assembly: Alphatec (ALPHA-X)

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PACKAGE QUALIFICATION HISTORY

Qual Report	Description of Qualification Purpose	Date Comp
010803	≤ 48.6-lead (600mil) PDIP package with ≤ 113 x 95 mils die size, MSL 1, at Alphatec with no die coat. (Transfer from Hyundai to Alphatec)	Mar 01

MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION

Package Designation:	P4865
Package Outline, Type, or Name:	48-lead Plastic Dual-In-Line Package (PDIP)
Mold Compound Name/Manufacturer:	NITTO MP-8000CH
Mold Compound Flammability Rating:	V-O per UL94
Oxygen Rating Index:	> 28%
Lead Frame Designation:	P
Lead Frame Material:	Copper
Lead Finish, Composition / Thickness:	Solder Plate 85%Sn, 15%Pb
Die Backside Preparation Method/Metallization:	N/A
Die Separation Method:	Wafer Saw
Die Attach Supplier:	Ablestik
Die Attach Material:	8361H
Die Attach Method:	Silver Epoxy
Bond Diagram Designation	10-02872
Wire Bond Method:	Thermosonic
Wire Material/Size:	Gold, 1.3mil
Thermal Resistance Theta JA °C/W:	50°C/W
Package Cross Section Yes/No:	N/A
Assembly Process Flow:	49-15027M
Name/Location of Assembly (prime) facility:	Aphatec (ALPHA-X)

ELECTRICAL TEST / FINISH DESCRIPTION

Test Location:	Aphatec (ALPHA-X)
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 Level 1 168 Hrs., 85°C/85%RH+ 3IR-Reflow, 220°C+ 5, -0°C	P
High Accelerated Saturation Test	130°C, 85%RH, 5.5V Precondition: JESD22 Moisture Sensitivity Level 1 128 Hrs., 85°C/85%RH+ 3IR-Reflow, 220°C+ 5, -0°C	P
Tj at HAST	162.9°C	P
Pressure Cooker	Cypress Spec 25-00047 Precondition: JESD22 Moisture Sensitivity Level 1 168 Hrs., 85°C/85%RH+ 3IR-Reflow, 220°C+ 5, -0°C	P
External Visual	Cypress Spec 12-00292	P
Internal Visual	Cypress Spec 25-00017	P
High Temperature Storage	165°C ± 5°C, No bias	P
Thermal Shock	125°C / -55°C	P
Solderability	Cypress Spec 25-00018	P
Die Shear	Cypress Spec 12-00292	P
Ball Shear	Cypress Spec 12-00292	P
Bond Pull	Cypress Spec 12-00292	P
X-Ray	Cypress Spec 12-00292	P
Acoustic Microscopy Test (C-SAM)	Cypress Spec 25-000104	P

Reliability Test Data

QTP #: 010803

<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: HI-ACCEL SATURATION TEST (130C, 85%RH, 5.5V) PRE COND 168 HR 85C/85%RH							
CY7C130-PC (7C130G)	2031817	610105665	CSPI-R	128	50	0	
STRESS: PRESSURE COOKER TEST (121C, 100%RH) PRE COND 168 HR 85C/85%RH							
CY7C130-PC (7C130G)	2031817	610105665	CSPI-R	168	50	0	
STRESS: THERMAL SHOCK 125C, -55C							
CY7C130-PC (7C130G)	2031817	610105665	CSPI-R	100	50	0	
CY7C130-PC (7C130G)	2031817	610105665	CSPI-R	200	50	0	
STRESS: HIGH TEMP STORAGAGE, PLASTIC, 165C							
CY7C130-PC (7C130G)	2031817	610105665	CSPI-R	336	50	0	
STRESS: EXTERNAL VISUAL							
CY7C130-PC (7C130G)	2031817	610105665	CSPI-R	COMP	15	0	
STRESS: INTERNAL VISUAL							
CY7C130-PC (7C130G)	2031817	610105665	CSPI-R	COMP	5	0	
STRESS: ACOUSTIC-MSL1							
CY7C130-PC (7C130G)	2031817	610105665	CSPI-R	COMP	150		
CY7C130-PC (7C130G)	2031817	610105664	CSPI-R	COMP	15	0	
CY7C130-PC (7C130G)	2031817	610105663	CSPI-R	COMP	15	0	
STRESS: SODERABILITY							
CY7C130-PC (7C130G)	2031817	610105665	CSPI-R	COMP	5	0	
STRESS: PHYSICAL DIMENSIONS							
CY7C130-PC (7C130G)	2031817	610105665	CSPI-R	COMP	5	0	
STRESS: X-RAY							
CY7C130-PC (7C130G)	2031817	610105665	CSPI-R	COMP	15	0	

Reliability Test Data

QTP #: 010803

<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: BALL SHEAR							
CY7C130-PC (7C130G)	2031817	610105665	CSPI-R	COMP	10	0	
CY7C130-PC (7C130G)	2031817	610105664	CSPI-R	COMP	10	0	
CY7C130-PC (7C130G)	2031817	610105663	CSPI-R	COMP	10	0	
STRESS: BOND PULL							
CY7C130-PC (7C130G)	2031817	610105663	CSPI-R	COMP	10	0	
CY7C130-PC (7C130G)	2031817	610105664	CSPI-R	COMP	10	0	
CY7C130-PC (7C130G)	2031817	610105665	CSPI-R	COMP	10	0	
STRESS: DIE SHEAR							
CY7C130-PC (7C130G)	2031817	610105665	CSPI-R	COMP	15	0	
CY7C130-PC (7C130G)	2031817	610105664	CSPI-R	COMP	15	0	
CY7C130-PC (7C130G)	2031817	610105663	CSPI-R	COMP	15	0	
STRESS: TC COND. C -65C TO 150C, PRECONDITION 168 HRS 85C/85%RH, (MSL1							
CY7C130-PC (7C130G)	2031817	610105665	CSPI-R	300	15	0	
CY7C130-PC (7C130G)	2031817	610105664	CSPI-R	300	15	0	
CY7C130-PC (7C130G)	2031817	610105663	CSPI-R	300	15	0	