

Cypress Semiconductor Package Qualification Report

**QTP# 012601 VERSION 1.0
September 2004**

**100-Ld Thin Quad Flat Pack (TQFP) Package
(14 x 20 x 1.4mm)
Cypress Philippines (CML-R) Assembly**

CYPRESS TECHNICAL CONTACT FOR QUALIFICATION DATA:

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PACKAGE QUALIFICATION HISTORY

QUAL REPORT	DESCRIPTION OF QUALIFICATION PURPOSE	DATE COMP.
97227	100-lead (14 x 20 x 1.4mm) TQFP package	Jun 97
98075	100-lead (14 x 20 x 1.4mm) (TQFP) package	Apr 98
98231	100-lead (14x 20 x 1.4mm) TQFP package	Sep 99
012601	Snap Cure Epoxy Qual for ALL packages assembled at CML-R	Sep 01

MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION	
Package Designation:	A100
Package Outline, Type, or Name:	100 Lead Thin Quad Flat Pack
Mold Compound Name/Manufacturer:	Hitachi CEL9200
Mold Compound Flammability Rating:	V-O per UL94
Oxygen Rating Index:	>28%
Lead Frame Material:	Copper
Lead Finish, Composition / Thickness:	85%Sn, 15%Pb, 300-800 microns
Die Backside Preparation Method/Metallization:	Backgrind to 14 mil thickness
Die Separation Method:	Wafer saw
Die Attach Supplier:	Dexter
Die Attach Material:	QMI 509
Bond Diagram Designation	10-03397
Wire Bond Method:	Thermosonic
Wire Material/Size:	Au, 1.0 mil
Thermal Resistance Theta JA °C/W:	48.2°C/W
Package Cross Section Yes/No:	Yes
Assembly Process Flow:	11-20005
Name/Location of Assembly (prime) facility:	Cypress Philippines (CML-R)

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 REQUIREMENT

Stress/Test	Test Condition (Temp/Bias)	Result P/F
Acoustic Microscopy Test (C-SAM)	Cypress Spec 25-00104	P
Ball Shear	Cypress Spec 12-00292	P
Bond Pull	Cypress Spec 12-00292	P
Die Shear	Cypress Spec 12-00292	P
External Visual	Cypress Spec 25-00038	P
High Accelerated Saturation Test	130°C, 3.63V 140°C, 3.63V Precondition: JESD22 Moisture Sensitivity Level 3 192 Hrs., 30°C/60%RH+3IR-Reflow, 220°C+5, -0°C	P
High Temperature Storage	165°C, no bias	P
Internal Visual	Cypress Spec 25-00017	P
Physical Dimensions	Cypress Spec. 25-00031	
Pressure Cooker	Precondition: JESD22 Moisture Sensitivity MSL 3 192 Hrs, 30°C/60%RH+3IR-220° C+5, 0°C 121°C, 100%RH	P
Thermal Shock	MIL-STD-883C, Method 1011, Condition B, -55°C, +125°C	P
Temperature Cycle	MIL-STD-883C, Method 1010, Condition C, -65°C to 150°C Precondition: JESD22 Moisture Sensitivity Level 3 192 Hrs., 30°C/60%RH+3IR-Reflow, 220°C+5, -0°C	P
SEM X-Section	MIL-STD-883, Method 883-2018-2	P
Solderability, Steam Aged	Cypress Spec. 25-00018	P
X-Ray	Cypress Spec 12-000292	P

Reliability Test Data

QTP #: 97227

<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: AGE BALL SHEAR							
CY7C1335-AC	4650575	619702650	CSPI-R	COMP	10	0	
STRESS: BOND PULL							
CY7C1335-AC	4650575	619702650	CSPI-R	COMP	10	0	
STRESS: C-SAM							
CY7C1335-AC	4650575	619702650	CSPI-R	192H	15	0	
CY7C1335-AC	4650575	619702651	CSPI-R	192H	15	0	
CY7C1335-AC	4650575	619702652	CSPI-R	192H	15	0	
STRESS: PHYSICAL DIMENSIONS							
CY7C1335-AC	4650575	619702650	CSPI-R	COMP	5	0	
STRESS: DIE SHEAR							
CY7C1335-AC	4650575	619702650	CSPI-R	COMP	15	0	
STRESS: EXTERNAL VISUAL							
CY7C1335-AC	4650575	619702650	CSPI-R	COMP	15	0	
STRESS: HI-ACCEL SATURATION TEST, 140C, 3.3V, PRECOND. 192 HRS 30C/60%RH, MSL3							
CY7C1335-AC	4650575	619702650	CSPI-R	128	43	0	
CY7C1335-AC	4650575	619702650	CSPI-R	128	44	0	
STRESS: HIGH TEMPERATURE STORAGE, 165C, NO BIAS							
CY7C1335-AC	4650575	619702650	CSPI-R	336	45	0	
STRESS: INTERNAL VISUAL							
CY7C1335-AC	4650575	619702650	CSPI-R	COMP	5	0	
STRESS: SOLDERABILITY							
CY7C1335-AC	4650575	619702650	CSPI-R	COMP	5	0	
STRESS: TC COND. C, -65 TO 150C, PRECOND. 192 HRS 30C/60%RH, MSL3							
CY7C1335-AC	4650575	619702650	CSPI-R	300	45	0	
CY7C1335-AC	4650575	619702650	CSPI-R	300	38	0	
CY7C1335-AC	4650575	619702650	CSPI-R	300	28	0	
STRESS: THERMAL SHOCK, CONDITION B							
CY7C1335-AC	4650575	619702650	CSPI-R	100	45	0	
CY7C1335-AC	4650575	619702650	CSPI-R	200	45	0	
STRESS: X-RAY							
CY7C1335-AC	4650575	619702650	CSPI-R	COMP	15	0	
CY7C1335-AC	4650575	619702652	CSPI-R	COMP	15	0	

Reliability Test Data

QTP #: 98075

Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
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STRESS: HI-ACCEL SATURATION TEST, 140C, 85%RH, 3.63V, PRE COND 192 HR 30C/60%RH, MSL3

CY7C1329-AC (7C1329A)	4716332	619708021	CSPI-R	128	48	0	
CY7C1334-AC (7C1334A)	4751427	619801906	CSPI-R	128	44	0	

STRESS: BOND PULL

CY7C1329-AC (7C1329A)	4716332	619708021	CSPI-R	COMP	10	0	
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STRESS: DIE SHEAR

CY7C1329-AC (7C1329A)	4716332	619708021	CSPI-R	COMP	15	0	
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STRESS: BALL SHEAR

CY7C1329-AC (7C1329A)	4716332	619708021	CSPI-R	COMP	10	0	
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STRESS: EXTERNAL VISUAL

CY7C1329-AC (7C1329A)	4716332	619708021	CSPI-R	COMP	15	0	
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STRESS: INTERNAL VISUAL

CY7C1329-AC (7C1329A)	4716332	619708021	CSPI-R	COMP	5	0	
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STRESS: ACOUSTIC

CY7C1329-AC (7C1329A)	4716332	619708021	CSPI-R	COMP	15	0	
CY7C1329-AC (7C1329A)	4732229	619708099	CSPI-R	COMP	15	0	
CY7C1329-AC (7C1329A)	4716346	619708050	CSPI-R	COMP	15	0	

STRESS: HIGH TEMPERATURE STORAGE, 165C

CY7C1329-AC (7C1329A)	4716346	619708050	CSPI-R	336	48	0	
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STRESS: THERMAL SHOCK

CY7C1334-AC (7C1334A)	4745052	619801352	CSPI-R	100	48	0	
CY7C1334-AC (7C1334A)	4745052	619801352	CSPI-R	200	47	0	

STRESS: X-RAY

CY7C1329-AC (7C1329A)	4716332	619708021	CSPI-R	COMP	15	0	
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STRESS: TC CONDITION C, 150C TO -65C, PRE COND 192 HR 30C/60%RH, MSL3

CY7C1329-AC (7C1329A)	4716332	619708021	CSPI-R	300	48	0	
CY7C1329-AC (7C1329A)	4716332	619708021	CSPI-R	1000	48	0	
CY7C1329-AC (7C1329A)	4732229	619708099	CSPI-R	300	48	0	
CY7C1329-AC (7C1329A)	4732229	619708099	CSPI-R	1000	48	0	
CY7C1329-AC (7C1329A)	4716346	619708050	CSPI-R	300	48	0	
CY7C1329-AC (7C1329A)	4716346	619708050	CSPI-R	1000	48	0	

Reliability Test Data

QTP #: 98231

Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: ACOUSTIC, MSL3							
CY7C1350A-AC (7C1350A)	4815594	619807192	CSPI-R	COMP	15	0	
CY7C1350A-AC (7C1350A)	4812385	619805289	CSPI-R	COMP	15	0	
STRESS: HI-ACCEL SATURATION TEST, 130C, 85%RH, 3.63V, PRE COND 192 HR 30C/60%RH, MSL3							
CY7C1350A-AC (7C1350A)	4812418	619805770	CSPI-R	128	44	0	
CY7C1350A-AC (7C1350A)	4812418	619805770	CSPI-R	256	44	0	
STRESS: BOND PULL							
CY7C1350A-AC (7C1350A)	4812385	619805289	CSPI-R	COMP	10	0	
STRESS: BALL SHEAR							
CY7C1350A-AC (7C1350A)	4812385	619805289	CSPI-R	COMP	10	0	
STRESS: INTERNAL VISUAL							
CY7C1350A-AC (7C1350A)	4812418	619805770	CSPI-R	COMP	3	0	
STRESS: HIGH TEMPERATURE STORAGE, 165C							
CY7C1350A-AC (7C1350A)	4812418	619805769	CSPI-R	336	45	0	
STRESS: THERMAL SHOCK -55-150C							
CY7C1350A-AC (7C1350A)	4812418	619805769	CSPI-R	100	45	0	
CY7C1350A-AC (7C1350A)	4812418	619805769	CSPI-R	200	45	0	
STRESS: X-RAY							
CY7C1350A-AC (7C1350A)	4812418	619805770	CSPI-R	COMP	15	0	
CY7C1350A-AC (7C1350A)	4815594	619807192	CSPI-R	COMP	15	0	
STRESS: TC CONDITION C, 150C TO -65C,), PRE COND 192 HR 30C/60%RH, MSL3							
CY7C1350A-AC (7C1350A)	4812418	619805770	CSPI-R	300	45	0	
CY7C1350A-AC (7C1350A)	4812418	619805769	CSPI-R	300	45	0	
CY7C1350A-AC (7C1350A)	4815594	619807192	CSPI-R	300	45	0	

Reliability Test Data

QTP #: 012601

<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>
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STRESS: ACOUSTIC, MSL3

CY7C1324L (7C1324A)	4114181	610121475	CSPI-R	COMP	30	0	
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STRESS: TC CONDITION C, 150C TO -65C,), PRE COND 192 HR 30C/60%RH, MSL3

CY7C1324L (7C1324A)	4114181	610121475	CSPI-R	300	124	0	
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