

Cypress Semiconductor Mold Compound Qualification Report

**QTP# 004103 VERSION 1.0
February, 2001**

**Hitachi CEL 9200CY IV77
28-lead SOJ/28-lead / Narrow SOIC Package Level 3
Cypress Philippines**

CYPRESS TECHNICAL CONTACT FOR QUALIFICATION DATA:

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PRODUCT QUALIFICATION HISTORY

QUAL REPORT	DESCRIPTION OF QUALIFICATION PURPOSE	DATE COMP.
99151	28-lead Narrow SOIC, MSL 1 Package Qualification	Jun 99
000405	28-lead SOJ, MSL1 Package Qualification	Mar 00
002602	≤28-lead SOJ and SNC, MSL 3, Snap Cure Epoxy, Qualification	Dec 00
004103	≤28-lead SOJ and SNC, MSL 3, Hitachi CEL 9200CY IV77	Dec 00

MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION	
Package Designation:	V2835
Package Outline, Type, or Name:	28-lead Plastic Small Outline J-Bend (SOJ)
Mold Compound Name/Manufacturer:	Hitachi CEL 9200CY IV77
Mold Compound Flammability Rating:	V-O per UL94
Oxygen Rating Index:	>28%
Lead Frame Material:	Copper Alloy
Lead Finish, Composition / Thickness:	85% Tin - 15% Pb
Die Backside Preparation Method/Metallization:	N/A
Die Separation Method:	Wafer Saw
Die Attach Supplier:	Dexter
Die Attach Material:	QMI 509
Bond Diagram Designation	10-03399
Wire Bond Method:	Ultrasonic
Wire Material/Size:	Gold/ 1.0 mil
Thermal Resistance Theta JA °C/W:	59°C/W
Package Cross Section Yes/No:	N/A
Assembly Process Flow:	11-20004
Name/Location of Assembly (prime) facility:	Cypress Philipines (CSPI-R)

ELECTRICAL TEST / FINISH DESCRIPTION	
Test Location:	Cypress Philipines (CSPI-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
Temperature Cycle	1) QTP #004103, qtp #002602 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 2) QTP #000405, QTP #99151 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	1) QTP #004103, QTP #002602 130°C, 85%RH, 5.5V Precondition: JESD22 Moisture Sensitivity Level 3 192 Hrs., 30°C/60%RH+3IR-Reflow, 220°C+5, -0°C 2) QTP #000405, QTP #99151 130°C/140°C, 85%RH, 5.5V Precondition: JESD22 Moisture Sensitivity Level 1 168 Hrs., 85°C/85%RH+3IR-Reflow, 220°C+5, -0°C	P
Pressure Cooker Test	1) QTP #004103, QTP #002603 No bias, 121°C, 100%, 30 PSIA Precondition: JESD22 Moisture Sensitivity Level 3 192 Hrs., 30°C/60%RH+3IR-Reflow, 220°C+5, -0°C 2) QTP #000405 No bias, 121°C, 100%, 30 PSIA Precondition: JESD22 Moisture Sensitivity Level 1 168 HRS 85C/85%RH +3IR-Reflow, 220°C+5, -0°C	P
Internal Visual	1) QTP #002602 Cypress Specification 25-00017	P
External Visual	1) QTP #99151 Cypress Specification 12-00292/12-00103	P
Lead Scan/Mark Scan	1) QTP #99151 Cypress Specification 12-00292	P
Physical Dimensions	1) QTP #99151 Cypress Specification 25-00031	P

RELIABILITY TESTS PERFORMED PER SPECIFICATION REQUIREMENT (continuation)

Stress/Test	Test Condition (Temp/Bias)	Result P/F
Solderability	1) QTP #99151 Cypress Specification 25-00018	P
High Temperature Storage	1) QTP #004103, QTP #99151 165°C, no bias	P
Ball Shear	1) QTP #99151 Cypress Spec 24-00018	P
Bond Pull	1) QTP #99151 Cypress Spec 24-00002	P
Die Shear	1) QTP #99151 Cypress Specification 12-00292	P
Thermal Shock	1) QTP #99151 Cypress Spec 25-00014	P
X-Ray	1) QTP #004103, QTP #99151 MIL-STD-883-2012	P
Acoustic Microscopy Test (C-SAM)	1) QTP #99151, QTP #000405, QTP #002602 Cypress Spec 25-00104	P

Reliability Test Data

QTP #: 004103

<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 192 HR 30C/60%RH							
CY7C199-VC (7C1599G)	4034798	610042115M	CSPI-R	128	47	0	
CY7C199-VC (7C1599G)	4034798	610042115M1	CSPI-R	128	45	0	
STRESS: HIGH TEMPERATURE STORAGE, PLASTIC, 150C							
CY7C199-VC (7C1599G)	4034798	610042115M	CSPI-R	500	500		
STRESS: PRESSURE COOKER TEST (121C, 100%RH), PRE COND 192 HR 30C/60%RH							
CY7C199-VC (7C1599G)	4034798	610042115M	CSPI-R	168	51	0	
CY7C199-VC (7C1599G)	4034798	610042115M1	CSPI-R	168	49	0	
STRESS: TC COND. C -65C TO 150C, PRECONDITION 192 HRS 30C/60%RH (MSL3)							
CY7C199-VC (7C1599G)	4034798	610042115M	CSPI-R	300	44	0	
CY7C199-VC (7C1599G)	4034798	610042115M	CSPI-R	500	44	0	
CY7C199-VC (7C1599G)	4034798	610042115M	CSPI-R	1000	44	0	
CY7C199-VC (7C1599G)	4034798	610042115M1	CSPI-R	300	44	0	
CY7C199-VC (7C1599G)	4034798	610042115M1	CSPI-R	500	44	0	
CY7C199-VC (7C1599G)	4034798	610042115M1	CSPI-R	1000	44	0	
STRESS: X-RAY							
CY7C199-VC (7C1599G)	4034798	610042115M	CSPI-R	COMP	15	0	
CY7C199-VC (7C1599G)	4034798	610042115M1	CSPI-R	COMP	15	0	

Reliability Test Data

QTP #: 002602

Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: C-SAM							
CY7C199-VC (7C1599G)	402115	610027629	CSPI-R	COMP	15	0	
CY7C199-VC (7C1599G)	402115	610027629M	CSPI-R	COMP	15	0	
CY7C199-VC (7C1599G)	402115	610027629M1	CSPI-R	COMP	15	0	
STRESS: HI-ACCEL SATURATION TEST (130C, 85%RH, 5.5V)PRE COND 192 HR 30C/60%RH							
CY7C199-VC (7C1599G)	402115	610027629	CSPI-R	128	45	0	
CY7C199-VC (7C1599G)	402115	610027629M	CSPI-R	128	45	0	
STRESS: INTERNAL VISUAL							
CY7C199-VC (7C1599G)	402115	610027629	CSPI-R	COMP	5	0	
CY7C199-VC (7C1599G)	402115	610027629M	CSPI-R	COMP	5	0	
STRESS: PRESSURE COOKER TEST (121C, 100%RH), PRE COND 192HRS 30C/60%RH							
CY7C199-VC (7C1599G)	402115	610027629	CSPI-R	168	45	0	
CY7C199-VC (7C1599G)	402115	610027629M	CSPI-R	168	45	0	
STRESS: TC CONDITION C, -65C TO 150C, PRE COND. 192 HRS 30C/60% RH (MSL3)							
CY7C199-VC (7C1599G)	402115	610027629	CSPI-R	300	50	0	
CY7C199-VC (7C1599G)	402115	610027629M	CSPI-R	300	50	0	
CY7C199-VC (7C1599G)	402115	610027629M1	CSPI-R	300	50	0	

RELIABILITY TEST DATA

QTP#: 000405

DEVICE	ASSY-LOC	FABLOT#	ASSYLOT#	DURATION	S/S	REJ	FAIL MODE
STRESS: ACOUSTIC LEVEL 1							
CY7C199-VC(7C1599G)	CSPI-R	4942482	619936486	COMP	15	0	
CY7C199-VC(7C1599G)	CSPI-R	4942484	619936849	COMP	15	0	
CY7C199-VC(7C1599G)	CSPI-R	4942482	619936855	COMP	15	0	
CY7C199-VC(7C1599G)	CSPI-R	4942482	619936859	COMP	15	0	
CY7C199-VC(7C1599G)	CSPI-R	4942482	619936895	COMP	15	0	
CY7C199-VC(7C1599G)	CSPI-R	4942483	619936955	COMP	15	0	
CY7C199-VC(7C1599G)	CSPI-R	4942483	619936956	COMP	15	0	
CY7C199-VC(7C1599G)	CSPI-R	4942483	619936957	COMP	15	0	
CY7C199-VC(7C1599G)	CSPI-R	4942483	619936966	COMP	15	0	
CY7C199-VC(7C1599G)	CSPI-R	4942488	619937048	COMP	15	0	
STRESS: HI-ACCEL SATURATION TEST (130C/85%RH/5.5V), PRECOND. 168 HRS 85C/85%RH							
CY7C199-VC(7C1599G)	CSPI-R	4942482	619936486	128	45	0	
CY7C199-VC(7C1599G)	CSPI-R	4942484	619936849	128	46	0	
CY7C199-VC(7C1599G)	CSPI-R	4942482	619936855	128	45	0	
STRESS: PRESSURE COOKER (121C,100%RH)							
CY7C199-VC(7C1599G)	CSPI-R	4942483	619936955	168	50	0	
CY7C199-VC(7C1599G)	CSPI-R	4942483	619936957	168	50	0	
CY7C199-VC(7C1599G)	CSPI-R	4942464	619939305	168	50	0	
STRESS: TC COND. C, -65 TO 150C, PRECOND. 168 HRS 85C/85%RH (MSL 1)							
CY7C199-VC(7C1599G)	CSPI-R	4942482	619936486	300	48	0	
CY7C199-VC(7C1599G)	CSPI-R	4942484	619936849	300	50	0	
CY7C199-VC(7C1599G)	CSPI-R	4942482	619936855	300	50	0	
CY7C199-VC(7C1599G)	CSPI-R	4942482	619936859	300	50	0	
CY7C199-VC(7C1599G)	CSPI-R	4942482	619936895	300	50	0	
CY7C199-VC(7C1599G)	CSPI-R	4942483	619936955	300	47	0	
CY7C199-VC(7C1599G)	CSPI-R	4942483	619936956	300	50	0	
CY7C199-VC(7C1599G)	CSPI-R	4942483	619936957	300	50	0	
CY7C199-VC(7C1599G)	CSPI-R	4942483	619936966	300	50	0	
CY7C199-VC(7C1599G)	CSPI-R	4942488	619937048	300	49	0	

RELIABILITY TEST DATA

QTP#: 99151

DEVICE	ASSY-LOC	FABLOT#	ASSYLOT#	DURATION	S/S	REJ	FAIL MODE
STRESS: BALL SHEAR							
CY6264-SNC(7C6264N)	CSPI-R	2847994	619907866	COMP	10	0	
STRESS: BOND PULL							
CY6264-SNC(7C6264N)	CSPI-R	2847994	619907866	COMP	10	0	
STRESS: PHYSICAL DIMENSIONS							
CY6264-SNC(7C6264N)	CSPI-R	2847994	619907866	COMP	5	0	
STRESS: DIE SHEAR							
CY6264-SNC(7C6264N)	CSPI-R	2847994	619907866	COMP	10	0	
STRESS: EXTERNAL VISUAL							
CY6264-SNC(7C6264N)	CSPI-R	2847994	619907866	COMP	15	0	
STRESS: HI-ACCEL SATURATION TEST (140C/85%RH/5.5V), PRECOND. 168 HRS 85C/85%RH							
CY6264-SNC(7C6264N)	CSPI-R	2847994	619907866	128	50	0	
STRESS: HIGH TEMPERATURE STORAGE (165C, NO BIAS)							
CY6264-SNC(7C6264N)	CSPI-R	2847994	619907866	336	50	0	
CY6264-SNC(7C6264N)	CSPI-R	2847994	619907866	1000	50	0	
STRESS: LEAD SCAN							
CY6264-SNC(7C6264N)	CSPI-R	2847994	619907866	COMP	300	0	
STRESS: MARK SCAN							
CY6264-SNC(7C6264N)	CSPI-R	2847994	619907866	COMP	300	0	
STRESS: STEAM AGED SOLDERABILITY							
CY6264-SNC(7C6264N)	CSPI-R	2847994	619907866	COMP	3	0	
STRESS: TC COND. C, -65 TO 150C, PRECOND. 168 HRS 85C/85%RH							
CY6264-SNC(7C6264N)	CSPI-R	2847994	619907866	300	50	0	
CY6264-SNC(7C6264N)	CSPI-R	2847994	619907866M	300	50	0	
CY6264-SNC(7C6264N)	CSPI-R	2847994	619907866M1	300	50	0	
STRESS: THERMAL SHOCK							
CY6264-SNC(7C6264N)	CSPI-R	2847994	619907866	100	60	0	
CY6264-SNC(7C6264N)	CSPI-R	2847994	619907866	200	60	0	
STRESS: X-RAY INSPECTION							
CY6264-SNC(7C6264N)	CSPI-R	2847994	619907866	COMP	15	0	
CY6264-SNC(7C6264N)	CSPI-R	2847994	619907866M	COMP	15	0	