

# **Cypress Semiconductor Snap Cure Epoxy Qualification Report**

**QTP# 002602 VERSION 1.1  
January, 2001**

**28-lead SOJ and Narrow SOIC Package  
Level 3  
Cypress Philippines (CSPI-R)**

**CYPRESS TECHNICAL CONTACT FOR QUALIFICATION DATA:**

Ed Russell  
Reliability Director  
(408) 432-7069

Kim Ngan Nguyen  
Staff Reliability Engineer  
(408) 943-2136

**PRODUCT QUALIFICATION HISTORY**

<b>QUAL REPORT</b>	<b>DESCRIPTION OF QUALIFICATION PURPOSE</b>	<b>DATE COMP.</b>
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

<b>MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION</b>	
<b>Package Designation:</b>	V2835
<b>Package Outline, Type, or Name:</b>	28-lead Plastic Small Outline J-Bend (SOJ)
<b>Mold Compound Name/Manufacturer:</b>	Hitachi CEL 9200
<b>Mold Compound Flammability Rating:</b>	V-O per UL94
<b>Oxygen Rating Index:</b>	> 28%
<b>Lead Frame Designation:</b>	V
<b>Lead Frame Material:</b>	CDA 199-SH
<b>Lead Finish, Composition / Thickness:</b>	85% - 15% Tin
<b>Die Backside Preparation Method/Metallization:</b>	N/A
<b>Die Separation Method:</b>	Wafer Saw
<b>Die Attach Supplier:</b>	Dexter
<b>Die Attach Material:</b>	QMI509
<b>Bond Diagram Designation</b>	10-03399
<b>Wire Bond Method:</b>	Thermosonic
<b>Wire Material/Size:</b>	Gold/ 1.0mil
<b>Thermal Resistance Theta JA °C/W:</b>	59
<b>Package Cross Section Yes/No:</b>	N/A
<b>Assembly Process Flow:</b>	11-20004M
<b>Name/Location of Assembly (prime) facility:</b>	Cypress Philipines (CSPI-R)

<b>ELECTRICAL TEST / FINISH DESCRIPTION</b>	
<b>Test Location:</b>	Cypress Philipines (CSPI-R)
<b>Fault Coverage:</b>	100%

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

**RELIABILITY TESTS PERFORMED PER SPECIFICATION REQUIREMENT**

<b>Stress/Test</b>	<b>Test Condition (Temp/Bias)</b>	<b>Result</b>
Temperature Cycle	MIL-STD-883C, Method 1010, Condition C, -65°C to 150°C (002602) -40°C to 125°C (002602) Precondition: JESD22 Moisture Sensitivity Level 3 192 Hrs., 30°C/60%RH+ 3IR-Reflow, 220°C+ 5, -0°C	P
Temperature Cycle	MIL-STD-883C, Method 1010, Condition C, -65°C to 150°C (000405) Precondition: JESD22 Moisture Sensitivity Level 1 (99151) 168 Hrs., 85°C/85%RH+ 3IR-Reflow, 220°C+ 5, -0°C	P
High Accelerated Saturation Test	140°C, 85%RH, 5.5V (99151) 130C, 85%RH, 5.5V (000405) 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 (002602) Precondition: JESD22 Moisture Sensitivity Level 3 192 Hrs., 30°C/60%RH+ 3IR-Reflow, 220°C+ 5, -0°C	P
Internal Visual	Cypress Specification 25-00017 (002602)	P
External Visual	Cypress Specification 12-00292/12-00103 (99151)	P
Lead Scan/Mark Scan	Cypress Specification 12-00292 (99151)	P
Physical Dimensions	Cypress Specification 25-00031 (99151)	P
Solderability	Cypress Specification 25-00018 (99151)	P
High Temp Storage	165°C, no bias (99151)	P
Pressure Cooker Test	No bias, 121°C, 100%, 30 PSIA (002602) Precondition: JESD22 Moisture Sensitivity Level 3 192 Hrs., 30°C/60%RH+ 3IR-Reflow, 220°C+ 5, -0°C	p
Pressure Cooker Test	No bias, 121°C, 100%, 30 PSIA (000405) Precondition: JESD22 Moisture Sensitivity Level 1 168 HRS 85C/85%RH + 3IR-Reflow, 220°C+ 5, -0°C	P
Ball Shear	Cypress Spec 24-00018 (99151)	P
Bond Pull	Cypress Spec 24-00002 (99151)	P
Die Shear	Cypress Specification 12-00292 (99151)	P
Thermal Shock	Cypress Spec 25-00014 (99151)	P
X-Ray	MIL-STD-883-2012 (99151)	P
Acoustic Microscopy Test (C-SAM)	Cypress Spec 25-00104 Level 1 (99151/000405) Level 3 (002602))	P

## Reliability Test Data

QTP #: 002602

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

**RELIABILITY TEST DATA**

QTP#: 000405

DEVICE	ASSY-LOC	FABLOT#	ASSYLOT#	DURATION	S/S	REJ	FAIL MODE
<b>STRESS: ACOUSTIC LEVEL 1</b>							
CY7C199-VC	CSPI-R	4942482	619936486	COMP	15	0	
CY7C199-VC	CSPI-R	4942484	619936849	COMP	15	0	
CY7C199-VC	CSPI-R	4942482	619936855	COMP	15	0	
CY7C199-VC	CSPI-R	4942482	619936859	COMP	15	0	
CY7C199-VC	CSPI-R	4942482	619936895	COMP	15	0	
CY7C199-VC	CSPI-R	4942483	619936955	COMP	15	0	
CY7C199-VC	CSPI-R	4942483	619936956	COMP	15	0	
CY7C199-VC	CSPI-R	4942483	619936957	COMP	15	0	
CY7C199-VC	CSPI-R	4942483	619936966	COMP	15	0	
CY7C199-VC	CSPI-R	4942488	619937048	COMP	15	0	
<b>STRESS: HI-ACCEL SATURATION TEST (130C/85%RH/5.5V), PRECOND. 168 HRS 85C/85%RH</b>							
CY7C199-VC	CSPI-R	4942482	619936486	128	45	0	
CY7C199-VC	CSPI-R	4942484	619936849	128	46	0	
CY7C199-VC	CSPI-R	4942482	619936855	128	45	0	
<b>STRESS: PRESSURE COOKER (121C,100%RH)</b>							
CY7C199-VC	CSPI-R	4942483	619936955	168	50	0	
CY7C199-VC	CSPI-R	4942483	619936957	168	50	0	
CY7C199-VC	CSPI-R	4942464	619939305	168	50	0	
<b>STRESS: TC COND. C, -65 TO 150C, PRECOND. 168 HRS 85C/85%RH (MSL 1)</b>							
CY7C199-VC	CSPI-R	4942482	619936486	300	48	0	
CY7C199-VC	CSPI-R	4942484	619936849	300	50	0	
CY7C199-VC	CSPI-R	4942482	619936855	300	50	0	
CY7C199-VC	CSPI-R	4942482	619936859	300	50	0	
CY7C199-VC	CSPI-R	4942482	619936895	300	50	0	
CY7C199-VC	CSPI-R	4942483	619936955	300	47	0	
CY7C199-VC	CSPI-R	4942483	619936956	300	50	0	
CY7C199-VC	CSPI-R	4942483	619936957	300	50	0	
CY7C199-VC	CSPI-R	4942483	619936966	300	50	0	
CY7C199-VC	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	CSPI-R	2847994	619907866	COMP	10	0	
-----							
STRESS: BOND PULL							
CY6264-SNC	CSPI-R	2847994	619907866	COMP	10	0	
-----							
STRESS: PHYSICAL DIMENSIONS							
CY6264-SNC	CSPI-R	2847994	619907866	COMP	5	0	
-----							
STRESS: DIE SHEAR							
CY6264-SNC	CSPI-R	2847994	619907866	COMP	10	0	
-----							
STRESS: EXTERNAL VISUAL							
CY6264-SNC	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	CSPI-R	2847994	619907866	128	50	0	
-----							
STRESS: HIGH TEMPERATURE STORAGE (165C, NO BIAS)							
CY6264-SNC	CSPI-R	2847994	619907866	336	50	0	
CY6264-SNC	CSPI-R	2847994	619907866	1000	50	0	
-----							
STRESS: LEAD SCAN							
CY6264-SNC	CSPI-R	2847994	619907866	COMP	300	0	
-----							
STRESS: MARK SCAN							
CY6264-SNC	CSPI-R	2847994	619907866	COMP	300	0	
-----							
STRESS: STEAM AGED SOLDERABILITY							
CY6264-SNC	CSPI-R	2847994	619907866	COMP	3	0	
-----							
STRESS: TC COND. C, -65 TO 150C, PRECOND. 168 HRS 85C/85%RH							
CY6264-SNC	CSPI-R	2847994	619907866	300	50	0	
CY6264-SNC	CSPI-R	2847994	619907866M	300	50	0	
CY6264-SNC	CSPI-R	2847994	619907866M1	300	50	0	
-----							
STRESS: THERMAL SHOCK							
CY6264-SNC	CSPI-R	2847994	619907866	100	60	0	
CY6264-SNC	CSPI-R	2847994	619907866	200	60	0	
-----							
STRESS: X-RAY INSPECTION							
CY6264-SNC	CSPI-R	2847994	619907866	COMP	15	0	
CY6264-SNC	CSPI-R	2847994	619907866M	COMP	15	0	
-----							