

# **Cypress Semiconductor Package Qualification Report**

**QTP# 010610 VERSION 2.0 (GI)  
July, 2004**

<p><b>24-lead SOIC Package MSL Level 1 Cypress Philippines (CSPI-RA) Autoline</b></p>
---

**CYPRESS TECHNICAL CONTACT FOR QUALIFICATION DATA:**

Mira Ben-Tzur  
Principal Reliability Engineer  
(408) 943-2675

**PRODUCT QUALIFICATION HISTORY**

<b>QUAL REPORT</b>	<b>Description of Qualification Purpose</b>	<b>DATE COMP.</b>
010610	24-lead SOIC package qual in CSPI-R Autoline Assembly, MSL1	Mar 01

<b>MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION</b>	
<b>Package Designation:</b>	S24312
<b>Package Outline, Type, or Name:</b>	24-lead Plastic Small Outline ICs (SOIC)
<b>Mold Compound Name/Manufacturer:</b>	Sumitomo 6600HR
<b>Mold Compound Flammability Rating:</b>	V-O per UL94
<b>Oxygen Rating Index:</b>	>28%
<b>Lead Frame Designation:</b>	S
<b>Lead Frame Material:</b>	Silver spot plated Copper
<b>Lead Finish, Composition / Thickness:</b>	85% Sn - 15% Pb
<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>	QMI 509 (Snap Cure Die Attach material, No PMC)
<b>Bond Diagram Designation</b>	10-03721
<b>Wire Bond Method:</b>	Thermosonic
<b>Wire Material/Size:</b>	Gold/ 1.0 mil
<b>Thermal Resistance Theta JA °C/W:</b>	59 °C/W
<b>Package Cross Section Yes/No:</b>	N/A
<b>Assembly Process Flow:</b>	11-20023M
<b>Name/Location of Assembly (prime) facility:</b>	Cypress Philippines (CSPI-R)

**RoHS PPM level:**

Package	Package Weight	Solder Plating	Lead (Pb)	Mercury (Hg)	Chromium (CrVI)	Cadmium (Cd)
SOIC 24	0.99 gm	Sn/Pb	431.5 ppm	0.3 ppm	< 0.01 ppm	5.2 ppm

<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**

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, 3.63V Precondition: JESD22 Moisture Sensitivity Level 1 168 Hrs., 85°C/85%RH+3IR-Reflow, 220°C+5, -0°C	P
Pressure Cooker Test	No bias, 121°C, 100%, Precondition: JESD22 Moisture Sensitivity Level 1 168 Hrs., 85°C/85%RH+3IR-Reflow, 220°C+5, -0°C	P
Internal Visual	Cypress Specification 25-00017	P
Thermal Shock	125C, -55C Cypress Spec 25-00014	P
X-Ray	MIL-STD-883-2012	P
High Temperature Storage	150°C, no bias	P
Physical Dimensions	Cypress Specification 25-00031	P
Acoustic Microscopy (C-SAM)	Cypress Spec 25-00104	P

## Reliability Test Data

QTP #: 010610

<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>
<b>STRESS: ACOUSTIC - MICROSCOPE MSL1</b>							
CY7C63613-SC (7C63613C)	2033100	610103551	CSPI-RA	COMP	15	0	
CY7C63613-SC (7C63613C)	2033100		CSPI-RA	COMP	15	0	
CY7C63613-SC (7C63613C)	2033100		CSPI-RA	COMP	15	0	
<b>STRESS: HI-ACCEL SATURATION TEST (130C, 85%RH, 5.5V)PRE COND 168 HR 85C/85%RH</b>							
CY7C63613-SC (7C63613C)	2033100	610103551	CSPI-RA	128	50	0	
<b>STRESS: HIGH TEMP STORAGE, PLASTIC, 150C</b>							
CY7C63613-SC (7C63613C)	2033100	610103551	CSPI-RA	500	50	0	
<b>STRESS: PRESSURE COOKER TEST (121C, 100%RH), PRE COND 168HRS 85C/85%RH</b>							
CY7C63613-SC (7C63613C)	2033100	610103551	CSPI-RA	168	500		
CY7C63613-SC (7C63613C)	2033100		CSPI-RA	168	50	0	
<b>STRESS: THERMAL SHOCK, CONDITION B 125C, -55C</b>							
CY7C63613-SC (7C63613C)	2033100	610103551	CSPI-RA	100	50	0	
<b>STRESS: PHYSICAL DIMENTIONS</b>							
CY7C63613-SC (7C63613C)	2033100	610103551	CSPI-RA	COMP	15	0	
CY7C63613-SC (7C63613C)	2033100		CSPI-RA	COMP	15	0	
CY7C63613-SC (7C63613C)	2033100		CSPI-RA	COMP	15	0	
<b>STRESS: X-RAY</b>							
CY7C63613-SC (7C63613C)	2033100	610103551	CSPI-RA	COMP	15	0	
CY7C63613-SC (7C63613C)	2033100		CSPI-RA	COMP	15	0	
<b>STRESS: INTERNAL VISUAL</b>							
CY7C63613-SC (7C63613C)	2033100	610103551	CSPI-RA	COMP	15	0	
CY7C63613-SC (7C63613C)	2033100		CSPI-RA	COMP	15	0	
CY7C63613-SC (7C63613C)	2033100		CSPI-RA	COMP	15	0	

## Reliability Test Data

QTP #: 010610

<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>
<b>STRESS: TC CONDITION C, -65C, +150C, PRE COND. 168 HRS 85C/85% RH (MSL1)</b>							
CY7C63613-SC (7C63613C)	2033100	610103551	CSPI-RA	300	50	0	
CY7C63613-SC (7C63613C)	2033100	610103551	CSPI-RA	500	50	0	
CY7C63613-SC (7C63613C)	2033100	610103551	CSPI-RA	1000	50	0	
CY7C63613-SC (7C63613C)	2033100		CSPI-RA	300	50	0	
CY7C63613-SC (7C63613C)	2033100		CSPI-RA	500	50	0	
CY7C63613-SC (7C63613C)	2033100		CSPI-RA	1000	50	0	
CY7C63613-SC (7C63613C)	2033100		CSPI-RA	300	47	0	
CY7C63613-SC (7C63613C)	2033100		CSPI-RA	500	47	0	
CY7C63613-SC (7C63613C)	2033100		CSPI-RA	1000	47	0	