

# **Cypress Semiconductor Package Qualification Report**

**QTP# 040801 VERSION 1.0  
March 2004**

**56-lead SSOP Package using NITTO MP8500YFT86**

**Mold Compound and Ni/Pd/Au Leadframe**

**MSL1, 220C Solder Reflow Peak (No PMC)**

**Cypress Philippines (CML-R)**

**CYPRESS TECHNICAL CONTACT FOR QUALIFICATION DATA:**

Rene Rodgers  
Principal Reliability Engineer  
(408) 943-2732

### PACKAGE QUALIFICATION HISTORY

<b>QUAL REPORT</b>	<b>DESCRIPTION OF QUALIFICATION PURPOSE</b>	<b>DATE COMP.</b>
040801	56-lead SSOP package using NITTO MP8500YFT86 Mold Compound, Ni/Pd /Au Leadframe, @ 220C Solder Reflow Peak (No PMC), MSL1, CML-R , Conventional	Feb 04

<b>MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION</b>	
<b>Package Designation:</b>	O56
<b>Package Outline, Type, or Name:</b>	56- Shrunk Small Outline Package (SSOP)
<b>Mold Compound Name/Manufacturer:</b>	NITTO MP-8500YFT86
<b>Mold Compound Flammability Rating:</b>	UL-94V(0)
<b>Oxygen Rating Index:</b>	N/A
<b>Lead Frame Material:</b>	Copper based, Ni Pd Au Plating, Reduced Metal Pad
<b>Lead Finish, Composition / Thickness:</b>	0.8u" Ni/Pd /Au from Jade
<b>Die Backside Preparation Method/Metallization:</b>	N/A
<b>Die Separation Method:</b>	100%
<b>Die Attach Supplier:</b>	Dexter
<b>Die Attach Material:</b>	QMI 509
<b>Die Attach Method:</b>	Dispensing
<b>Bond Diagram Designation</b>	10-04181
<b>Wire Bond Method:</b>	Thermosonic
<b>Wire Material/Size:</b>	Gold, 1.0mil
<b>Thermal Resistance Theta JA °C/W:</b>	55.9 °C/W
<b>Package Cross Section Yes/No:</b>	N/A
<b>Assembly Process Flow:</b>	11-20012M
<b>Name/Location of Assembly (prime) facility:</b>	Cypress Philippines (CML-R)

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

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

**RELIABILITY TESTS PERFORMED PER SPECIFICATION REQUIREMENTS**

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 MSL 1 168 Hrs., 85°C/85%RH+3IR-Reflow, 220°C+5, -0°C	P
Pressure Cooker	121°C, 100%RH Precondition: JESD22 Moisture Sensitivity MSL 1 168 Hrs., 85°C/85%RH+3IR-Reflow, 220°C+5, -0°C	P
High Accelerated Saturation Test (HAST)	130°C, 3.63V, 85%RH Precondition: JESD22 Moisture Sensitivity MSL 1 168 Hrs., 85°C/85%RH+3IR-Reflow, 220°C+5, -0°C	P
Adhesion of Lead Finish	Cypress Spec 25-00029	P
Ball Shear	Cypress Spec 12-00292	P
Bond Pull	Cypress Spec 24-00002	P
External Visual	Cypress Spec 12-00292	P
Physical Dimensions	Cypress Spec. 25-00031	P
X-Ray	MIL-STD-883C, Method 2012, Cypress Spec 12-00292	P
Solderability	Cypress Spec. 25-00018	P
Acoustic Microscopy, MSL 1	Cypress Spec. 25-00104	P

## Reliability Test Data

QTP #: 040801

<b>Device</b>	<b>Fab Lot #</b>	<b>Assy Lot #</b>	<b>Assy Loc</b>	<b>Duration</b>	<b>Samp</b>	<b>Rej</b>	<b>Failure Mechanism</b>
<b>STRESS: ACOUSTIC - MICROSCOPE, MSL3</b>							
CY28301PVC (CY28301A)	9223783	610335174M	CML-R	COMP	15	0	
CY28301PVC (CY28301A)	9223783	610335174M1	CML-R	COMP	15	0	
CY28301PVC (CY28301A)	9223783	610335174M2	CML-R	COMP	15	0	
<b>STRESS: ADHESION OF LEAD FINISH</b>							
CY28301PVC (CY28301A)	9223783	610335174M	CML-R	COMP	3	0	
CY28301PVC (CY28301A)	9223783	610335174M1	CML-R	COMP	3	0	
<b>STRESS: BOND PULL</b>							
CY28301PVC (CY28301A)	9223783	610335174M	CML-R	COMP	10	0	
<b>STRESS: PHYSICAL DIMENSIONS</b>							
CY28301PVC (CY28301A)	9223783	610335174M	CML-R	COMP	5	0	
<b>STRESS: EXTRNAL VISUAL</b>							
CY28301PVC (CY28301A)	9223783	610335174M	CML-R	COMP	15	0	
CY28301PVC (CY28301A)	9223783	610335174M1	CML-R	COMP	15	0	
<b>STRESS: HI-ACCEL SATURATION TEST. 130C, 3.63V, 85%RH, , PRE COND 168 HR 85C/85%RH, MSL1</b>							
CY28301PVC (CY28301A)	9223783	610335174M	CML-R	128	45	0	
<b>STRESS: PRESSURE COOKER TEST, 121C, 100%RH, PRE COND 168 HR 85C/85%RH, MSL1</b>							
CY28301PVC (CY28301A)	9223783	610335174M	CML-R	168	45	0	
<b>STRESS: TC COND. C -65C TO 150C, , PRE COND 168 HR 85C/85%RH, MSL1</b>							
CY28301PVC (CY28301A)	9223783	610335174M	CML-R	300	45	0	
CY28301PVC (CY28301A)	9223783	610335174M	CML-R	500	45	0	
CY28301PVC (CY28301A)	9223783	610335174M	CML-R	1000	45	0	
CY28301PVC (CY28301A)	9223783	610335174M1	CML-R	300	45	0	
CY28301PVC (CY28301A)	9223783	610335174M1	CML-R	500	43	0	
CY28301PVC (CY28301A)	9223783	610335174M1	CML-R	1000	43	0	
CY28301PVC (CY28301A)	9223783	610335174M2	CML-R	300	45	0	
CY28301PVC (CY28301A)	9223783	610335174M2	CML-R	500	43	0	
CY28301PVC (CY28301A)	9223783	610335174M2	CML-R	1000	43	0	

## **Reliability Test Data**

**QTP #: 040801**

<b>Device</b>	<b>Fab Lot #</b>	<b>Assy Lot #</b>	<b>Assy Loc</b>	<b>Duration</b>	<b>Samp</b>	<b>Rej</b>	<b>Failure Mechanism</b>
<b>STRESS: SOLDERABILITY</b>							
CY28301PVC (CY28301A)	9223783	610335174M	CML-R	COMP	3	0	
CY28301PVC (CY28301A)	9223783	610335174M1	CML-R	COMP	3	0	
<b>STRESS: X-RAY</b>							
CY28301PVC (CY28301A)	9223783	610335174M	CML-R	COMP	15	0	