

Cypress Semiconductor Package Qualification Report

**QTP# 041601 VERSION 2.0
December 2006**

18/20/24/28-Lead Narrow SOIC (SNC) Package

MSL3

235°C & 260°C Reflow

CML-RA

CYPRESS TECHNICAL CONTACT FOR QUALIFICATION DATA:

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PACKAGE QUALIFICATION HISTORY

QUAL REPORT	DESCRIPTION OF QUALIFICATION PURPOSE	DATE COMP.
020701	Ni-Pd Leadframe and QMI 509 Epoxy using NITTO MP-8500 Molding Compound with die size $\leq 81.1 \times 101.5$ mls @220C, MSL1	May 02
030802	28-Lead SNC with NiPd and Nitto MP8500 Molding Compound @260°C Relfow, MSL3	May 03
041601	CML AUTOLINE qualified by extension for 18/20/24/28-Lead SNC (300mils) using MP8500 Mold Compound , MSL3, @260C Reflow	Apr 04
041601	Cypress established policy requiring MSL and Reflow Peak Temperature alignment for Cypress and its Assembly Subcontractors.	Nov 06

MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION	
Package Designation:	SN28
Package Outline, Type, or Name:	28-Lead Narrow Plastic Small Outline Package (SNC)
Mold Compound Name/Manufacturer:	NITTO MP-8500
Mold Compound Flammability Rating:	V-O per UL94
Oxygen Rating Index:	>28%
Lead Frame Material:	Copper
Lead Finish, Composition / Thickness:	Ni/Pd /ASM/0.8μ
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	10-03428
Wire Bond Method:	Thermosonic
Wire Material/Size:	Au, 0.8 mil
Thermal Resistance Theta JA °C/W:	61°C/W
Package Cross Section Yes/No:	Yes
Assembly Process Flow:	11-20016
Name/Location of Assembly (prime) facility:	Cypress Philippines (CML-R)
MSL Level	3
Reflow Profile	235C & 260C

ELECTRICAL TEST / FINISH DESCRIPTION	
Test Location:	Cypress Philippines (CML-R)

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 MSL 1 168 Hrs., 85°C/85%RH+3IR-Reflow, 220°C+0, -5°C Precondition: JESD22 Moisture Sensitivity MSL 3 192 Hrs., 30°C60%RH+3IR-Reflow, 260°C +0, -5°C	P
High Accelerated Saturation Test	130°C, 3.63V, 85%RH Precondition: JESD22 Moisture Sensitivity MSL1 168 Hrs., 85°C/85%RH+3IR-Reflow, 220°C+0, -5°C Precondition: JESD22 Moisture Sensitivity MSL 3 192 Hrs., 30°C60%RH+3IR-Reflow, 260°C +0, -5°C	P
Pressure Cooker	121C, 100%RH, 15 Psig Precondition: JESD22 Moisture Sensitivity MSL 1 168 Hrs., 85°C/85%RH+3IR-Reflow, 220°C+0, -5°C Precondition: JESD22 Moisture Sensitivity MSL 3 192 Hrs., 30°C60%RH+3IR-Reflow, 260°C +0, -5°C	P
High Temperature Storage	150°C, no bias	P
Adhesion of lead finish	Cypress Spec. 25-00029	P
External Visual	Cypress Spec. 25-00038	P
Solderability, Steam Aged	Cypress Spec. 25-00018	P
X-Ray	Cypress Spec. 12-000292	P
Acoustic Microscopy Test	Cypress Spec. 25-00104	P

Reliability Test Data

QTP #: 020701

<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: ACOUSTIC, MSL1							
CY62256LL-NC (7C62256E)	4149205	610203316M	CSPI-R	COMP	15	0	
CY62256LL-NC (7C62256E)	4149205	610203316M1	CSPI-R	COMP	15	0	
CY62256LL-NC (7C62256E)	4149205	610203316M2	CSPI-R	COMP	15	0	
STRESS: HI-ACCEL SATURATION TEST, 130C, 85%RH, 3.63V, PRE COND 168 HR 85C/85%RH, MSL1							
CY62256LL-NC (7C62256E)	4149205	610203316M	CSPI-R	128	46	0	
CY62256LL-NC (7C62256E)	4149205	610203316M1	CSPI-R	128	45	0	
STRESS: PRESSURE COOKER TEST, 121C, 100%RH, 15 Psig, PRE COND 168 HR 85C/85%RH, MSL1							
CY62256LL-NC (7C62256E)	4149205	610203316M	CSPI-R	168	50	0	
STRESS: SOLDERABILITY							
CY62256LL-NC (7C62256E)	4149205	610203316M	CSPI-R	COMP	3	0	
CY62256LL-NC (7C62256E)	4149205	610203316M1	CSPI-R	COMP	3	0	
STRESS: ADHESION OF LEAD FINISH							
CY62256LL-NC (7C62256E)	4149205	610203316M	CSPI-R	COMP	3	0	
CY62256LL-NC (7C62256E)	4149205	610203316M1	CSPI-R	COMP	3	0	
STRESS: EXTERNAL VISUAL							
CY62256LL-NC (7C62256E)	4149205	610203316M	CSPI-R	COMP	168	0	
CY62256LL-NC (7C62256E)	4149205	610203316M1	CSPI-R	COMP	168	0	
STRESS: HIGH TEMPERATURE STORAGE, 150C, no bias							
CY62256LL-NC (7C62256E)	4149205	610203316M	CSPI-R	500	50	0	
STRESS: X-RAY							
CY62256LL-NC (7C62256E)	4149205	610203316M	CSPI-R	COMP	168	0	
CY62256LL-NC (7C62256E)	4149205	610203316M1	CSPI-R	COMP	168	0	

Reliability Test Data

QTP #: 020701

<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: TC CONDITION C, 150C TO -65C, PRE COND 168 HR 85C/85%RH, MSL1							
CY62256LL-NC (7C62256E)	4149205	610203316M	CSPI-R	300	50	0	
CY62256LL-NC (7C62256E)	4149205	610203316M	CSPI-R	500	50	0	
CY62256LL-NC (7C62256E)	4149205	610203316M	CSPI-R	1000	50	0	
CY62256LL-NC (7C62256E)	4149205	610203316M1	CSPI-R	300	50	0	
CY62256LL-NC (7C62256E)	4149205	610203316M1	CSPI-R	500	50	0	
CY62256LL-NC (7C62256E)	4149205	610203316M1	CSPI-R	1000	50	0	
CY62256LL-NC (7C62256E)	4149205	610203316M2	CSPI-R	300	50	0	
CY62256LL-NC (7C62256E)	4149205	610203316M2	CSPI-R	500	50	0	
CY62256LL-NC (7C62256E)	4149205	610203316M2	CSPI-R	1000	50	0	

Reliability Test Data

QTP #: 030802

Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: ACOUSTIC MICROSCOPE MSL3, 260C REFLOW							
CY62256L-NC (7C62256E)	4149205	610203316M	CSPI-R	COMP	15	0	
CY62256L-NC (7C62256E)	4120526	610141356	CSPI-R	COMP	15	0	
CY62256L-NC (7C62256E)	4149205	610203316M2	CSPI-R	COMP	15	0	
STRESS: HI-ACCEL SATURATION TEST, 130C, 5.5V, PRE COND 192 HR 30C/60%RH, MSL3, 260C REFLOW							
CY62256L-NC (7C62256E)	4149205	610203316M	CSPI-R	128	45	0	
STRESS: PRESSURE COOKER TEST, 121C, 100%RH, PRE COND 192 HR 30C/60%RH, MSL3, 260C REFLOW							
CY62256L-NC (7C62256E)	4149205	610203316M	CSPI-R	176	45	0	
STRESS: TC CONDITION C, 150C TO -65C, PRE COND 192 HR 30C/60%RH, MSL3, 260C REFLOW							
CY62256L-NC (7C62256E)	4149205	610203316M	CSPI-R	300	45	0	
CY62256L-NC (7C62256E)	4149205	610203316M	CSPI-R	500	45	0	
CY62256L-NC (7C62256E)	4149205	610203316M	CSPI-R	1000	45	0	
CY62256L-NC (7C62256E)	4120526	610141356	CSPI-R	300	45	0	
CY62256L-NC (7C62256E)	4120526	610141356	CSPI-R	500	45	0	
CY62256L-NC (7C62256E)	4120526	610141356	CSPI-R	1000	45	0	
CY62256L-NC (7C62256E)	4149205	610203316M2	CSPI-R	300	45	0	
CY62256L-NC (7C62256E)	4149205	610203316M2	CSPI-R	500	45	0	
CY62256L-NC (7C62256E)	4149205	610203316M2	CSPI-R	1000	45	0	