Cypress Semiconductor
Package Qualification Report

QTP# 020701 VERSION 1.0
July, 2002

28-lead Narrow SOIC (SNC) package using NITTO MP-8500 Molding Compound and Ni/Pd Leadframe, MSL1

Cypress Philippines (CML-R) Assembly

CYPRESS TECHNICAL CONTACT FOR QUALIFICATION DATA:

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PACKAGE QUALIFICATION HISTORY

QUAL REPORT		DESCRIPTION OF QUALIFICATION PURPOSE		DATE COMP.
99151		Narrow SOIC (300mil) with die size , ≤ 98.6 x 90 mls using Sumitomo 6300 Molding Compound, MSL1 assembled at CSPI-R		Apr 98
020707		Upgrade 28-lead SOJ/SNC and 20/24/28-lead SOIC and lower pin count 300mil body size package die size ≤ 81.1 x 101.5mls, using Sumitomo EME 6600HR Molding Compound from MSL3 to MSL1		Sep 01
020701		Ni-Pd leadframe and QMI 509 Epoxy using NITTO MP-8500 Molding Compound with die size ≤ 81.1 x 101.5mls, MSL1		May 02

MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION	
Package Designation:	SN2831
Package Outline, Type, or Name:	28-lead Narrow SOIC (SN)
Mold Compound Name/Manufacturer:	NITTO MP-8500
Mold Compound Flammability Rating:	V-O per UL94
Oxygen Rating Index:	> 28%
Lead Frame Material:	Copper base with Ni/Pd and Gold Flash Plating
Lead Finish, Composition / Thickness:	Ni/Pd with Gold Flash
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, 1. 0 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)

ELECTRICAL TEST / FINISH DESCRIPTION	
Test Location:	Cypress Philippines (CML-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 #020701, QTP #020707, QTP #99151 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
High Accelerated Saturation Test	1) QTP #020701, QTP #020707, QTP #99151 130°C, 3.63V Precondition: JESD22 Moisture Sensitivity MSL1 168 Hrs., 85°C/85%RH + 3IR-Reflow, 220°C + 5, -0°C	P
Pressure Cooker	1) QTP #020701, QTP #020707 Precondition: JESD22 Moisture Sensitivity MSL 1 168 Hrs., 85°C/85%RH + 3IR-Reflow, 220°C + 5, -0°C	P
High Temperature Storage	1) QTP #020706, 150°C, no bias 2) QTP #99151, 165°C, no bias	P
Adhesion of lead finish	1) QTP #020701 Cypress Spec 25-00029	P
External Visual	1) QTP #020701, QTP #99151 Cypress Spec 25-00038	P
Die Shear	1) QTP #99151 Cypress Spec 12-00292	P
Ball Shear	1) QTP #99151 Cypress Spec 12-00292	P
Bond Pull	1) QTP #99151 Cypress Spec 12-00292	P
Thermal Shock	1) QTP #99151 MIL-STD-883C, Method 1011, Condition B, -55°C, + 125°C	P
Physical Dimensions	1) QTP #020701, QTP #99151 Cypress Spec. 25-00031	P
Solderability, Steam Aged	1) QTP #020701, QTP #99151 Cypress Spec. 25-00018	P

RELIABILITY TESTS PERFORMED PER SPECIFICATION REQUIREMENT (continuation)

Stress/Test	Test Condition (Temp/Bias)	Result P/F
Lead Scan	1) Cypress Spec 12-000292	P
Mark Scan	1) Cypress Spec 12-000292	P
X-Ray	1) QTP #020701, QTP #99151 Cypress Spec 12-000292	P
Acoustic Microscopy Test (C-SAM)	1) QTP #020701, QTP #020707, QTP99151 Cypress Spec 25-00104	P

Reliability Test Data

QTP #: 020701

Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
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, 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							
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

Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
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 #: 020707

Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: ACOUSTIC MICROSCOPE MSL1							
CY7C62256-SNC (7C62256E)	4143214	*610200648*	CSPI-R	COMP	15	0	
CY7C62256-SNC (7C62256E)	4143214	*610200660*	CSPI-R	COMP	15	0	
CY7C62256-SNC (7C62256E)	4143214	*610200727*	CSPI-R	COMP	15	0	
STRESS: HI-ACCEL SATURATION TEST, 130C, 85%RH, 5.5V, PRE COND 168 HR 85C/85%RH, MSL1							
CY7C62256-SNC (7C62256E)	4143214	*610200648*	CSPI-R	128	45	0	
STRESS: PRESSURE COOKER TEST (121C, 100%RH), PRE COND 168HRS 85C/85%RH, MSL1							
CY7C62256-SNC (7C62256E)	4143214	*610200648*	CSPI-R	168	50	0	
STRESS: TC CONDITION C, -65C, +150C, PRE COND. 168 HRS 85C/85% RH, MSL1							
CY7C62256-SNC (7C62256E)	4143214	*610200648*	CSPI-R	300	50	0	
CY7C62256-SNC (7C62256E)	4143214	*610200648*	CSPI-R	500	50	0	
CY7C62256-SNC (7C62256E)	4143214	*610200648*	CSPI-R	1000	50	0	
CY7C62256-SNC (7C62256E)	4143214	*610200660*	CSPI-R	300	50	0	
CY7C62256-SNC (7C62256E)	4143214	*610200660*	CSPI-R	500	50	0	
CY7C62256-SNC (7C62256E)	4143214	*610200660*	CSPI-R	1000	50	0	
CY7C62256-SNC (7C62256E)	4143214	*610200727*	CSPI-R	300	50	0	
CY7C62256-SNC (7C62256E)	4143214	*610200727*	CSPI-R	500	50	0	
CY7C62256-SNC (7C62256E)	4143214	*610200727*	CSPI-R	1000	50	0	

RELIABILITY TEST DATA

QTP#: 99151

DEVICE	ASSY-LOC	FABLOT#	ASSYLOT#	DURATION	S/S	REJ	FAIL
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	