

Cypress Semiconductor Package Qualification Report

**QTP# 022102 VERSION 1.0
October, 2002**

**56-lead SSOP Package using
NITTO MP-8500CH Mold Compound and Ni/Pd Leadframe
MSL3, 260°C Reflow
Cypress Philippines (CML-R)**

CYPRESS TECHNICAL CONTACT FOR QUALIFICATION DATA:

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PACKAGE QUALIFICATION HISTORY

QUAL REPORT	DESCRIPTION OF QUALIFICATION PURPOSE	DATE COMP.
013805	56-lead (300mil) SSOP package with die size $\leq 107.4 \times 133.0$ mil using NITTO MP-8500CH Molding Compound, Ni/Pd Leadframe at MSL1 (No PMC) @ Cypress Philippines (CSPI-R)	Jan 02
022102	Upgrade Reflow Temperature from 235°C to 260°C and to MSL3 precondition	Aug 02

MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION	
Package Designation:	O563
Package Outline, Type, or Name:	56-Small Shrunk Outline Package (SSOP)
Mold Compound Name/Manufacturer:	NITTO MP-8500CH
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:	N/A
Die Separation Method:	Wafer Saw
Die Attach Supplier:	Dexter
Die Attach Material:	QMI 509
Die Attach Method:	Silver Epoxy
Bond Diagram Designation	10-03741
Wire Bond Method:	Thermosonic
Wire Material/Size:	Gold, 1.0mil
Thermal Resistance Theta JA °C/W:	66.52°C/W
Package Cross Section Yes/No:	N/A
Assembly Process Flow:	11-20024
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 #022102 Precondition: JESD22 Moisture Sensitivity MSL3 192 Hrs., 30°C/60%RH+3IR-Reflow, 260°C+5, -0°C 2) QTP #013805 Precondition: JESD22 Moisture Sensitivity MSL1 168 Hrs., 85°C/85%RH+3IR-Reflow, 235°C+5, -0°C MIL-STD-883C, Method 1010, Condition C, -65°C to 150°C	P
High Accelerated Saturation Test	1) QTP #022102 Precondition: JESD22 Moisture Sensitivity MSL3 192 Hrs., 30°C/60%RH+3IR-Reflow, 260°C+5, -0°C 2) QTP #013805 Precondition: JESD22 Moisture Sensitivity MSL1 168 Hrs., 85°C/85%RH+3IR-Reflow, 235°C+5, -0°C MIL-STD-883C, Method 1010, Condition C, -65°C to 150°C	P
Pressure Cooker	1) QTP #022102 Precondition: JESD22 Moisture Sensitivity MSL3 192 Hrs., 30°C/60%RH+3IR-Reflow, 260°C+5, -0°C 2) QTP #013805 Precondition: JESD22 Moisture Sensitivity MSL1 168 Hrs., 85°C/85%RH+3IR-Reflow, 235°C+5, -0°C MIL-STD-883C, Method 1010, Condition C, -65°C to 150°C	P
External Visual	1) QTP #022102, QTP #013805 Cypress Spec 12-00292	P
Solderability	1) QTP #022102, QTP #013805 Cypress Spec 25-00018	P
Adhesion to Lead Finish	1) QTP #022102, QTP #013805 Cypress Spec 25-00029	P
X-Ray	1) QTP #013805 MIL-STD-883-2012, Cypress Spec 12-00292	P
Acoustic Microscopy Test, MSL3	1) QTP #022102, QTP #013805 Cypress Spec 25-00104	P

Reliability Test Data

QTP #: 022102

<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 - MICROSCOPE, MSL3							
CY2220PVC-OC (7C822000A)	2129075	610215506	CML-R	COMP	15	0	
CY2220PVC-OC (7C822000A)	2129075	610215506M	CML-R	COMP	15	0	
CY2220PVC-OC (7C822000A)	2129075	610215506M1	CML-R	COMP	15	0	
STRESS: EXERNAL VISUAL							
CY2220PVC-OC (7C822000A)	2129075	610215506	CML-R	COMP	15	0	
CY2220PVC-OC (7C822000A)	2129075	610215506M	CML-R	COMP	15	0	
STRESS: SOLDERABILITY							
CY2220PVC-OC (7C822000A)	2129075	610215506	CML-R	COMP	3	0	
CY2220PVC-OC (7C822000A)	2129075	610215506M	CML-R	COMP	3	0	
STRESS: ADHESION TO LEAD FINISH							
CY2220PVC-OC (7C822000A)	2129075	610215506	CML-R	COMP	3	0	
CY2220PVC-OC (7C822000A)	2129075	610215506M	CML-R	COMP	3	0	
STRESS: HI-ACCEL SATURATION TEST. 130C, 5.5V, 85%RH, PRE COND 192 HR 30C/60%RH,, MSL3							
CY2220PVC-OC (7C822000A)	2129075	610215506	CML-R	128	50	0	
STRESS: PRESSURE COOKER TEST, 121C, 100%RH, PRE COND 192 HR 30C/60%RH,, MSL3							
CY2220PVC-OC (7C822000A)	2129075	610215506	CML-R	184	46	0	
STRESS: TC COND. C -65C TO 150C, PRECONDITION 192 HR 30C/60%RH,, MSL3							
CY2220PVC-OC (7C822000A)	2129075	610215506	CML-R	300	50	0	
CY2220PVC-OC (7C822000A)	2129075	610215506M	CML-R	300	50	0	
CY2220PVC-OC (7C822000A)	2129075	610215506M1	CML-R	300	50	0	

Reliability Test Data

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STRESS: ACOUSTIC - MICROSCOPE MSL1							
CY2220PVC-OC (7C822000A)	2127962	610131919	CSPI-R	COMP	15	0	
CY2220PVC-OC (7C822000A)	2127962	610132123	CSPI-R	COMP	15	0	
CY2220PVC-OC (7C822000A)	2127962	610132121	CSPI-R	COMP	15	0	
STRESS: EXERNAL VISUAL							
CY2220PVC-OC (7C822000A)	2127962	610131919	CSPI-R	COMP	15	0	
CY2220PVC-OC (7C822000A)	2127962	610132123	CSPI-R	COMP	15	0	
STRESS: SOLDERABILITY							
CY2220PVC-OC (7C822000A)	2127962	610131919	CSPI-R	COMP	3	0	
CY2220PVC-OC (7C822000A)	2127962	610132123	CSPI-R	COMP	3	0	
STRESS: ADHESION TO LEAD FINISH							
CY2220PVC-OC (7C822000A)	2127962	610131919	CSPI-R	COMP	3	0	
CY2220PVC-OC (7C822000A)	2127962	610132123	CSPI-R	COMP	3	0	
STRESS: X-RAY							
CY2220PVC-OC (7C822000A)	2127962	610131919	CSPI-R	COMP	15	0	
CY2220PVC-OC (7C822000A)	2127962	610132123	CSPI-R	COMP	15	0	
STRESS: HI-ACCEL SATURATION TEST. 130C, 5.5V, 85%RH, PRE COND 168 HR 85C/85%RH, MSL 1							
CY2220PVC-OC (7C822000A)	2127962	610131919	CSPI-R	128	50	0	
CY2220PVC-OC (7C822000A)	2127962	610132123	CSPI-R	128	50	0	
STRESS: PRESSURE COOKER TEST, 121C, 100%RH, PRE COND 168 HR 85C/85%RH, MSL 1							
CY2220PVC-OC (7C822000A)	2127962	610131919	CSPI-R	168	45	0	
CY2220PVC-OC (7C822000A)	2127962	610132123	CSPI-R	128	45	0	

Reliability Test Data

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<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 COND. C -65C TO 150C, PRECONDITION 168 HRS 85C/85%RH, MSL1							
CY2220PVC-OC (7C822000A)	2127962	610131919	CSPI-R	300	50	0	
CY2220PVC-OC (7C822000A)	2127962	610131919	CSPI-R	500	50	0	
CY2220PVC-OC (7C822000A)	2127962	610131919	CSPI-R	1000	50	0	
CY2220PVC-OC (7C822000A)	2127962	610132123	CSPI-R	300	45	0	
CY2220PVC-OC (7C822000A)	2127962	610132123	CSPI-R	500	45	0	
CY2220PVC-OC (7C822000A)	2127962	610132123	CSPI-R	1000	45	0	
CY2220PVC-OC (7C822000A)	2127962	610132121	CSPI-R	300	45	0	
CY2220PVC-OC (7C822000A)	2127962	610132121	CSPI-R	500	45	0	
CY2220PVC-OC (7C822000A)	2127962	610132121	CSPI-R	1000	45	0	