

# **Cypress Semiconductor Package Qualification Report**

**QTP# 011601 VERSION 1.0  
September, 2001**

**208-pin Enhanced Quad Flat Pack (EQFP) 28mm x  
28mm, MSL 3  
ASE Taiwan Assembly**

**CYPRESS TECHNICAL CONTACT FOR QUALIFICATION DATA:**

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### PACKAGE QUALIFICATION HISTORY

<b>QUAL REPORT</b>	<b>DESCRIPTION OF QUALIFICATION PURPOSE</b>	<b>DATE COMP.</b>
001201	208-pin EQFP (28mm x 28mm), die size 306.5 x 361.7, ASE Taiwan Assembly, MSL5	Sept 01
011601	Upgraded to MSL3 from MSL5 condition	Aug 01

<b>MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION</b>	
<b>Package Designation:</b>	NT208
<b>Package Outline, Type, or Name:</b>	208-pin, Enhanced Quad Flat Pack (EQFP)
<b>Manufacturer/Mold Compound Name:</b>	Sumitomo 6600CS
<b>Mold Compound Flammability Rating:</b>	V-O per UL 94
<b>Oxygen Rating Index:</b>	> 28%
<b>Lead Frame Material:</b>	Copper
<b>Lead Finish, Composition / Thickness:</b>	Solder Plate, 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>	Ablestik
<b>Die Attach Material:</b>	8361H
Die Attach Method:	Epoxy
<b>Bond Diagram Designation</b>	10-04269
<b>Wire Bond Method:</b>	Thermosonic
<b>Wire Material/Size:</b>	Au, 1.0um
<b>Thermal Resistance Theta JA °C/W:</b>	12.3°C/W
<b>Package Cross Section Yes/No:</b>	N/A
<b>Assembly Process Flow:</b>	49-41014M
<b>Name/Location of Assembly (prime) facility:</b>	ASE Taiwan (TAIWN-G)

<b>ELECTRICAL TEST / FINISH DESCRIPTION</b>	
<b>Test Location:</b>	ASE Taiwan (TAIWN-G)
<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
Temperature Cycle	1) QTP #011601 MIL-STD-883C, Method 1010, Condition C, -65°C to 150°C Precondition: JESD22 Moisture Sensitivity Level 3 192 Hrs, 30C/60%RH+ 3IR-Reflow, 220°C+ 5, 0°C 2) QTP#001201 MIL-STD-883C, Method 1010, Condition C, -65°C to 150°C Precondition: JESD22 Moisture Sensitivity Level 5 72 Hrs., 30°C/60%RH+ 3IR-Reflow, 220°C+ 5, -0°C	P
Pressure Cooker	1) QTP #001201 121°C, 100%RH Precondition: JESD22 Moisture Sensitivity Level 5 72 Hrs., 30°C/60%+ 3IR-Reflow, 220°C+ 5, 0°C	P
High Accelerated Saturation Test (HAST)	1) QTP #001201 130°C, 3.63V, 85%RH Precondition: JESD22 Moisture Sensitivity Level 5 72 Hrs., 30°C/60%RH+ 3IR-Reflow, 220°C+ 5,0°C	P
Physical Dimensions	1) QTP #001201 Cypress Spec. 25-00031	P
Resistance to Solvents	1) QTP #001201 Cypress Spec. 25-00016	P
Solderability	1) QTP #001201 Cypress Spec. 25-00018	P
External visual	1) QTP #001201 Cypress Specification 12-00292	P
Internal Visual	1) QTP #001201 Cypress Spec. 25-00017	P
Die Shear	1) QTP #001201 Cypress Spec. 12-00292	P
Ball Shear	1) QTP #001201 Cypress Spec. 12-00292	P

**RELIABILITY TESTS PERFORMED PER SPECIFICATION REQUIREMENTS (continuation)**

Stress/Test	Test Condition (Temp/Bias)	Result
Bond Pull	1) QTP #001201 Cypress Spec. 12-00292	P
High Temperature Storage	1) QTP #001201 150°C ± 5°C	P
X-Ray	1) QTP #001201 MIL-STD-883-2012, Cypress Spec. 12-00292	P
Thermal Shock	1) QTP #001201 -55°C to + 125°C Cypress Spec. 25-00014	P
Acoustic Microscopy	1) QTP #011601, MSL3 2) QTP #001201, MSL5 Cypress Spec. 25-00104	P

**Note:** Life Test results are also performed on this package type in 39K100 Device/Technology qualification, QTP #99154.

## Reliability Test Data

**QTP #: 011601**

<b>Device</b>	<b>Fab Lot #</b>	<b>Assy Lot #</b>	<b>Ass Loc</b>	<b>Duration</b>	<b>Samp</b>	<b>Rej</b>	<b>Failure Mechanism</b>
<b>STRESS: ACOUSTIC MSL3</b>							
CY39100V208B-NT (7C39480E)	9114086	610116104	TAIWN-G	COMP	15	0	
CY39100V208B-NT (7C39480E)	9114086	610116105	TAIWN-G	COMP	15	0	
CY39100V208B-NT (7C39480E)	9114086	610116106	TAIWN-G	COMP	15	0	
<b>STRESS: TC COND. C -65C TO 150C, PRE CONDITION 192 HR 30C/60%RH, MSL3</b>							
CY39100V208B-NT (7C39480E)	9114086	610116104	TAIWN-G	300	42	0	
CY39100V208B-NT (7C39480E)	9114086	610116104	TAIWN-G	500	42	0	
CY39100V208B-NT (7C39480E)	9114086	610116105	TAIWN-G	300	50	0	
CY39100V208B-NT (7C39480E)	9114086	610116105	TAIWN-G	500	50	0	
CY39100V208B-NT (7C39480E)	9114086	610116106	TAIWN-G	300	50	0	
CY39100V208B-NT (7C39480E)	9114086	610116106	TAIWN-G	500	50	0	

## Reliability Test Data

**QTP #: 001201**

<i>Device</i>	<i>Fab Lot #</i>	<i>Assy Lot #</i>	<i>Ass Loc</i>	<i>Duration</i>	<i>Samp</i>	<i>Rej</i>	<i>Failure Mechanism</i>
<b>STRESS: ACOUSTIC MSL5</b>							
CY39100V208-NT (7C39480A)	9044202	340000405	TAIWN-G	COMP	15	0	
CY39100V208-NT (7C39480A)	9052411	340100001	TAIWN-G	COMP	15	0	
CY39100V208-NT (7C39480A)	9050314	340000428	TAIWN-G	COMP	15	0	
<b>STRESS: RESISTANCE TO SOLVENTS</b>							
CY39100V208-NT (7C39480A)	9044202	340000404	TAIWN-G	COMP	12	0	
CY39100V208-NT (7C39480A)	9050314	340000428	TAIWN-G	COMP	12	0	
<b>STRESS: HIGH TEMPERATURE STORAGE (150C)</b>							
CY39100V208-NT (7C39480A)	9044179	340000395	KOREA-GQ	500	48	0	
<b>STRESS: BALL SHEAR</b>							
CY39100V208-NT (7C39480A)	9044202	340000404	TAIWN-G	COMP	10	0	
CY39100V208-NT (7C39480A)	9050314	340000428	TAIWN-G	COMP	10	0	
<b>STRESS: BOND PULL</b>							
CY39100V208-NT (7C39480A)	9044202	340000404	TAIWN-G	COMP	10	0	
CY39100V208-NT (7C39480A)	9050314	340000428	TAIWN-G	COMP	10	0	
<b>STRESS: PHYSICAL DIMENSIONS</b>							
CY39100V208-NT (7C39480A)	9044202	340000404	TAIWN-G	COMP	5	0	
CY39100V208-NT (7C39480A)	9050314	340000428	TAIWN-G	COMP	5	0	
<b>STRESS: DIE SHEAR</b>							
CY39100V208-NT (7C39480A)	9044202	340000404	TAIWN-G	COMP	15	0	
CY39100V208-NT (7C39480A)	9050314	340000428	TAIWN-G	COMP	15	0	
<b>STRESS: EXTRNAL VISUAL</b>							
CY39100V208-NT (7C39480A)	9050314	340000428	TAIWN-G	COMP	15	0	
<b>STRESS: INTERNAL VISUAL</b>							
CY39100V208-NT (7C39480A)	9050314	340000428	TAIWN-G	COMP	5	0	
<b>STRESS: X-RAY</b>							
CY39100V208-NT (7C39480A)	9050314	340000428	TAIWN-G	COMP	15	0	
<b>STRESS: SOLDERABILITY</b>							
CY39100V208-NT (7C39480A)	9044202	340000404	TAIWN-G	COMP	12	0	
CY39100V208-NT (7C39480A)	9050314	340000428	TAIWN-G	COMP	15	0	

## Reliability Test Data

**QTP #: 001201**

<b>Device</b>	<b>Fab Lot #</b>	<b>Assy Lot #</b>	<b>Ass Loc</b>	<b>Duration</b>	<b>Samp</b>	<b>Rej</b>	<b>Failure Mechanism</b>
<b>STRESS: THERMAL SHOCK (+125C/-55C)</b>							
CY39100V208-NT (7C39480A)	9052411	340100001	TAIWN-G	100	48	0	
CY39100V208-NT (7C39480A)	9052411	340100001	TAIWN-G	200	48	0	
<b>STRESS: HI-ACCEL SATURATION TEST (130C, 85%RH, 3.63V), PRE COND 72 HR 30C/60%RH, MSL5</b>							
CY39100V208-NT (7C39480A)	9052411	340100001	TAIWN-G	128	50	0	
<b>STRESS: PRESSURE COOKER TEST (121C, 100%RH), PRE COND 72 HR 30C/60%RH, MSL5</b>							
CY39100V208-NT (7C39480A)	9044202	340000404	TAIWN-G	168	47	0	
<b>STRESS: TC COND. C -65C TO 150C, PRE CONDITION 72 HR 30C/60%RH, MSL5</b>							
CY39100V208-NT (7C39480A)	9044202	340000404	TAIWN-G	300	46	0	
CY39100V208-NT (7C39480A)	9052411	340100001	TAIWN-G	300	48	0	
CY39100V208-NT (7C39480A)	9050314	340000428	TAIWN-G	300	48	0	