

Cypress Semiconductor Package Qualification Report

**QTP# 011708 VERSION 1.0
May, 2002**

**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

QUAL REPORT	DESCRIPTION OF QUALIFICATION PURPOSE	DATE COMP.
001201	208-pin EQFP (28mm x 28mm), die size $\leq 306.5 \times 361.7$, ASE Taiwan Assembly, MSL5	Sept 01
011601	Upgraded to MSL3 from MSL5 condition	Aug 01
011708	Larger die size, $\leq 427.2 \times 510.0$ mls	May 02

MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION	
Package Designation:	NT208
Package Outline, Type, or Name:	208-pin, Enhanced Quad Flat Pack (EQFP)
Manufacturer/Mold Compound Name:	Sumitomo 6600CS
Mold Compound Flammability Rating:	V-O per UL 94
Oxygen Rating Index:	> 28%
Lead Frame Material:	Copper
Lead Finish, Composition / Thickness:	Solder Plate, 85%Sn, 15%Pb
Die Backside Preparation Method/Metallization:	N/A
Die Separation Method:	Wafer Saw
Die Attach Supplier:	Ablestik
Die Attach Material:	8361H
Die Attach Method:	Epoxy
Bond Diagram Designation	10-04256
Wire Bond Method:	Thermosonic
Wire Material/Size:	Au, 1.0um
Thermal Resistance Theta JA °C/W:	20°C/W
Package Cross Section Yes/No:	N/A
Assembly Process Flow:	49-41014M
Name/Location of Assembly (prime) facility:	ASE Taiwan (TAIWN-G)

ELECTRICAL TEST / FINISH DESCRIPTION	
Test Location:	ASE Taiwan (TAIWN-G)
Fault Coverage:	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 #011708, QTP #011601 MIL-STD-883C, Method 1010, Condition C, -65°C to 150°C Precondition: JESD22 Moisture Sensitivity MSL 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 MSL 5 72 Hrs., 30°C/60%RH+ 3IR-Reflow, 220°C+ 5, -0°C	P
Pressure Cooker	1) QTP #011708 121°C, 100%RH Precondition: JESD22 Moisture Sensitivity MSL 3 192 Hrs, 30C/60%RH+ 3IR-Reflow, 220°C+ 5, 0°C 2) QTP #001201 121°C, 100%RH Precondition: JESD22 Moisture Sensitivity MSL 5 72 Hrs., 30°C/60%+ 3IR-Reflow, 220°C+ 5, 0°C	P
High Accelerated Saturation Test (HAST)	1) QTP #011708 Precondition: JESD22 Moisture Sensitivity MSL 3 192 Hrs, 30C/60%RH+ 3IR-Reflow, 220°C+ 5, 0°C 2) 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 #011708, QTP #001201 Cypress Specification 12-00292	P

RELIABILITY TESTS PERFORMED PER SPECIFICATION REQUIREMENTS (continuation)

Stress/Test	Test Condition (Temp/Bias)	Result
Internal Visual	1) QTP #011708, QTP #001201 Cypress Spec. 25-00017	P
Die Shear	1) 011708, QTP #001201 Cypress Spec. 12-00292	P
Ball Shear	1) QTP #011708, QTP #001201 Cypress Spec. 12-00292	P
Bond Pull	1) QTP #011708, QTP #001201 Cypress Spec. 12-00292	P
High Temperature Storage	1) QTP #001201 150°C ± 5°C	P
X-Ray	1) QTP #011708, QTP #001201 MIL-STD-883-2012, Cypress Spec. 12-00292	P
Thermal Shock	1) QTP #011708, QTP #001201 -55°C to + 125°C Cypress Spec. 25-00014	P
Acoustic Microscopy	1) QTP #011708, 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 #: 011708

<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>
STRESS: ACOUSTIC MSL3							
CY39200V208-NT (7C39780A)	9133017	610132053	TAIWN-G	COMP	15	0	
CY39200V208-NT (7C39780A)	9133017	610132054	TAIWN-G	COMP	15	0	
CY39200V208-NT (7C39780A)	9133017	610132056	TAIWN-G	COMP	15	0	
STRESS: BALL SHEAR							
CY39200V208-NT (7C39780A)	9131960	610127777	TAIWN-G	COMP	100	0	
STRESS: BOND PULL							
CY39200V208-NT (7C39780A)	9131960	610127777	TAIWN-G	COMP	150	0	
STRESS: DIE SHEAR							
CY39200V208-NT (7C39780A)	9131960	610127777	TAIWN-G	COMP	15	0	
STRESS: EXTRNAL VISUAL							
CY39200V208-NT (7C39780A)	9131960	610127777	TAIWN-G	COMP	15	0	
STRESS: INTERNAL VISUAL							
CY39200V208-NT (7C39780A)	9131960	610127777	TAIWN-G	COMP	5	0	
STRESS: X-RAY							
CY39200V208-NT (7C39780A)	9131960	610127777	TAIWN-G	COMP	15	0	
STRESS: THERMAL SHOCK, +125C/-55C							
CY39200V208-NT (7C39780A)	9133017	610132053	TAIWN-G	100	47	0	
CY39200V208-NT (7C39780A)	9133017	610132053	TAIWN-G	200	47	0	
STRESS: HI-ACCEL SATURATION TEST, 130C, 85%RH, 3.63V, PRE CONDITION 192 HR 30C/60%RH, MSL3							
CY39200V208-NT (7C39780A)	9133017	610132054	TAIWN-G	128	46	0	
STRESS: PRESSURE COOKER TEST, 121C, 100%RH), PRE CONDITION 192 HR 30C/60%RH, MSL3							
CY39200V208-NT (7C39780A)	9131960	610127777	TAIWN-G	168	48	0	
CY39200V208-NT (7C39780A)	9133017	610132054	TAIWN-G	168	48	0	
STRESS: TC COND. C -65C TO 150C, PRE CONDITION 192 HR 30C/60%RH, MSL3							
CY39200V208-NT (7C39780A)	9131960	610127777	TAIWN-G	500	54	0	
CY39200V208-NT (7C39780A)	9131960	610127777	TAIWN-G	1000	54	0	
CY39200V208-NT (7C39780A)	9133017	610132053	TAIWN-G	500	54	0	
CY39200V208-NT (7C39780A)	9133017	610132054	TAIWN-G	500	48	0	

Reliability Test Data

QTP #: 011601

Device	Fab Lot #	Assy Lot #	Ass Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: ACOUSTIC MSL3							
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	
STRESS: TC COND. C -65C TO 150C, PRE CONDITION 192 HR 30C/60%RH, MSL3							
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>
STRESS: ACOUSTIC MSL5							
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	
STRESS: RESISTANCE TO SOLVENTS							
CY39100V208-NT (7C39480A)	9044202	340000404	TAIWN-G	COMP	12	0	
CY39100V208-NT (7C39480A)	9050314	340000428	TAIWN-G	COMP	12	0	
STRESS: HIGH TEMPERATURE STORAGE (150C)							
CY39100V208-NT (7C39480A)	9044179	340000395	KOREA-GQ	500	48	0	
STRESS: BALL SHEAR							
CY39100V208-NT (7C39480A)	9044202	340000404	TAIWN-G	COMP	10	0	
CY39100V208-NT (7C39480A)	9050314	340000428	TAIWN-G	COMP	10	0	
STRESS: BOND PULL							
CY39100V208-NT (7C39480A)	9044202	340000404	TAIWN-G	COMP	10	0	
CY39100V208-NT (7C39480A)	9050314	340000428	TAIWN-G	COMP	10	0	
STRESS: PHYSICAL DIMENSIONS							
CY39100V208-NT (7C39480A)	9044202	340000404	TAIWN-G	COMP	5	0	
CY39100V208-NT (7C39480A)	9050314	340000428	TAIWN-G	COMP	5	0	
STRESS: DIE SHEAR							
CY39100V208-NT (7C39480A)	9044202	340000404	TAIWN-G	COMP	15	0	
CY39100V208-NT (7C39480A)	9050314	340000428	TAIWN-G	COMP	15	0	
STRESS: EXTRNAL VISUAL							
CY39100V208-NT (7C39480A)	9050314	340000428	TAIWN-G	COMP	15	0	
STRESS: INTERNAL VISUAL							
CY39100V208-NT (7C39480A)	9050314	340000428	TAIWN-G	COMP	5	0	
STRESS: X-RAY							
CY39100V208-NT (7C39480A)	9050314	340000428	TAIWN-G	COMP	15	0	
STRESS: SOLDERABILITY							
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

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