Cypress Semiconductor
Package Qualification Report

QTP# 004402 VERSION 1.0
April, 2002

CYP25G01100VIA - Programmable Serial Interface

in 456-ball Plastic Ball Grid Array

MSL3, ASE Taiwan

CYPRESS TECHNICAL CONTACT FOR QUALIFICATION DATA:

Ed Russell
Reliability Director
(408) 432-7069

Al Laxman
Quality Engineering
(408) 745-2120

PACKAGE QUALIFICATION HISTORY

QUAL REPORT		DESCRIPTION OF QUALIFICATION PURPOSE		DATE COMP
004402		Programmable Serial Interface, CYP25G01100VIA in 456-ball (35 mm x 35mm) Plastic Ball Grid Array, MSL3		May 01

MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION	
Package Designation:	BG 388
Package Outline, Type, or Name:	388-ball Ball Grid Array (BG)
Mold Compound Name/Manufacturer:	Plaskon SMT-B-1
Mold Compound Flammability Rating:	V-O per UL94
Oxygen Rating Index:	＞28％
Substrate Material:	BT Resin
Lead Finish, Composition / Thickness:	Solder ball, 63％Sn, 37％Pb
Die Backside Preparation Method/Metallization:	N/A
Die Separation Method:	Wafer Saw
Die Attach Supplier:	Ablesitk
Die Attach Material:	8355F
Die Attach Method:	Epoxy
Bond Diagram Designation	10-04294
Wire Bond Method:	Thermosonic
Wire Material/Size:	Gold, 1.0mil
Thermal Resistance Theta JA °C/W:	18.2°C/W
Package Cross Section Yes/No:	N/A
Assembly Process Flow:	41-41008
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

MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION	
Package Designation:	BG 456
Package Outline, Type, or Name:	456-ball Ball Grid Array (BG)
Mold Compound Name/Manufacturer:	Plaskon SMT-B-1
Mold Compound Flammability Rating:	V-O per UL94
Oxygen Rating Index:	＞28%
Substrate Material:	BT Resin
Lead Finish, Composition / Thickness:	Solder ball, 63%Sn, 37%Pb
Die Backside Preparation Method/Metallization:	N/A
Die Separation Method:	Wafer Saw
Die Attach Supplier:	Dexter
Die Attach Material:	Ablesitk
Die Attach Method:	8355F
Bond Diagram Designation	10-04075
Wire Bond Method:	Thermosonic
Wire Material/Size:	Gold, 1.0mil
Thermal Resistance Theta JA °C/W:	21.2°C/W
Package Cross Section Yes/No:	N/A
Assembly Process Flow:	41-41008
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 P/F
Temperature Cycle	MIL-STD-883C, Method 1010, Condition C, -65°C to 150°C Precondition: JESD22 Moisture Sensitivity MSL 3 192 Hrs., 30°C/60%RH+3IR-Reflow, 220°C+5, -0°C	P
Pressure Cooker	121°C, 100%RH Precondition: JESD22 Moisture Sensitivity MSL 3 192 Hrs, 30C/60%RH+3IR-Reflow, 220°C+5, 0°C	P
High Accelerated Saturation Test (HAST)	130°C, 3.63V,85%RH Precondition: JESD22 Moisture Sensitivity MSL 3 192 Hrs, 30C/60%RH+3IR-Reflow, 220°C+5, 0°C	P
Electrostatic Discharge Charge Device Model (ESD-CDM)	500V Cypress Spec. 25-00020	P
High Temperature Storage	150C, no bias	P
Thermal Shock	-55C to +125C Cypress Spec. 25-00014	P
Ball Shear	Cypress Spec 12-00292	P
Bond Pull	Cypress Spec 12-00292	P
Die Shear	Cypress Spec 12-00292	P
External Visual	Cypress Spec 12-00292	P
Internal Visual	Cypress Spec 12-00292	P
X-Ray	MIL-STD-883, Method 32012, Cypress Spec. 12-00292	P
Acoustic Microscopy, MSL 3	Cypress Spec. 25-00104	P

Reliability Test Data

QTP #: 004402

Device	Fab Lot #	Assy Lot #	Ass Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: ACOUSTIC, MSL3							
CYPSI2G100P456 (7M92840A)	9050314	*340000454*	TAIWN-G	COMP	15	0	
CYPSI2G100P456 (7M92840A)	9101432	*610105006*	TAIWN-G	COMP	15	0	
CYPSI2G100P456 (7M92840A)	9101432	*610105666*	TAIWN-G	COMP	15	0	
CY39100V388 (7C39485A)	9044202	*610046396*	TAIWN-G	COMP	15	0	
STRESS: THERMAL SHOCK, +125C/-55C							
CYPSI2G100P456 (7M92840A)	9050314	*340000454*	TAIWN-G	100	48	0	
CYPSI2G100P456 (7M92840A)	9050314	*340000454*	TAIWN-G	200	48	0	
STRESS: HIGH TEMPERATURE STORAGE, 150C							
CYPSI2G100P456 (7M92840A)	9050314	*340000454*	TAIWN-G	500	48	0	
CYPSI2G100P456 (7M92840A)	9050314	*340000454*	TAIWN-G	1000	48	0	
STRESS: ESD-CHARGE DEVICE MODEL, 500V							
CYPSI2G100P456 (7M92840A)	9050314	*340000454*	TAIWN-G	COMP	9	0	
CY39100V388 (7C39485A)	9044202	*610045815*	TAIWN-G	COMP	9	0	
STRESS: BALL SHEAR							
CYPSI2G100P456 (7M92840A)	9050314	*340000454*	TAIWN-G	COMP	12	0	
STRESS: BOND PULL							
CYPSI2G100P456 (7M92840A)	9050314	*340000454*	TAIWN-G	COMP	12	0	
STRESS: PHYSICAL DIMENSIONS							
CYPSI2G100P456 (7M92840A)	9050314	*340000454*	TAIWN-G	COMP	5	0	
STRESS: DIE SHEAR							
CYPSI2G100P456 (7M92840A)	9050314	*340000454*	TAIWN-G	COMP	15	0	
STRESS: BOND PULL							
CYPSI2G100P456 (7M92840A)	9050314	*340000454*	TAIWN-G	COMP	15	0	
STRESS: EXTERNAL VISUAL							
CYPSI2G100P456 (7M92840A)	9050314	*340000454*	TAIWN-G	COMP	15	0	
STRESS: INTERNAL VISUAL							
CYPSI2G100P456 (7M92840A)	9050314	*340000454*	TAIWN-G	COMP	5	0	
STRESS: X-RAY							
CYPSI2G100P456 (7M92840A)	9050314	*340000454*	TAIWN-G	COMP	15	0	
STRESS: PRESSURE COOKER TEST, 121C, 100%RH, PRE COND 192 HR 30C/60%RH, MSL3							
CYPSI2G100P456 (7M92840A)	9050314	*340000454*	TAIWN-G	168	48	0	
CYPSI2G100P456 (7M92840A)	9050314	*340000454*	TAIWN-G	288	48	0	

Reliability Test Data

QTP #: 004402

Device	Fab Lot #	Assy Lot #	Ass Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: HI-ACCEL SATURATION TEST, 130C, 85%RH, 3.63V, PRE COND 192 HR 30C/60%RH, MSL3							
CYPSI2G100P456 (7M92840A)	9101432	*610105006*	TAIWN-G	128	45	0	
CY39100V388 (7C39485A)	9101432	*610106765*	TAIWN-G	128	45	0	
STRESS: TC COND. C -65C TO 150C, PRECONDITION 192 HRS 30C/60%RH, MSL3							
CYPSI2G100P456 (7M92840A)	9050314	*340000454*	TAIWN-G	300	48	0	
CYPSI2G100P456 (7M92840A)	9050314	*340000454*	TAIWN-G	500	48	0	
CYPSI2G100P456 (7M92840A)	9101432	*610105006*	TAIWN-G	300	45	0	
CYPSI2G100P456 (7M92840A)	9101432	*610105666*	TAIWN-G	300	45	0	