Cypress Semiconductor
Package Qualification Report

QTP# 040807 VERSION 1.0
May 2004

24-lead Dual Die TSSOP (4.4mm Body) Package
MSL1, 260C Reflow

Cypress Philippines (CML-RA) Autoline Assembly

CYPRESS TECHNICAL CONTACT FOR QUALIFICATION DATA:

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PACKAGE QUALIFICATION HISTORY

QUAL REPORT		DESCRIPTION OF QUALIFICATION PURPOSE		DATE COMP.
040807		24-lead (4.4mm body) TSSOP package using Hitachi CEL9200 Molding Compound and MSL1, 260C Reflow @ Cypress Philippines Autoline (CML-RA)		Apr 04

MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION	
Package Designation:	ZZ2415
Package Outline, Type, or Name:	24-Lead Thin Shrunk Small Outline Package (TSSOP)
Mold Compound Name/Manufacturer:	Hitachi CEL9200I
Mold Compound Flammability Rating:	V-O per UL94
Oxygen Rating Index:	>28%
Lead Frame Material:	Copper with NiPdAu Pre-plated
Lead Finish, Composition / Thickness:	Ni (20~80uinch), Pd (0.8~1.2 uinch), Au (0.12~0.5 uinch)
Die Backside Preparation Method/Metallization:	Backgrind
Die Separation Method:	Sawing
Die Attach Supplier:	Dexter
Die Attach Material:	QMI 509
Die Attach Method:	Dispensing
Bond Diagram Designation	10-05016
Wire Bond Method:	Thermosonic
Wire Material/Size:	Gold, 0.8mil
Thermal Resistance Theta JA °C/W:	94.71 °C/W
Package Cross Section Yes/No:	N/A
Assembly Process Flow:	11-20028
Name/Location of Assembly (prime) facility:	Cypress Philippines Autoline (CML-RA)

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 PERFORMEDPER SPECIFICATION REQUIREMENT

Stress/Test	Test Condition (Temp/Bias)	Result P/F
Acoustic Microscopy, MSL 1	Cypress Spec 25-000104	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
Electrostatic Discharge Charge Device Model (ESD-CDM)	500V Cypress Spec. 25-00020	P
Electrostatic Discharge Human Body Model (ESD-HBM)	2200V JESD22, Method A114-B	P
Electrostatic Discharge Human Body Model (ESD-HBM)	2200V MIL-STD-883, Method 3015.7	P
High Accelerated Saturation Test	130°C, 3.63V, 85%RH Precondition: JESD22 Moisture Sensitivity MSL 1 168 Hrs., 85°C/85%RH+3IR-Reflow, 260°C+5, -0°C	P
High Temperature Storage	150°C ±5°C no bias	P
Internal Visual	Cypress Spec 12-00292	P
Physical Dimensions	Cypress Spec 25-00031	P
Pressure Cooker	121C, 100%RH Precondition: JESD22 Moisture Sensitivity MSL 1 168 Hrs., 85°C/85%RH+3IR-Reflow, 260°C+5, -0°C	P
Temperature Cycle	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, 260°C+5, -0°C	P
Thermal Shock	-55°C to +125°C Cypress Spec. 25-00014	P
Solderability	Cypress Spec 25-00018	P
X-Ray	Cypress Spec 12-00292	P

Reliability Test Data

QTP #: 040807

Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: ACOUSTIC - MICROSCOPE MSL1							
CY22313LFZC (7C822313B)	4336396	*610404762*	CSPI-RA	COMP	15	0	
CY22313LFZC (7C822313B)	4336396	*610404781*	CSPI-RA	COMP	15	0	
CY22313LFZC (7C822313B)	4336396	*610403717*	CSPI-RA	COMP	15	0	
STRESS: BALL SHEAR							
CY22313LFZC (7C822313B)	4336396	*610404762*	CSPI-RA	COMP	10	0	
STRESS: BOND PULL							
CY22313LFZC (7C822313B)	4336396	*610404762*	CSPI-RA	COMP	10	0	
STRESS: DIE SHEAR							
CY22313LFZC (7C822313B)	4336396	*610404762*	CSPI-RA	COMP	15	0	
STRESS: ESD-CHARGE DEVICE MODEL, 500V							
CY22313LFZC (7C822313B)	4336396	*610404762*	CSPI-RA	COMP	9	0	
STRESS: ESD-HUMAN BODY CIRCUIT PER JESD22, METHOD A114-B, 2200V							
CY22313LFZC (7C822313B)	4336396	*610404762*	CSPI-RA	COMP	9	0	
STRESS: ESD-HUMAN BODY CIRCUIT PER MIL STD 883, METHOD 3015, 2,200V							
CY22313LFZC (7C822313B)	4336396	*610404762*	CSPI-RA	COMP	3	0	
STRESS: EXERNAL VISUAL							
CY22313LFZC (7C822313B)	4336396	*610404762*	CSPI-RA	COMP	15	0	
STRESS: HIGH TEMPERATURE STORAGE, 150C							
CY22313LFZC (7C822313B)	4336396	*610404762*	CSPI-RA	500	45	0	
CY22313LFZC (7C822313B)	4336396	*610404762*	CSPI-RA	1000	45	0	
STRESS: HI-ACCEL SATURATION TEST. 130C, 3.63V, 85%RH, PRE COND 168 HR 85C/85%RH, MSL 1							
CY22313LFZC (7C822313B)	4336396	*610404762*	CSPI-RA	128	44	0	
STRESS: INTERNAL VISUAL							
CY22313LFZC (7C822313B)	4336396	*610404762*	CSPI-RA	COMP	5	0	
STRESS: PHYSICAL DIMENSIONS							
CY22313LFZC (7C822313B)	4336396	*610404762*	CSPI-RA	COMP	5	0	
STRESS: PRESSURE COOKER TEST, 121C, 100%RH, PRE COND 168 HR 85C/85%RH, MSL1							
CY22313LFZC (7C822313B)	4336396	*610404762*	CSPI-RA	168	45	0	

Reliability Test Data

QTP #: 040807

Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: SOLDERABILITY							
CY22313LFZC (7C822313B)	4336396	*610404762*	CSPI-RA	COMP	3	0	
STRESS: THERMAL SHOCK, +125C/-55C							
CY22313LFZC (7C822313B)	4336396	*610404762*	CSPI-RA	100	45	0	
CY22313LFZC (7C822313B)	4336396	*610404762*	CSPI-RA	200	45	0	
STRESS: TC COND. C -65C TO 150C, PRECONDITION 168 HRS 85C/85%RH, MSL1							
CY22313LFZC (7C822313B)	4336396	*610404762*	CSPI-RA	300	45	0	
CY22313LFZC (7C822313B)	4336396	*610404762*	CSPI-RA	500	45	0	
CY22313LFZC (7C822313B)	4336396	*610404762*	CSPI-RA	1000	45	0	
CY22313LFZC (7C822313B)	4336396	*610404781*	CSPI-RA	300	45	0	
CY22313LFZC (7C822313B)	4336396	*610404781*	CSPI-RA	500	43	0	
CY22313LFZC (7C822313B)	4336396	*610404781*	CSPI-RA	1000	43	0	
CY22313LFZC (7C822313B)	4336396	*610403717*	CSPI-RA	300	45	0	
CY22313LFZC (7C822313B)	4336396	*610403717*	CSPI-RA	500	45	0	
CY22313LFZC (7C822313B)	4336396	*610403717*	CSPI-RA	1000	45	0	
STRESS: X-RAY							
CY22313LFZC (7C822313B)	4336396	*610404762*	CSPI-RA	COMP	15	0	