

Cypress Semiconductor Package Qualification Report

**QTP# 062304 VERSION 1.0
October 2006**

48-Ball Fine Pitch Ball Grid Array (FBGA)

(8 x 9.5 x 1.0mm)

SnAgCu, MSL3, 260°C Reflow

CML-Autoline

CYPRESS TECHNICAL CONTACT FOR QUALIFICATION DATA:

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PACKAGE QUALIFICATION HISTORY

Qual Report	Description of Qualification Purpose	Date Comp
062304	Qualify CML-RA (Autoline) assemble 48-Ball FBGA, 8 x 9.5 x1.0mm using CK 700LA Cookson, QMI 506, BT Kinsus Substrate, Sn/Ag/Cu, MSL3, 260C Reflow	Oct 06

MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION	
Package Designation:	BZ48
Package Outline, Type, or Name:	48-Ball FBGA (8 x 9.5 x 1.0mm) Fine Pitch Ball Grid Array
Mold Compound Name/Manufacturer:	CK 7000LA
Mold Compound Flammability Rating:	V-O per UL94
Oxygen Rating Index:	34%
Substrate Material:	BT Kinsus
Lead Finish, Composition / Thickness:	Sn/Ag/Cu
Die Backside Preparation Method/Metallization:	Backgrind
Die Separation Method:	100% Saw Through
Die Attach Supplier:	Dexter
Die Attach Material:	QMI 506
Die Attach Method:	Epoxy
Bond Diagram Designation:	10-07075
Wire Bond Method:	Thermosonic
Wire Material/Size:	Au, 0.8mil
Thermal Resistance Theta JA °C/W:	25.64°C/W
Package Cross Section Yes/No:	N/A
Assembly Process Flow:	11-21101
Name/Location of Assembly (prime) facility:	CML-RA
MSL Level	3
Reflow Profile	260C

ELECTRICAL TEST / FINISH DESCRIPTION	
Test Location:	CML-R

RELIABILITY TESTS PERFORMED PER SPECIFICATION REQUIREMENTS

Stress/Test	Test Condition (Temp/Bias)	Result P/F
Temperature Cycle	JEDEC22, Condition C, -65°C to 150°C Precondition: JESD22 Moisture Sensitivity MSL3 192 Hrs, 30°C/60%RH+3IR-Reflow, 260°C+0, -5°C	P
High Accelerated Saturation	130°C, 5.5V, 85%RH Precondition: JESD22 Moisture Sensitivity MSL3 192 Hrs, 30°C/60%RH+3IR-Reflow, 260°C+0, -5°C	P
Pressure Cooker	121C, 100%RH, 15 Psig Precondition: JESD22 Moisture Sensitivity MSL3 192 Hrs, 30°C/60%RH+3IR-Reflow, 260°C+0, -5°C	P
Acoustic Microscopy Test	Cypress Spec. 25-00104	P
Ball Shear	Cypress Spec. 24-00018	P
Bond Pull	Cypress Spec. 24-00002	P
Constructional Analysis	Cypress Spec. 25-20035	P
Die Shear	Cypress Spec. 12-00215	P
Dye Penetration	Cypress Spec. 25-00046	P
External Visual	Cypress Spec. 25-00038	P
Internal Visual	Cypress Spec. 25-00017	P
Physical Dimension	Cypress Spec. 25-00031	P
X-Ray	Cypress Spec. 12-00292	P

Reliability Test Data

QTP #: 062304

<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, MSL3							
CY621627DV30LL (7C62162D)	4616792	610634139	CML-RA	COMP	15	0	
CY62167DV30LL (7C62162D)	4617127	610634307	CML-RA	COMP	15	0	
CY62167DV30LL (7C62162D)	4616977	610634459	CML-RA	COMP	15	0	
STRESS: BOND PULL							
CY62167DV30LL (7C62162D)	4616792	610634139	CML-RA	COMP	10	0	
STRESS: BALL SHEAR							
CY62167DV30LL (7C62162D)	4616792	610634139	CML-RA	COMP	10	0	
STRESS: CONSTRUCTIONAL ANALYSIS							
CY62167DV30LL (7C62162D)	4616792	610634139	CML-RA	COMP	5	0	
STRESS: DIE SHEAR							
CY62167DV30LL (7C62162D)	4616792	610634139	CML-RA	COMP	15	0	
CY62167DV30LL (7C62162D)	4617127	610634307	CML-RA	COMP	15	0	
STRESS: DYE PENETRATION							
CY62167DV30LL (7C62162D)	4616792	610634139	CML-RA	COMP	15	0	
CY62167DV30LL (7C62162D)	4617127	610634307	CML-RA	COMP	15	0	
CY62167DV30LL (7C62162D)	4616977	610634459	CML-RA	COMP	15	0	
STRESS: EXTERNAL VISUAL							
CY62167DV30LL (7C62162D)	4616792	610634139	CML-RA	COMP	15	0	
STRESS: INTERNAL VISUAL							
CY62167DV30LL (7C62162D)	4616792	610634139	CML-RA	COMP	5	0	
CY62167DV30LL (7C62162D)	4617127	610634307	CML-RA	COMP	5	0	
STRESS: PHYSICAL DIMENSIONS							
CY62167DV30LL (7C62162D)	4616792	610634139	CML-RA	COMP	5	0	
CY62167DV30LL (7C62162D)	4617127	610634307	CML-RA	COMP	5	0	
CY62167DV30LL (7C62162D)	4616977	610634459	CML-RA	COMP	5	0	
STRESS: HI-ACCEL SATURATION TEST (130C, 85%RH, 5.5V), PRE COND 192 HR 30C/60%RH, MSL3							
CY62167DV30LL (7C62162D)	4616792	610634139	CML-RA	128	43	0	

Reliability Test Data

QTP #: 062304

Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: PRESSURE COOKER TEST (121C, 100%RH), 15 Psig, PRE COND 192 HR 30C/60%RH, MSL3							
CY62167DV30LL (7C62162D)	4616792	610634139	CML-RA	168	41	0	
STRESS: TC COND. C -65C TO 150C, PRE COND 192 HR 30C/60%RH, MSL3							
CY62167DV30LL (7C62162D)	4616792	610634139	CML-RA	300	45	0	
CY62167DV30LL (7C62162D)	4616792	610634139	CML-RA	500	45	0	
CY62167DV30LL (7C62162D)	4617127	610634307	CML-RA	300	45	0	
CY62167DV30LL (7C62162D)	4617127	610634307	CML-RA	500	45	0	
CY62167DV30LL (7C62162D)	4616977	610634459	CML-RA	300	44	0	
CY62167DV30LL (7C62162D)	4616977	610634459	CML-RA	500	44	0	
STRESS: X-RAY							
CY62167DV30LL (7C62162D)	4616792	610634139	CML-RA	COMP	15	0	
CY62167DV30LL (7C62162D)	4617127	610634307	CML-RA	COMP	15	0	