

Cypress Semiconductor Package Qualification Report

**QTP# 060307 VERSION 1.0
October 2006**

48-Ball Fine Pitch Ball Grid Array

(6 x 8 x 1.0mm)

MSL3, Pb-Free, 260°C Reflow

GAPT-China (GK)

CYPRESS TECHNICAL CONTACT FOR QUALIFICATION DATA:

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PACKAGE QUALIFICATION HISTORY

Qual Report	Description of Qualification Purpose	Date Comp
060307	Qualify GAPT-China (GK) using Sn (98.5%)/Ag (1.0%)/Cu (0.5%) Solder Ball Composition (6x8x1.0mm), KE-G2250LKDS Mold Compound, 2025D/A, MSL3, 260C	Aug 06

MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION	
Package Designation:	BZ48
Package Outline, Type, or Name:	48-Ball FBGA (6 x 8 x 1.0m) Fine Pitch Ball Grid Array
Mold Compound Name/Manufacturer:	Kyocera KE-G2250LKDS
Mold Compound Flammability Rating:	V-O per UL94
Oxygen Rating Index:	NA
Substrate Material:	BT Resin
Lead Finish, Composition / Thickness:	Sn (98.5%), Ag (1%), Cu (0.5%)
Die Backside Preparation Method/Metallization:	Backgrind
Die Separation Method:	Wafer Saw
Die Attach Supplier:	Ablestik
Die Attach Material:	Ablestik 2025D
Die Attach Method:	Epoxy
Bond Diagram Designation:	10-06486
Wire Bond Method:	Thermosonic
Wire Material/Size:	Au, 1.0mil
Thermal Resistance Theta JA °C/W:	35.85°C/W
Package Cross Section Yes/No:	N/A
Assembly Process Flow:	001-09801
Name/Location of Assembly (prime) facility:	GAPT-China (GK)
MSL Level	3
Reflow Profile	260C

ELECTRICAL TEST / FINISH DESCRIPTION	
Test Location:	Cypress Philippines (CML-R)

RELIABILITY TESTS PERFORMED PER SPECIFICATION REQUIREMENTS

Stress/Test	Test Condition (Temp/Bias)	Result P/F
High Temperature Operating Life Early Failure Rate	Dynamic Operating Condition, Vcc= 125C, 3.8V Vcc Max	P
High Temperature Operating Life Latent Failure Rate	Dynamic Operating Condition, Vcc= 150C, 3.8V Vcc Max	P
Temperature Humidity Bias Test	85C/85%RH, 3.8V 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
Temperature Cycle	Precondition: JESD22 Moisture Sensitivity MSL 3 192 Hrs, 30°C/60%RH+3IR-Reflow, 260°C+0, -5°C	P
Acoustics Microscopy	Cypress Spec. 25-00104	P
High Temperature Storage	150°C, no bias	P
X-Ray	MIL-STD-883-2012	P

Reliability Test Data

QTP #: 060307

Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: ACOUSTIC, MSL3							
CY256K16MCBU (K256K6C7B)	9430274	610555387	CHINA-GK	COMP	15	0	
CY256K16MCBU (K256K6C7B)	9430274	610555391	CHINA-GK	COMP	15	0	
CY256K16MCBU (K256K6C7B)	9430274	610555392	CHINA-GK	COMP	15	0	
STRESS: HIGH TEMP DYNAMIC OPERATING LIFE-EARLY FAILURE RATE (125C, 3.8V, Vcc Max)							
CY128K16MCBU (K256K6C7B)	8538078	610603920	CHINA-GK	96	1920	0	
CY128K16MCBU (K256K6C7B)	8538078	610603921	CHINA-GK	96	1919	0	
STRESS: HIGH TEMP DYNAMIC OPERATING LIFE-LATENT FAILURE RATE (150C, 3.8V, Vcc Max)							
CY256K16MCBU (K256K6C7B)	9430274	610555391	CHINA-GK	80	124	0	
CY256K16MCBU (K256K6C7B)	9430274	610555391	CHINA-GK	512	124	0	
CY256K16MCBU (K256K6C7B)	9430274	610555392	CHINA-GK	80	120	0	
CY256K16MCBU (K256K6C7B)	9430274	610555392	CHINA-GK	512	120	0	
STRESS: HIGH TEMPERATURE STORAGE, 150C, no bias							
CY256K16MCBU (K256K6C7B)	9430274	610555392	CHINA-GK	500	50	0	
CY256K16MCBU (K256K6C7B)	9430274	610555392	CHINA-GK	1000	50	0	
STRESS: PRESSURE COOKER TEST (121C, 100%RH), 15 Psig, PRE COND 192 HR 30C/60%RH, MSL3							
CY256K16MCBU (K256K6C7B)	9430274	610555391	CHINA-GK	168	44	0	
CY256K16MCBU (K256K6C7B)	9430274	610555392	CHINA-GK	168	44	0	
STRESS: TC COND. C -65C TO 150C, PRE COND 192HR 30C/60%RH, MSL3							
CY256K16MCBU (K256K6C7B)	9430274	610555387	CHINA-GK	300	45	0	
CY256K16MCBU (K256K6C7B)	9430274	610555387	CHINA-GK	500	44	0	
CY256K16MCBU (K256K6C7B)	9430274	610555387	CHINA-GK	1000	44	0	
CY256K16MCBU (K256K6C7B)	9430274	610555391	CHINA-GK	300	45	0	
CY256K16MCBU (K256K6C7B)	9430274	610555391	CHINA-GK	500	45	0	
CY256K16MCBU (K256K6C7B)	9430274	610555391	CHINA-GK	1000	45	0	
CY256K16MCBU (K256K6C7B)	9430274	610555392	CHINA-GK	300	45	0	
CY256K16MCBU (K256K6C7B)	9430274	610555392	CHINA-GK	500	45	0	
CY256K16MCBU (K256K6C7B)	9430274	610555392	CHINA-GK	1000	45	0	

Reliability Test Data

QTP #: 060307

Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: TEMPERATURE HUMIDITY BIAS TEST (85C, 85%RH, 3.8V), PRE COND 192 HR 30C/60%RH, MSL3							
CY128K16MCBU (K256K6C7B)	8538078	610603920	CHINA-GK	500	25	0	
CY128K16MCBU (K256K6C7B)	8538078	610603920	CHINA-GK	1000	25	0	
CY128K16MCBU (K256K6C7B)	8538078	610603921	CHINA-GK	500	23	0	
CY128K16MCBU (K256K6C7B)	8538078	610603921	CHINA-GK	1000	23	0	
STRESS: X-RAY							
CY256K16MCBU (K256K6C7B)	9430274	610555391	CHINA-GK	COMP	15	0	
CY256K16MCBU (K256K6C7B)	9430274	610555392	CHINA-GK	COMP	15	0	