

RELIABILITY MONITOR REPORT
FOR

BGA Module Package

Dallas Semiconductor

4401 South Beltwood Parkway
Dallas, TX 75244-3292

This Report was prepared by
Dallas Semiconductor Reliability Engineering

Summary:

The data in the tables that follow was generated as the result of an on-going Package Reliability Monitor. The assemblies covered by this package monitor are:

ASSY SITE	PINS	PACKAGE	ASSY SITE	PINS	PACKAGE
ATP (Amkor, PI)	256	MCMBGA	ATP (Amkor, PI)	300	MCMBGA
Dallas	256	BGA Module w/RRBattery	Dallas	168	BGA Module, 1 Side
Dallas	168	BGA Module, 2 Sided, Frame	Fastech	168	BGA Module, 1 Side
Stats	256	MCMBGA	Stats	300	MCMBGA

The calculated failure rate for this assembly is:

The parameters used to calculate this failure rate are as follows:

Cf: 60% **Ea: 0.7** **B: 0** **Tu: 25 °C** **Vu: 5.5 Volts**

The reliability data follows. At the start of this data is a description of the assembly vehicle used to generate this reliability data. The next section is the detailed reliability data for each stress. The reliability data section includes the latest data available. This report covers data between 10/1/03 and 9/30/04.

Assembly Information:

Package Type: BGA Module 1670 mil
 Flammability: UL 94-V0
 Moisture Sensitivity
 (JEDEC J-STD20A) Level 4
 Date Code Range: 0348 to 0348

PACKAGE TESTS

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
X-RAY	0348	DS1254	MIL-STD-883-2012 : TOP & SIDE VIEW		6	0	
PHYSICAL DIMENSIONS			JESD22-B100		6	0	
MARK PERMANENCY			JESD22-B107		6	0	
BALL SHEAR			JESD22-B117		6	0	
Total:						0	

PRECONDITIONING LEVEL 3

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
STORAGE LIFE	0348	DS1254	125C	24 HRS	135	0	
MOISTURE SOAK			30C/60% R.H.	192 HRS	135	0	
CONVECTION REFLOW			220C +5/-0C	2 PASS	135	0	
EXTERNAL VISUAL			JESD22-B101		50	0	
Total:						0	

TEMPERATURE CYCLE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
TEMP CYCLE	0348	DS1254	0C TO 70C	1000 CYS	45	0	
EXTERNAL VISUAL			JESD22-B101		45	0	
Total:						0	

UNBIASED MOISTURE RESISTANCE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
-------------	-----------	--------------	-----------	-----------	----------	-------	-------

MOISTURE SOAK	0348	DS1254	60C/90% R.H.	1000 HRS	45	0
Total:						0

Assembly Information:

Package Type: BGA Module 1725 mil
 Flammability: UL 94-V0
 Moisture Sensitivity (JEDEC J-STD20A) Level 3
 Date Code Range: 0350 to 0418

PACKAGE TESTS

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
X-RAY	0401	DS3832	MIL-STD-883-2012 : TOP & SIDE VIEW		6	0	
PHYSICAL DIMENSIONS			JESD22-B100		6	0	
MARK PERMANENCY			JESD22-B107		6	0	
BALL SHEAR			JESD22-B117		6	0	
Total:						0	

PRECONDITIONING LEVEL 3

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
STORAGE LIFE	0350	DS3832	125C	24 HRS	24	0	
MOISTURE SOAK			30C/60% R.H.	192 HRS	24	0	
CONVECTION REFLOW			220C +5/-0C	2 PASS	24	0	
EXTERNAL VISUAL			JESD22-B101		24	0	
STORAGE LIFE	0401	DS3832	125C	24 HRS	135	0	
MOISTURE SOAK			30C/60% R.H.	192 HRS	135	0	
CONVECTION REFLOW			220C +5/-0C	2 PASS	135	0	
STORAGE LIFE	0418	DS3832	125C	24 HRS	24	0	
MOISTURE SOAK			30C/60% R.H.	192 HRS	24	0	
CONVECTION REFLOW			220C +5/-0C	2 PASS	24	0	
EXTERNAL VISUAL			JESD22-B101		24	0	
Total:						0	

STORAGE LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
STORAGE LIFE	0350	DS3832	85 C	1000 HRS	8	0	
STORAGE LIFE	0401	DS3832	85 C	1000 HRS	45	0	
STORAGE LIFE	0418	DS3832	85 C	500 HRS	8	0	
Total:						0	

TEMPERATURE CYCLE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
TEMP CYCLE	0350	DS3832	-40 TO 85C	1000 CYS	8	0	
TEMP CYCLE	0401	DS3832	-40 TO 85C	1000 CYS	45	0	
EXTERNAL VISUAL			JESD22-B101		45	0	
TEMP CYCLE	0418	DS3832	-40 TO 85C	1000 CYS	8	0	
EXTERNAL VISUAL			JESD22-B101		8	0	
Total:						0	

UNBIASED MOISTURE RESISTANCE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
MOISTURE SOAK	0350	DS3832	60C/90% R.H.	1000 HRS	8	0	
MOISTURE SOAK	0401	DS3832	60C/90% R.H.	1000 HRS	45	0	
MOISTURE SOAK	0418	DS3832	60C/90% R.H.	500 HRS	8	0	
				Total:		0	