

RELIABILITY MONITOR REPORT
FOR

BGA 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		
ASAT	256	CSBGA	ASAT	349 CSBGA
ASAT	400	CSBGA	ATP (Amkor, PI)	256 BGA
ATP (Amkor, PI)	272	BGA	ATP (Amkor, PI)	100 CSBGA
ATP (Amkor, PI)	16	CSBGA	ATP (Amkor, PI)	169 CSBGA
ATP (Amkor, PI)	25	CSBGA	ATP (Amkor, PI)	256 CSBGA
ATP (Amkor, PI)	49	CSBGA	ATP (Amkor, PI)	144 TE-PBGA
ATP (Amkor, PI)	144	TECSBGA	ATP (Amkor, PI)	256 TECSBGA
Carsem	25	CSBGA	Stats	256 BGA
Stats	100	CSBGA	Stats	16 CSBGA
Stats	25	CSBGA	Stats	49 CSBGA

The calculated failure rate for this assembly is:

FAILURE RATE: MTTF (YRS): 14084 FITS: 8.1

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 1/1/04 and 12/31/04 .

Assembly Information:

Package Type: CSBGA 27 mm
 Flammability: UL 94-V0
 Moisture Sensitivity
 (JEDEC J-STD20A) Level 3
 Date Code Range: 0403 to 0442

OPERATING LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
HIGH TEMP OP LIFE	0403	DS3184	125C, 3.5 VOLTS	1000 HRS	45	0	
HIGH TEMP OP LIFE	0442	DS3184	125C, 3.5 VOLTS	192 HRS	45	0	
				Total:		0	

Assembly Information:

Package Type: CSBGA 4 mm
 Flammability: UL 94-V0
 Moisture Sensitivity
 (JEDEC J-STD20A) Level 3
 Date Code Range: 0420 to 0420

MOISTURE SENSITIVITY LEVEL 3

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
ULTRASOUND	0420	DS1845	J-STD-020		7	0	
STORAGE LIFE			125C	24 HRS	7	0	
MOISTURE SOAK			30C/60% R.H.	192 HRS	7	0	

CONVECTION REFLOW	0420	DS1845	235C +5/-0C	3	PASS	7	0
EXTERNAL VISUAL			J-STD-020, 6.1a			8	0
PRECONDITION U/S			J-STD-020			7	0
Total:						0	0

OPERATING LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
HIGH TEMP OP LIFE	0420	DS1845	125C, 5.5 VOLTS	1000 HRS	77	0	
Total:						0	0

PACKAGE TESTS

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
X-RAY	0420	DS1845	MIL-STD-883-2012 : TOP & SIDE VIEW		6	0	
PHYSICAL DIMENSIONS			JESD22-B100		6	0	
BALL SHEAR			JESD22-B117		6	0	
Total:						0	0

PRECONDITIONING LEVEL 3

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
STORAGE LIFE	0420	DS1845	125C	24 HRS	244	0	
MOISTURE SOAK			30C/60% R.H.	192 HRS	244	0	
CONVECTION REFLOW			235C +5/-0C	3 PASS	244	0	
Total:						0	0

STORAGE LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
STORAGE LIFE	0420	DS1845	150C	1000 HRS	77	0	
Total:						0	0

TEMPERATURE CYCLE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
TEMP CYCLE	0420	DS1845	-55C TO 125C	1000 CYS	76	0	
Total:						0	0

UNBIASED MOISTURE RESISTANCE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
MOISTURE SOAK	0420	DS1845	85 C/85% R.H.	1000 HRS	77	0	
Total:						0	0

Assembly Information:

Package Type: TE-PBGA 17 mm
 Flammability: UL 94-V0
 Moisture Sensitivity (JEDEC J-STD20A) Level 3
 Date Code Range: 0402 to 0402

OPERATING LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
HIGH TEMP OP LIFE	0402	DS21448	125C, 3.5 VOLTS	1000 HRS	45	0	

FAILURE RATE:

MTTF (YRS): 14084

FITS: 8.1

Total:

0