

RELIABILITY MONITOR REPORT
FOR

Flip Chip 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		
Dallas		Bump, 1 layer, glob	Dallas	Bump, 1 layer, no encap.
Dallas		Bump, 1 layer, underfill	Dallas	Bump, 2 layer, glob
Dallas		Bump, 2 layer, no encap.	Dallas	Bump, 2 layer, underfill
Dallas		Bump, 2 layer, underfill, resistor	Dallas	Bump, RDL layer, BCB Passivation
Dallas		CSP20, RDL	Dallas	Flip Chip, glob (RoHS)
Dallas		Flip Chip, no encap. (RoHS)		

The calculated failure rate for this assembly is:

FAILURE RATE: **MTTF (YRS): 30081** **FITS: 3.8**

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 7/1/04 and 6/30/05 .

Assembly Information:

Package Type: Flip Chip (Solder Bump) (RoHS)
 Flammability: UL 94-V0
 Moisture Sensitivity
 (JEDEC J-STD20A) Level 1
 Date Code Range: 0437 to 0437

OPERATING LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
HIGH TEMP OP LIFE	0437	DS2502	125C, 6.0 VOLTS	1000 HRS	80	0	
HIGH TEMP OP LIFE	0437	DS2502	125C, 6.0 VOLTS	1000 HRS	80	0	
				Total:		0	

STORAGE LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
STORAGE LIFE	0437	DS2502	125C	1000 HRS	80	0	
STORAGE LIFE	0437	DS2502	125C	1000 HRS	80	0	
				Total:		0	

TEMPERATURE CYCLE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
TEMP CYCLE	0437	DS2502	-40 TO 85C	1000 CYS	80	0	
TEMP CYCLE	0437	DS2502	-40 TO 85C	1000 CYS	80	0	
				Total:		0	

TEMPERATURE HUMIDITY BIAS

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

BIASED MOISTURE	0437	DS2502	85/85, 5.5 VOLTS	1000 HRS	80	0
BIASED MOISTURE	0437	DS2502	85/85, 5.5 VOLTS	1000 HRS	80	0
Total:						0

UNBIASED MOISTURE RESISTANCE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
AUTOCLAVE	0437	DS2502	121C, 2 ATM STEAM, UNBIASED	168 HRS	76	0	
AUTOCLAVE	0437	DS2502	121C, 2 ATM STEAM, UNBIASED	168 HRS	76	0	
Total:						0	

Assembly Information:

Package Type: Flip Chip RDL (Solder Bump)
 Flammability: UL 94-V0
 Moisture Sensitivity (JEDEC J-STD20A) Level 1
 Date Code Range: 0427 to 0500

OPERATING LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
HIGH TEMP REVERSE BIAS	0427	DS2431	125C, 5.25 VOLTS	1000 HRS	48	0	
HIGH TEMP REVERSE BIAS	0443	DS2432	125C, 5.25 VOLTS	1000 HRS	48	0	
Total:						0	

PRECONDITIONING LEVEL 1

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
STORAGE LIFE	0437	DS2432	125C	24 HRS	154		
MOISTURE SOAK			85 C/85% R.H.	168 HRS	154		
CONVECTION REFLOW			235C +5/-0C	3 PASS	154	0	
Total:						0	

STORAGE LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
STORAGE LIFE	0437	DS2432	150C	1000 HRS	77	0	
STORAGE LIFE	0500	DS2432	150C	1000 HRS	77	0	
Total:						0	

TEMPERATURE CYCLE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
TEMP CYCLE, SLOW	0427	DS2431	-40C TO +125C	1000 CYS	48	4	30029640
TEMP CYCLE, SLOW	0437	DS2432	-40C TO +125C	1000 CYS	77	0	
TEMP CYCLE, SLOW	0443	DS2432	-40C TO +125C	1000 CYS	48	0	
TEMP CYCLE, SLOW	0500	DS2432	-40C TO +125C	1000 CYS	77	0	
Total:						4	

TEMPERATURE HUMIDITY BIAS

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

BIASED MOISTURE	0427	DS2431	85/85, 5.5 VOLTS	1000 HRS	48	0
BIASED MOISTURE	0443	DS2432	85/85, 5.5 VOLTS	1000 HRS	48	0
Total:					0	0

UNBIASED MOISTURE RESISTANCE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
AUTOCLAVE	0437	DS2432	121C, 2 ATM STEAM, UNBIASED	168 HRS	77	0	
AUTOCLAVE	0500	DS2432	121C, 2 ATM STEAM, UNBIASED	168 HRS	77	0	
Total:					0	0	

FAILURE RATE: **MTTF (YRS): 30081** **FITS: 3.8**