

RELIABILITY MONITOR REPORT
FOR

Module Package

Dallas Semiconductor

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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	6	Module	Dallas	10 Module w/Bent Frame
Dallas	14	Module w/Bent Frame	Dallas	16 Module w/Bent Frame
Dallas	24	Module w/Bent Frame	Dallas	28 Module w/Bent Frame
Dallas	7	Module w/Bent Frame	Dallas	24 Module w/Hi Density SMT
Dallas	26	Module w/Hi Density SMT	Dallas	28 Module w/Hi Density SMT
Dallas	32	Module w/Hi Density SMT	Dallas	36 Module w/Hi Density SMT
Dallas	40	Module w/Hi Density SMT	Dallas	0 Module w/Thru Hole
Dallas	24	Module w/Thru Hole	Dallas	28 Module w/Thru Hole
Dallas	32	Module w/Thru Hole	Dallas	42 Module w/Thru Hole
Fastech	6	Module	Fastech	10 Module w/Bent Frame
Fastech	14	Module w/Bent Frame	Fastech	16 Module w/Bent Frame
Fastech	24	Module w/Bent Frame	Fastech	28 Module w/Bent Frame
Fastech	24	Module w/Bent Frame (Pb-Free)	Fastech	28 Module w/Bent Frame (Pb-Free)
Fastech	24	Module w/Hi Density SMT	Fastech	28 Module w/Hi Density SMT
Fastech	32	Module w/Hi Density SMT	Fastech	36 Module w/Hi Density SMT
Fastech	40	Module w/Hi Density SMT	Fastech	24 Module w/Hi Density SMT (Pb-Free)
Fastech	28	Module w/Hi Density SMT (Pb-Free)	Fastech	32 Module w/Hi Density SMT (Pb-Free)
Fastech	24	Module w/Thru Hole	Fastech	28 Module w/Thru Hole
Fastech	32	Module w/Thru Hole	Fastech	24 Module w/Thru Hole (Pb-Free)
Fastech	28	Module w/Thru Hole (Pb-Free)	Fastech	32 Module w/Thru Hole (Pb-Free)

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 7/1/2005 and 6/30/2006 .

Assembly Information:

Package Type: Module 720
 Flammability: UL 94-V0
 Moisture Sensitivity
 (JEDEC J-STD20A) NA
 Date Code Range: 0518 to 0545

PACKAGE TESTS

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
SOLDERABILITY (Sn/Pb)	0518	DS1643	JESD22-B102, COND C		3	0	
PHYSICAL DIMENSIONS	0518	DS1643	JESD22-B100		6	0	
SOLDERABILITY (Pb-Free)	0528	DS1643	JESD22-B102, COND C		3	0	
SOLDERABILITY (Sn/Pb)			JESD22-B102, COND C		3	0	
X-RAY FLUORESCENCE	0528	DS1643	MATERIAL ANALYSIS		15	0	
X-RAY FLUORESCENCE	0528	DS1643	MATERIAL ANALYSIS		15	0	

PLATING THICKNESS	0528	DS1643	MATERIAL ANALYSIS		3	0
SOLDERABILITY (Sn/Pb)	0528	DS1643	JESD22-B102, COND C		3	0
PHYSICAL DIMENSIONS	0528	DS1643	JESD22-B100		6	0
SOLDERABILITY (Sn/Pb)	0545	DS1643	JESD22-B102, COND C		3	0
PHYSICAL DIMENSIONS	0545	DS1643	JESD22-B100		6	0
Total:					0	0

STORAGE LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
STORAGE LIFE	0518	DS1643	70 C	1000 HRS	77	0	
STORAGE LIFE	0528	DS1643	70 C	1000 HRS	77	0	
STORAGE LIFE	0545	DS1643	70 C	1000 HRS	77	0	
Total:						0	0

TEMPERATURE CYCLE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
TEMP CYCLE	0518	DS1643	0C TO 70C	1000 CYS	77	0	
TEMP CYCLE	0528	DS1643	0C TO 70C	1000 CYS	77	0	
TEMP CYCLE	0545	DS1643	0C TO 70C	1000 CYS	80	1	30048984
Total:						1	

UNBIASED MOISTURE RESISTANCE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
MOISTURE SOAK	0518	DS1643	60C/90% R.H.	1000 HRS	77	0	
MOISTURE SOAK	0528	DS1643	60C/90% R.H.	1000 HRS	77	0	
MOISTURE SOAK	0545	DS1643	60C/90% R.H.	1000 HRS	80	4	40048986
Total:						4	

Assembly Information:

Package Type: Module (Pb-Free) 720
 Flammability: UL 94-V0
 Moisture Sensitivity
 (JEDEC J-STD20A) NA
 Date Code Range: 0548 to 0548

PACKAGE TESTS

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
SOLDERABILITY (Sn/Pb)	0548	DS1747	JESD22-B102, COND C		3	0	
SOLDERABILITY (Pb-Free)			JESD22-B102, COND C		3	0	
X-RAY	0548	DS1747	MIL-STD-883-2012 : TOP & SIDE VIEW		6	0	
PHYSICAL DIMENSIONS			JESD22-B100		6	0	
MARK PERMANENCY			JESD22-B107		6	0	
LEAD INTEGRITY			JESD22-B105, COND B		6	0	
Total:						0	

STORAGE LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
STORAGE LIFE	0548	DS1747	85 C	1000 HRS	77	0	
VISUAL INSPECTION			WHISKERS < 50uM		3	0	
				Total:		0	

TEMPERATURE CYCLE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
TEMP CYCLE	0548	DS1747	-40 TO 85C	1000 CYS	77	0	
VISUAL INSPECTION			WHISKERS < 50uM		3	0	
				Total:		0	

TEMPERATURE HUMIDITY BIAS

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
BIASED MOISTURE	0548	DS1747	85/85, 5.5 VOLTS	1000 HRS	77	0	
VISUAL INSPECTION			WHISKERS < 50uM		3	0	
				Total:		0	