

RELIABILITY MONITOR REPORT  
FOR

**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		
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	28 Module w/SMT
Dallas	32	Module w/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	40 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/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	28	Module w/SMT	Fastech	32 Module w/SMT
Fastech	24	Module w/Thru Hole	Fastech	28 Module w/Thru Hole

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

**Assembly Information:**

Package Type:                    Module 450 mil  
 Flammability:                    UL 94-V0  
 Moisture Sensitivity  
 (JEDEC J-STD20A)  
 Date Code Range:                0401      to    0432

**STORAGE LIFE**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
STORAGE LIFE	0401	DS1201	85 C	336 HRS	77	0	
STORAGE LIFE	0432	DS1201	85 C	336 HRS	77	0	
<b>Total:</b>						<b>0</b>	

**TEMPERATURE CYCLE**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
TEMP CYCLE	0401	DS1201	0C TO 70C	300 CYS	77	0	
TEMP CYCLE	0432	DS1201	0C TO 70C	300 CYS	77	0	
<b>Total:</b>						<b>0</b>	

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**UNBIASED MOISTURE RESISTANCE**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
MOISTURE SOAK	0401	DS1201	60C/90% R.H.	336 HRS	77	0	
MOISTURE SOAK	0432	DS1201	60C/90% R.H.	336 HRS	77	0	
<b>Total:</b>						<b>0</b>	

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**Assembly Information:**

Package Type: Module 720 mil

Flammability: UL 94-V0

Moisture Sensitivity  
(JEDEC J-STD20A)Date Code Range: 0404 to 0446

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**PACKAGE TESTS**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
SOLDERABILITY	0404	DS1643	JESD22-B102		3	0	
PHYSICAL DIMENSIONS	0404	DS1643	JESD22-B100		6	0	
PHYSICAL DIMENSIONS	0415	DS12887	JESD22-B100		6	0	
SOLDERABILITY	0422	DS1747	JESD22-B102		3	0	
SOLDERABILITY	0422	DS1747	JESD22-B102		3	0	
SOLDERABILITY	0422	DS1747	JESD22-B102		3	0	
SOLDERABILITY	0422	DS1747	JESD22-B102		3	0	
SOLDERABILITY	0423	DS1225	JESD22-B102		8	0	
SOLDERABILITY	0446	DS1643	JESD22-B102		3	0	
<b>Total:</b>						<b>0</b>	

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**STORAGE LIFE**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
STORAGE LIFE	0404	DS1643	70 C	1000 HRS	77	0	
STORAGE LIFE	0415	DS12887	70 C	1000 HRS	77	0	
<b>Total:</b>						<b>0</b>	

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**TEMPERATURE CYCLE**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
TEMP CYCLE	0404	DS1643	0C TO 70C	1000 CYS	77	0	
TEMP CYCLE	0415	DS12887	0C TO 70C	1000 CYS	77	0	
<b>Total:</b>						<b>0</b>	

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**TEMPERATURE HUMIDITY BIAS**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
BIASED MOISTURE	0415	DS12887	85/85, 5.5 VOLTS	1000 HRS	77	0	
<b>Total:</b>						<b>0</b>	

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**UNBIASED MOISTURE RESISTANCE**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
MOISTURE SOAK	0404	DS1643	60C/90% R.H.	1000 HRS	77	0	
MOISTURE SOAK	0422	DS1747	60C/90% R.H.	1000 HRS	77	0	
MOISTURE SOAK	0422	DS1747	60C/90% R.H.	1000 HRS	77	0	
MOISTURE SOAK	0422	DS1747	60C/90% R.H.	1000 HRS	77	0	
MOISTURE SOAK	0422	DS1747	60C/90% R.H.	1000 HRS	77	0	
					<b>Total:</b>	<b>0</b>	