

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	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	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/Bent Frame (Pb-Free)	Fastech	24 Module w/Hi Density SMT
Fastech	28	Module w/Hi Density SMT	Fastech	36 Module w/Hi Density SMT
Fastech	40	Module w/Hi Density SMT	Fastech	24 Module w/Thru Hole
Fastech	28	Module w/Thru Hole	Fastech	32 Module w/Thru Hole

Note: Due to the nature of the construction on this assembly, there is no operating life data collected

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

**STORAGE LIFE**

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

**UNBIASED MOISTURE RESISTANCE**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
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: 0422 to 0446

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**PACKAGE TESTS**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
SOLDERABILITY (Sn/Pb)	0422	DS1747	JESD22-B102, COND C		3	0	
SOLDERABILITY (Sn/Pb)	0422	DS1747	JESD22-B102, COND C		3	0	
SOLDERABILITY (Sn/Pb)	0422	DS1747	JESD22-B102, COND C		3	0	
SOLDERABILITY (Sn/Pb)	0422	DS1747	JESD22-B102, COND C		3	0	
SOLDERABILITY (Sn/Pb)	0423	DS1225	JESD22-B102, COND C		8	0	
SOLDERABILITY (Sn/Pb)	0446	DS1643	JESD22-B102, COND C		3	0	
PHYSICAL DIMENSIONS	0446	DS1643	JESD22-B100		6	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	0446	DS1643	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	0446	DS1643	0C TO 70C	1000 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	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	
MOISTURE SOAK	0446	DS1643	60C/90% R.H.	1000 HRS	77	0	
<b>Total:</b>						<b>0</b>	

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**Assembly Information:**

Package Type: Module (Pb-Free) 720 mil  
Flammability: UL 94-V0  
Moisture Sensitivity  
(JEDEC J-STD20A) NA  
Date Code Range: 0508 to 0520

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**PACKAGE TESTS**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
X-RAY	0508	DS12887	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	
X-RAY	0508	DS12887	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	
X-RAY	0508	DS12887	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	
SOLDERABILITY (Sn/Pb)	0520	DS12887	JESD22-B102, COND C		9	0	
SOLDERABILITY (Pb-Free)			JESD22-B102, COND C		9	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	0508	DS12887	85 C	1000 HRS	77	0	
VISUAL INSPECTION			WHISKERS < 50uM		3	0	
STORAGE LIFE	0508	DS12887	85 C	1000 HRS	77	0	
VISUAL INSPECTION			WHISKERS < 50uM		3	0	
STORAGE LIFE	0508	DS12887	85 C	1000 HRS	77	0	
VISUAL INSPECTION			WHISKERS < 50uM		3	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	0508	DS12887	-40 TO 85C	1000 CYS	77	0	
VISUAL INSPECTION			WHISKERS < 50uM		3	0	
TEMP CYCLE	0508	DS12887	-40 TO 85C	1000 CYS	77	0	
VISUAL INSPECTION			WHISKERS < 50uM		3	0	
TEMP CYCLE	0508	DS12887	-40 TO 85C	1000 CYS	77	0	
VISUAL INSPECTION			WHISKERS < 50uM		3	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	0508	DS12887	85/85, 5.5 VOLTS	1000 HRS	77	0	
VISUAL INSPECTION			WHISKERS < 50uM		3	0	
BIASED MOISTURE	0508	DS12887	85/85, 5.5 VOLTS	1000 HRS	77	0	
VISUAL INSPECTION			WHISKERS < 50uM		3	0	
BIASED MOISTURE	0508	DS12887	85/85, 5.5 VOLTS	1000 HRS	77	0	
VISUAL INSPECTION			WHISKERS < 50uM		3	0	

**Total:**

**0**