



05/02/2006

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 | 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 | 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 | 28 | Module w/Thru Hole (Pb-Free) | Fastech | 32 Module w/Thru Hole (Pb-Free) |

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 04/01/2005 and 03/31/2006 .

Assembly Information:

Package Type: Module
 Flammability: UL 94-V0
 Moisture Sensitivity (JEDEC J-STD20A) NA
 Date Code Range: 0528 to 0528

PACKAGE TESTS

| DESCRIPTION | DATE CODE | TEST VEHICLE | CONDITION | READPOINT | QUANTITY | FAILS | FA NO |
|-------------------------|-----------|--------------|---------------------|-----------|----------|----------|-------|
| 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 | |
| Total: | | | | | | 0 | |

Assembly Information:

Package Type: Module (Pb-Free)
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 | |