

**RELIABILITY MONITOR REPORT
FOR**

SOT 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 | | |
|-----------|------|-------------|--------|----------|
| A TEC | 3 | SOT23 | A TEC | 5 SOT23 |
| A TEC | 3 | SOT23 A TEC | Carsem | 3 SOT223 |
| Carsem | 3 | SOT23 | Carsem | 5 SOT23 |
| Fastech | 5 | SOT23 | Hana | 3 SOT223 |
| NSEB | 3 | SOT23 | NSEB | 5 SOT23 |

The calculated failure rate for this assembly is:

FAILURE RATE: **MTTF (YRS): 12984** **FITS: 8.8**

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 10/1/03 and 9/30/04 .

Assembly Information:

Package Type: SOT223 140 mil
 Flammability: UL 94-V0
 Moisture Sensitivity
 (JEDEC J-STD20A) Level 1
 Date Code Range: 0402 to 0421

OPERATING LIFE

| DESCRIPTION | DATE CODE | TEST VEHICLE | CONDITION | READPOINT | QUANTITY | FAILS | FA NO |
|-------------------|-----------|--------------|-----------------|-----------|----------|----------|-------|
| HIGH TEMP OP LIFE | 0402 | DS1233 | 125C, 5.5 VOLTS | 1000 HRS | 80 | 0 | |
| HIGH TEMP OP LIFE | 0410 | DS1233 | 125C, 5.5 VOLTS | 1000 HRS | 80 | 0 | |
| HIGH TEMP OP LIFE | 0421 | DS1233 | 125C, 5.5 VOLTS | 500 HRS | 61 | 0 | |
| Total: | | | | | | 0 | |

PRECONDITIONING LEVEL 1

| DESCRIPTION | DATE CODE | TEST VEHICLE | CONDITION | READPOINT | QUANTITY | FAILS | FA NO |
|-------------------|-----------|--------------|---------------|-----------|----------|-------|-------|
| ULTRASOUND | 0402 | DS1233 | J-STD-020 | | 4 | 0 | |
| STORAGE LIFE | 0402 | DS1233 | 125C | 24 HRS | 241 | | |
| MOISTURE SOAK | | | 85 C/85% R.H. | 168 HRS | 241 | | |
| CONVECTION REFLOW | | | 235C +5/-0C | 3 PASS | 241 | 0 | |
| PRECONDITION U/S | 0402 | DS1233 | J-STD-020 | | 4 | 0 | |
| ULTRASOUND | 0410 | DS1233 | J-STD-020 | | 4 | 0 | |
| STORAGE LIFE | 0410 | DS1233 | 125C | 24 HRS | 241 | | |
| MOISTURE SOAK | | | 85 C/85% R.H. | 168 HRS | 241 | | |
| CONVECTION REFLOW | | | 235C +5/-0C | 3 PASS | 241 | 0 | |
| PRECONDITION U/S | 0410 | DS1233 | J-STD-020 | | 4 | 0 | |
| ULTRASOUND | 0421 | DS1233 | J-STD-020 | | 4 | 0 | |

| | | | | | | | |
|-------------------|------|--------|---------------|-----|------|-----|----------|
| STORAGE LIFE | 0421 | DS1233 | 125C | 24 | HRS | 196 | |
| MOISTURE SOAK | | | 85 C/85% R.H. | 168 | HRS | 196 | |
| CONVECTION REFLOW | | | 235C +5/-0C | 3 | PASS | 196 | 0 |
| PRECONDITION U/S | 0421 | DS1233 | J-STD-020 | | | 4 | 0 |
| Total: | | | | | | | 0 |

TEMPERATURE CYCLE

| DESCRIPTION | DATE CODE | TEST VEHICLE | CONDITION | READPOINT | QUANTITY | FAILS | FA NO |
|---------------|-----------|--------------|--------------|-----------|----------|-------|----------|
| TEMP CYCLE | 0402 | DS1233 | -55C TO 125C | 1000 | CYS | 40 | 0 |
| TEMP CYCLE | 0410 | DS1233 | -55C TO 125C | 1000 | CYS | 40 | 0 |
| TEMP CYCLE | 0421 | DS1233 | -55C TO 125C | 1000 | CYS | 35 | 0 |
| Total: | | | | | | | 0 |

UNBIASED MOISTURE RESISTANCE

| DESCRIPTION | DATE CODE | TEST VEHICLE | CONDITION | READPOINT | QUANTITY | FAILS | FA NO |
|---------------|-----------|--------------|-----------------------------|-----------|----------|-------|----------|
| AUTOCLAVE | 0402 | DS1233 | 121C, 2 ATM STEAM, UNBIASED | 168 | HRS | 40 | 0 |
| AUTOCLAVE | 0410 | DS1233 | 121C, 2 ATM STEAM, UNBIASED | 168 | HRS | 40 | 0 |
| AUTOCLAVE | 0421 | DS1233 | 121C, 2 ATM STEAM, UNBIASED | 168 | HRS | 35 | 0 |
| Total: | | | | | | | 0 |

FAILURE RATE: **MTTF (YRS): 12984** **FITS: 8.8**