

**RELIABILITY MONITOR REPORT
FOR**

0.8 μ m Process 8"

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 Process Reliability Monitor. The products covered by this process monitor are:

| | | | | |
|---------|----------|----------|----------|----------|
| DS1023 | DS1075 | DS1175 | DS1231 | DS1232 |
| DS1233 | DS1302 | DS1305 | DS1306 | DS1307 |
| DS1312 | DS1314 | DS1315 | DS1321 | DS1323 |
| DS13D12 | DS13D14 | DS1624 | DS1629 | DS1670 |
| DS1673 | DS1677 | DS1685 | DS1705 | DS1706 |
| DS1707 | DS1708 | DS17285 | DS17485 | DS1780 |
| DS17885 | DS1801 | DS1803 | DS1804 | DS1806 |
| DS1807 | DS1810 | DS1811 | DS1812 | DS1813 |
| DS1814 | DS1815 | DS1816 | DS1817 | DS1818 |
| DS1819 | DS1821 | DS1830 | DS1832 | DS1834 |
| DS1836 | DS1844 | DS1866 | DS2110 | DS2172 |
| DS2406 | DS2413 | DS2430 | DS2464 | DS2480 |
| DS24S03 | DS24S34 | DS2506 | DS32KHZ | DS32KHZS |
| DS75 | DS83C520 | DS87C520 | DS87C530 | |

The calculated failure rate for devices using this process is:

FAILURE RATE: **MTTF (YRS): 59574** **FITS: 1.9**

The parameters used to calculate this failure rate are as follows:

Cf: 60% **Ea: 0.7** **Tu: 25 °C**

The reliability data follows. At the start of this data is the process information. 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 7/1/2006 and 6/30/2007 .

Device Information:

Process: 0.8µm Process 8"
 Interconnect: Aluminum / 1% Silicon / 0.5% Copper
 Gate Oxide Thickness: 175 Å

OPERATING LIFE

| DESCRIPTION | DATE CODE | TEST VEHICLE | CONDITION | READPOINT | QUANTITY | FAILS | FA NO |
|-------------------|-----------|--------------|------------------|-----------|----------|----------|-------|
| HIGH TEMP OP LIFE | 0628 | DS1232 | 125C, 5.5 VOLTS | 1000 HRS | 77 | 0 | |
| HIGH TEMP OP LIFE | 0633 | DS32KHZS | 125C, 5.5 VOLTS | 1000 HRS | 77 | 0 | |
| HIGH TEMP OP LIFE | 0636 | DS1302 | 125C, 5.5 VOLTS | 1000 HRS | 77 | 0 | |
| HIGH TEMP OP LIFE | 0637 | DS2430 | 125C, 6.0 VOLTS | 1000 HRS | 77 | 0 | |
| HIGH TEMP OP LIFE | 0642 | DS87C520 | 125C, 5.5 VOLTS | 1000 HRS | 77 | 0 | |
| HIGH TEMP OP LIFE | 0648 | DS2406 | 125C, 6.0 VOLTS | 1000 HRS | 77 | 0 | |
| HIGH TEMP OP LIFE | 0713 | DS2413 | 125C, 5.25 VOLTS | 1000 HRS | 45 | 0 | |
| Total: | | | | | | 0 | |

STORAGE LIFE

| DESCRIPTION | DATE CODE | TEST VEHICLE | CONDITION | READPOINT | QUANTITY | FAILS | FA NO |
|--------------|-----------|--------------|-----------|-----------|----------|-------|-------|
| STORAGE LIFE | 0633 | DS32KHZS | 125C | 1000 HRS | 77 | 0 | |

| | | | | | | | |
|--------------|------|----------|------|------|-----|---------------|----------|
| STORAGE LIFE | 0642 | DS87C520 | 150C | 1000 | HRS | 77 | 0 |
| STORAGE LIFE | 0648 | DS2406 | 150C | 1000 | HRS | 77 | 0 |
| | | | | | | Total: | 0 |

TEMPERATURE CYCLE

| DESCRIPTION | DATE CODE | TEST VEHICLE | CONDITION | READPOINT | QUANTITY | FAILS | FA NO |
|-------------|-----------|--------------|--------------|-----------|----------|---------------|----------|
| TEMP CYCLE | 0628 | DS1232 | -55C TO 125C | 1000 | CYS | 77 | 0 |
| TEMP CYCLE | 0633 | DS32KHZS | -40 TO 85C | 1000 | CYS | 77 | 0 |
| TEMP CYCLE | 0636 | DS1302 | -55C TO 125C | 1000 | CYS | 77 | 0 |
| TEMP CYCLE | 0637 | DS2430 | -55C TO 125C | 1000 | CYS | 77 | 0 |
| TEMP CYCLE | 0642 | DS87C520 | -55C TO 125C | 1000 | CYS | 77 | 0 |
| | | | | | | Total: | 0 |

TEMPERATURE HUMIDITY BIAS

| DESCRIPTION | DATE CODE | TEST VEHICLE | CONDITION | READPOINT | QUANTITY | FAILS | FA NO |
|-----------------|-----------|--------------|--------------------|-----------|----------|---------------|----------|
| HAST | 0628 | DS1232 | 130C, 85%R.H.,5.5V | 96 | HRS | 77 | 0 |
| BIASED MOISTURE | 0633 | DS32KHZS | 85/85, 5.5 VOLTS | 1000 | HRS | 77 | 0 |
| BIASED MOISTURE | 0636 | DS1302 | 85/85, 5.5 VOLTS | 1000 | HRS | 77 | 0 |
| BIASED MOISTURE | 0637 | DS2430 | 85/85, 5.5 VOLTS | 1000 | HRS | 77 | 0 |
| HAST | 0642 | DS87C520 | 130C, 85%R.H.,5.5V | 96 | HRS | 77 | 0 |
| | | | | | | Total: | 0 |

UNBIASED MOISTURE RESISTANCE

| DESCRIPTION | DATE CODE | TEST VEHICLE | CONDITION | READPOINT | QUANTITY | FAILS | FA NO |
|-------------|-----------|--------------|-----------------------------|-----------|----------|---------------|----------|
| AUTOCLAVE | 0628 | DS1232 | 121C, 2 ATM STEAM, UNBIASED | 168 | HRS | 75 | 0 |
| AUTOCLAVE | 0633 | DS32KHZS | 121C, 2 ATM STEAM, UNBIASED | 168 | HRS | 77 | 0 |
| AUTOCLAVE | 0636 | DS1302 | 121C, 2 ATM STEAM, UNBIASED | 168 | HRS | 77 | 0 |
| AUTOCLAVE | 0637 | DS2430 | 121C, 2 ATM STEAM, UNBIASED | 168 | HRS | 77 | 0 |
| AUTOCLAVE | 0642 | DS87C520 | 121C, 2 ATM STEAM, UNBIASED | 168 | HRS | 75 | 0 |
| | | | | | | Total: | 0 |

W/E ENDURANCE AND DATA RET'N

| DESCRIPTION | DATE CODE | TEST VEHICLE | CONDITION | READPOINT | QUANTITY | FAILS | FA NO |
|---------------------------|-----------|--------------|-----------------|-----------|----------|---------------|----------|
| WRITE CYCLE STRESS (KCYS) | 0637 | DS2430 | 25 C, 5.0 VOLTS | 100 | KCYS | 77 | 0 |
| STORAGE LIFE | | | 150C | 1000 | HRS | 77 | 0 |
| | | | | | | Total: | 0 |

FAILURE RATE: MTTF (YRS): 59574 FITS: 1.9