

**RELIABILITY MONITOR REPORT
FOR**

0.8 μ m Process

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	DS1033	DS1035	DS1044	DS1065
DS1073	DS1075	DS1175	DS1231	DS1232
DS1233	DS1302	DS1305	DS1306	DS1307
DS1308	DS1312	DS1314	DS1315	DS1321
DS1323	DS13D12	DS13D14	DS13D21	DS1481
DS1620	DS1621	DS1623	DS1624	DS1629
DS1670	DS1671	DS1673	DS1674	DS1677
DS1680	DS1685	DS1705	DS1706	DS1707
DS1708	DS1720	DS1721	DS17285	DS17485
DS1780	DS17885	DS1800	DS1801	DS1802
DS1803	DS1804	DS1806	DS1807	DS1810
DS1811	DS1812	DS1813	DS1814	DS1815
DS1816	DS1817	DS1818	DS1819	DS1821
DS1832	DS1834	DS1836	DS1844	DS1866
DS1868	DS2105	DS2106	DS2109	DS2110
DS2114	DS2118M	DS21372	DS2151	DS2152
DS2153	DS2154	DS2172	DS21Q41	DS21S07
DS21T05	DS21T06	DS21T07	DS21T11	DS2401
DS2406	DS2407	DS2423	DS2430	DS2434
DS2435	DS2436	DS2480	DS24S03	DS24S34
DS2502	DS2503	DS2505	DS2506	DS32KHZ
DS4201	DS56	DS60	DS75	DS76KHZ
DS80C310	DS80CH10	DS83C520	DS87C520	DS87C530

The calculated failure rate for devices using this process is:

FAILURE RATE: MTTF (YRS): 185512 FITS: 0.6

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 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 04/01/2004 and 03/31/2005 .

Device Information:

Process: 0.8 µm Process
 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	0348	DS1302	125C, 5.5 VOLTS	1000 HRS		0	
HIGH TEMP OP LIFE	0403	DS1803	125C, 5.25 VOLTS	1000 HRS		0	
HIGH TEMP OP LIFE	0404	DS1302	125C, 5.5 VOLTS	1000 HRS		0	
HIGH TEMP OP LIFE	0406	DS1232	125C, 5.5 VOLTS	1000 HRS		0	
HIGH TEMP OP LIFE	0412	DS1073	125C, 3.5 VOLTS	1000 HRS		0	

HIGH TEMP OP LIFE	0413	DS1073	125C, 3.5 VOLTS	1000	HRS	0
HIGH TEMP OP LIFE	0413	DS1073	125C, 3.5 VOLTS	1000	HRS	0
HIGH TEMP OP LIFE	0429	DS1232	125C, 5.5 VOLTS	1000	HRS	0
HIGH TEMP OP LIFE	0430	DS1624	125C, 5.5 VOLTS	1000	HRS	0
HIGH TEMP OP LIFE	0430	DS1233	125C, 5.5 VOLTS	1000	HRS	0
HIGH TEMP OP LIFE	0430	DS1233	125C, 5.5 VOLTS	1000	HRS	0
HIGH TEMP OP LIFE	0430	DS1233	125C, 5.5 VOLTS	1000	HRS	0
HIGH TEMP OP LIFE	0433	DS1302	125C, 5.5 VOLTS	1000	HRS	0
HIGH TEMP OP LIFE	0434	DS32KHZ	125C, 5.5 VOLTS	1000	HRS	0
HIGH TEMP OP LIFE	0434	DS32KHZ	125C, 5.5 VOLTS	1000	HRS	0
HIGH TEMP OP LIFE	0435	DS32KHZ	125C, 5.5 VOLTS	1000	HRS	0
HIGH TEMP OP LIFE	0436	DS1233	125C, 5.5 VOLTS	500	HRS	0
HIGH TEMP OP LIFE	0440	DS87C520	125C, 5.5 VOLTS	12	HRS	0
HIGH TEMP OP LIFE	0440	DS87C520	125C, 5.5 VOLTS	12	HRS	0
HIGH TEMP OP LIFE	0440	DS87C520	125C, 5.5 VOLTS	12	HRS	0
HIGH TEMP OP LIFE	0440	DS87C520	125C, 5.5 VOLTS	988	HRS	0
HIGH TEMP OP LIFE	0447	DS1302	125C, 5.5 VOLTS	1000	HRS	0
HIGH TEMP OP LIFE	0451	DS32KHZ	125C, 5.5 VOLTS	1000	HRS	0
HIGH TEMP OP LIFE	0451	DS32KHZ	125C, 5.5 VOLTS	1000	HRS	0
HIGH TEMP OP LIFE	0452	DS32KHZ	125C, 5.5 VOLTS	1000	HRS	0
HIGH TEMP OP LIFE	0505	DS1629	125C, 5.5 VOLTS	1000	HRS	0
					Total:	0

STORAGE LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
STORAGE LIFE	0412	DS1073	150C	1000	HRS	0	
STORAGE LIFE	0413	DS1073	150C	1000	HRS	0	
STORAGE LIFE	0413	DS1073	150C	1000	HRS	0	
STORAGE LIFE	0430	DS1624	150C	1000	HRS	0	
STORAGE LIFE	0430	DS1233	150C	1000	HRS	0	
STORAGE LIFE	0430	DS1233	150C	1000	HRS	0	
STORAGE LIFE	0430	DS1233	150C	1000	HRS	0	
STORAGE LIFE	0434	DS32KHZ	125C	1000	HRS	0	
STORAGE LIFE	0434	DS32KHZ	125C	1000	HRS	0	
STORAGE LIFE	0435	DS32KHZ	125C	1000	HRS	0	
STORAGE LIFE	0440	DS87C520	150C	1000	HRS	0	
STORAGE LIFE	0451	DS32KHZ	125C	1000	HRS	0	
STORAGE LIFE	0451	DS32KHZ	125C	1000	HRS	0	

STORAGE LIFE	0452	DS32KHZ	125C	1000	HRS	0
Total:						0

TEMPERATURE CYCLE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
TEMP CYCLE	0348	DS1302	-55C TO 125C	1000	CYS	0	
TEMP CYCLE	0403	DS1803	-55C TO 125C	1000	CYS	0	
TEMP CYCLE	0404	DS1302	-55C TO 125C	1000	CYS	0	
TEMP CYCLE	0406	DS1232	-55C TO 125C	1000	CYS	0	
TEMP CYCLE	0412	DS1073	-55C TO 125C	1000	CYS	0	
TEMP CYCLE	0413	DS1073	-55C TO 125C	1000	CYS	0	
TEMP CYCLE	0413	DS1073	-55C TO 125C	1000	CYS	0	
TEMP CYCLE	0429	DS1232	-55C TO 125C	1000	CYS	0	
TEMP CYCLE	0430	DS1624	-55C TO 125C	1000	CYS	0	
TEMP CYCLE	0430	DS1233	-55C TO 125C	1000	CYS	0	
TEMP CYCLE	0430	DS1233	-55C TO 125C	1000	CYS	0	
TEMP CYCLE	0430	DS1233	-55C TO 125C	1000	CYS	0	
TEMP CYCLE	0433	DS1302	-55C TO 125C	1000	CYS	0	
TEMP CYCLE	0434	DS32KHZ	-40 TO 85C	1000	CYS	0	
TEMP CYCLE	0434	DS32KHZ	-40 TO 85C	1000	CYS	0	
TEMP CYCLE	0435	DS32KHZ	-40 TO 85C	1000	CYS	0	
TEMP CYCLE	0436	DS1233	-55C TO 125C	1000	CYS	0	
TEMP CYCLE	0440	DS87C520	-55C TO 125C	1000	CYS	0	
TEMP CYCLE	0447	DS1302	-55C TO 125C	1000	CYS	0	
TEMP CYCLE	0451	DS32KHZ	-40 TO 85C	1000	CYS	0	
TEMP CYCLE	0451	DS32KHZ	-40 TO 85C	1000	CYS	0	
TEMP CYCLE	0452	DS32KHZ	-40 TO 85C	1000	CYS	0	
Total:						0	

TEMPERATURE HUMIDITY BIAS

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
BIASED MOISTURE	0348	DS1302	85/85, 5.5 VOLTS	1000	HRS	0	
BIASED MOISTURE	0403	DS1803	85/85, 5.5 VOLTS	1000	HRS	0	
BIASED MOISTURE	0404	DS1302	85/85, 5.5 VOLTS	1000	HRS	0	
HAST	0406	DS1232	130C, 85%R.H.,5.5V	96	HRS	0	
HAST	0412	DS1073	130C, 85%R.H.,3.5V	156	HRS	0	
HAST	0413	DS1073	130C, 85%R.H.,3.5V	156	HRS	0	
HAST	0413	DS1073	130C, 85%R.H.,3.5V	156	HRS	0	

HAST	0429	DS1232	130C, 85%R.H.,5.5V	96	HRS	0
HAST	0430	DS1624	130C, 85%R.H.,5.5V	96	HRS	0
HAST	0430	DS1233	130C, 85%R.H.,5.5V	96	HRS	0
HAST	0430	DS1233	130C, 85%R.H.,5.5V	96	HRS	0
HAST	0430	DS1233	130C, 85%R.H.,5.5V	96	HRS	0
BIASED MOISTURE	0433	DS1302	85/85, 5.5 VOLTS	1000	HRS	0
BIASED MOISTURE	0434	DS32KHZ	85/85, 5.5 VOLTS	1000	HRS	0
BIASED MOISTURE	0434	DS32KHZ	85/85, 5.5 VOLTS	1000	HRS	0
BIASED MOISTURE	0435	DS32KHZ	85/85, 5.5 VOLTS	1000	HRS	0
HAST	0440	DS87C520	130C, 85%R.H.,5.5V	96	HRS	0
BIASED MOISTURE	0447	DS1302	85/85, 5.5 VOLTS	1000	HRS	0
BIASED MOISTURE	0451	DS32KHZ	85/85, 5.5 VOLTS	1000	HRS	0
BIASED MOISTURE	0451	DS32KHZ	85/85, 5.5 VOLTS	1000	HRS	0
BIASED MOISTURE	0452	DS32KHZ	85/85, 5.5 VOLTS	1000	HRS	0
Total:						0

UNBIASED MOISTURE RESISTANCE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
AUTOCLAVE	0348	DS1302	121C, 2 ATM STEAM, UNBIASED	96	HRS	0	
AUTOCLAVE	0403	DS1803	121C, 2 ATM STEAM, UNBIASED	168	HRS	0	
AUTOCLAVE	0404	DS1302	121C, 2 ATM STEAM, UNBIASED	96	HRS	0	
AUTOCLAVE	0406	DS1232	121C, 2 ATM STEAM, UNBIASED	96	HRS	0	
AUTOCLAVE	0412	DS1073	121C, 2 ATM STEAM, UNBIASED	168	HRS	0	
AUTOCLAVE	0413	DS1073	121C, 2 ATM STEAM, UNBIASED	168	HRS	0	
AUTOCLAVE	0413	DS1073	121C, 2 ATM STEAM, UNBIASED	168	HRS	0	
AUTOCLAVE	0429	DS1232	121C, 2 ATM STEAM, UNBIASED	168	HRS	0	
AUTOCLAVE	0430	DS1624	121C, 2 ATM STEAM, UNBIASED	168	HRS	0	
AUTOCLAVE	0430	DS1233	121C, 2 ATM STEAM, UNBIASED	168	HRS	0	
AUTOCLAVE	0430	DS1233	121C, 2 ATM STEAM, UNBIASED	168	HRS	0	
AUTOCLAVE	0430	DS1233	121C, 2 ATM STEAM, UNBIASED	168	HRS	0	
AUTOCLAVE	0433	DS1302	121C, 2 ATM STEAM, UNBIASED	96	HRS	0	
AUTOCLAVE	0434	DS32KHZ	121C, 2 ATM STEAM, UNBIASED	168	HRS	0	
MOISTURE SOAK	0434	DS32KHZ	60C/90% R.H.	1000	HRS	0	
AUTOCLAVE	0434	DS32KHZ	121C, 2 ATM STEAM, UNBIASED	168	HRS	0	
MOISTURE SOAK	0434	DS32KHZ	60C/90% R.H.	1000	HRS	0	
AUTOCLAVE	0435	DS32KHZ	121C, 2 ATM STEAM, UNBIASED	168	HRS	0	
MOISTURE SOAK	0435	DS32KHZ	60C/90% R.H.	1000	HRS	0	
AUTOCLAVE	0436	DS1233	121C, 2 ATM STEAM, UNBIASED	168	HRS	0	

AUTOCLAVE	0440	DS87C520	121C, 2 ATM STEAM, UNBIASED	168	HRS	0
AUTOCLAVE	0447	DS1302	121C, 2 ATM STEAM, UNBIASED	96	HRS	0
AUTOCLAVE	0451	DS32KHZ	121C, 2 ATM STEAM, UNBIASED	168	HRS	0
AUTOCLAVE	0451	DS32KHZ	121C, 2 ATM STEAM, UNBIASED	168	HRS	0
AUTOCLAVE	0452	DS32KHZ	121C, 2 ATM STEAM, UNBIASED	168	HRS	0
Total:						0

W/E ENDURANCE AND DATA RET'N

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
WRITE CYCLE STRESS	0505	DS1629	85 C, 5.5 VOLTS	2	KCYS	0	
STORAGE LIFE			150C	1000	HRS	0	
Total:						0	

FAILURE RATE: MTTF (YRS): 185512 FITS: 0.6