

**RELIABILITY MONITOR REPORT
FOR**

0.6 μm 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:

DS1002	DS1050	DS1052	DS1077	DS1077L
DS1085	DS1085L	DS1086	DS1086H	DS1086L
DS1087L	DS1094L	DS1099	DS1100	DS1100L
DS1102L	DS1110	DS1110L	DS1135	DS1135L
DS12885	DS12R885	DS12R885-5	DS1311	DS1318
DS1337	DS1337C	DS1338	DS1338-3	DS1338-33
DS1338C	DS1339	DS1339C	DS1339U-3	DS1339U-33
DS1340	DS1340C	DS1371	DS1374	DS1374-3
DS1374-33	DS1374C	DS1375	DS1390	DS1391
DS1392	DS1393	DS1482	DS1500	DS1501
DS1543	DS1553	DS1558	DS1615	DS1616
DS1620	DS1621	DS1626	DS1631	DS1631A
DS1643	DS1672	DS1678	DS1679	DS1682
DS1721	DS1722	DS1726	DS1731	DS1743
DS1748	DS1775	DS1805	DS1809	DS1820B
DS1822	DS1830	DS1831	DS1845	DS1846
DS1847	DS1848	DS1849	DS1851	DS1854
DS1855	DS1858	DS1870	DS1921	DS1921G
DS1921H	DS1921Z	DS1961	DS2030	DS2045
DS2117M	DS2118M	DS2119M	DS2120	DS2125
DS2127	DS2129	DS21349	DS21352	DS21354
DS21448	DS2148	DS2149	DS21552	DS21554
DS21600	DS21602	DS21604	DS21610	DS2196
DS2197	DS21Q352	DS21Q354	DS21Q43	DS21Q50
DS21Q552	DS21Q554	DS21Q58	DS21Q59	DS2401
DS2405	DS2408	DS2409	DS2411	DS2415
DS2417	DS2421	DS2422	DS2432	DS2433
DS2436	DS2438	DS2450	DS2470	DS2490
DS2501	DS2502	DS2503	DS2505	DS2702
DS2720	DS2740	DS2751	DS2760	DS2761
DS2762	DS2763	DS2770	DS2890	DS28E01
DS29020	DS3903	DS3904	DS3905	DS3930
DS4000	DS4301	DS4510	DS5001	DS5002
DS5240	DS5250	DS7864B	DS7864D	DS80C310
DS80C320	DS80C323	DS80CH11	DS87C520	DS87C550
DSQ3301-K02				

The calculated failure rate for devices using this process is:

FAILURE RATE: **MTTF (YRS): 74869** **FITS: 1.5**

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 7/1/2005 and 6/30/2006.

Device Information:

Process: 0.6 µm Process

Interconnect: Aluminum / 1% Silicon / 0.5% Copper
 Gate Oxide Thickness: 150 Å

OPERATING LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
HIGH TEMP OP LIFE	0518	DS80C320	125C, 5.5 VOLTS	1000 HRS	77	0	
HIGH TEMP OP LIFE	0522	DS12R887	85 C, 3.3 VOLTS	1000 HRS	45	0	
HIGH TEMP OP LIFE	0527	DS12R887	85 C, 3.3 VOLTS	1000 HRS	45	0	
HIGH TEMP OP LIFE	0527	DS12R887	85 C, 3.3 VOLTS	1000 HRS	45	0	
HIGH TEMP REVERSE BIAS	0527	DSQ3301-K02	125C, 5.5 VOLTS	1000 HRS	83	0	
HIGH TEMP OP LIFE	0528	DS5002	125C, 5.0 VOLTS	1000 HRS	80	0	
HIGH TEMP OP LIFE	0529	DS1955B0	85 C, 5.25 VOLTS	1000 HRS	95	0	
HIGH TEMP OP LIFE	0529	DS1955B0	85 C, 5.25 VOLTS	1000 HRS	48	0	
HIGH TEMP OP LIFE	0529	DS1955B0	85 C, 5.25 VOLTS	1000 HRS	77	0	
HIGH TEMP OP LIFE	0530	DS1482	125C, 4.9 V (PSA) & 3.6 V (PSB)	1000 HRS	45	0	
HIGH TEMP OP LIFE	0541	DS1744	85 C, 3.3V (PSA) & 0.0V (PSB)	1000 HRS	77	0	
HIGH TEMP OP LIFE	0548	DS12885	125C, 5.0 VOLTS	1000 HRS	77	0	
HIGH TEMP OP LIFE	0548	DS12885	125C, 5.0 VOLTS	1000 HRS	77	0	
HIGH TEMP OP LIFE	0549	DS80C320	125C, 5.5 VOLTS	1000 HRS	77	0	
HIGH TEMP OP LIFE	0612	DS12885	125C, 5.5 VOLTS	1000 HRS	77	0	
Total:						0	

STORAGE LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
STORAGE LIFE	0522	DS12R887	85 C	1000 HRS	76	0	
STORAGE LIFE	0526	DS1955B0	85 C	1000 HRS	77	0	
STORAGE LIFE	0527	DS12R887	85 C	1000 HRS	76	0	
STORAGE LIFE	0527	DS12R887	85 C	1000 HRS	77	0	
STORAGE LIFE	0527	DSQ3301-K02	150C	1000 HRS	77	0	
STORAGE LIFE	0529	DS1955B0	85 C	1000 HRS	77	0	
STORAGE LIFE	0529	DS1955B0	85 C	1000 HRS	77	0	
STORAGE LIFE	0529	DS1955B0	85 C	1000 HRS	77	0	
STORAGE LIFE	0541	DS1744	85 C	1000 HRS	76	0	
STORAGE LIFE	0548	DS12885	150C	1000 HRS	77	0	
STORAGE LIFE	0548	DS12885	150C	1000 HRS	77	0	
STORAGE LIFE	0549	DS80C320	150C	1000 HRS	77	0	
Total:						0	

TEMPERATURE CYCLE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
TEMP CYCLE	0518	DS80C320	-55C TO 125C	1000 CYS	45	0	
TEMP CYCLE	0522	DS12R887	-40 TO 85C	1000 CYS	77	0	
TEMP CYCLE	0526	DS1955B0	-40 TO 85C	1000 CYS	77	0	
TEMP CYCLE	0527	DSQ3301-K02	-55C TO 125C	100 CYS	77		
TEMP CYCLE	0527	DS12R887	-40 TO 85C	1000 CYS	77	0	
TEMP CYCLE	0527	DS12R887	-40 TO 85C	1000 CYS	77	0	
TEMP CYCLE	0527	DSQ3301-K02	-55C TO 125C	1000 CYS	77	0	
TEMP CYCLE	0528	DS5002	-55C TO 125C	1000 CYS	40	0	
TEMP CYCLE	0529	DS1955B0	-40 TO 85C	1000 CYS	77	0	
TEMP CYCLE	0529	DS1955B0	-40 TO 85C	1000 CYS	77	0	
TEMP CYCLE	0529	DS1955B0	-40 TO 85C	1000 CYS	77	0	
TEMP CYCLE	0541	DS1744	-40 TO 85C	1000 CYS	77	0	
TEMP CYCLE	0548	DS12885	-55C TO 125C	1000 CYS	77	0	
TEMP CYCLE	0548	DS12885	-55C TO 125C	1000 CYS	77	0	
TEMP CYCLE	0549	DS80C320	-55C TO 125C	1000 CYS	77	0	
TEMP CYCLE	0612	DS12885	-55C TO 125C	1000 CYS	77	0	
Total:						0	

TEMPERATURE HUMIDITY BIAS

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
BIASED MOISTURE	0518	DS80C320	85/85, 5.5 VOLTS	1000 HRS	45	0	
BIASED MOISTURE	0522	DS12R887	85/85, 3.5 VOLTS	1000 HRS	72	0	
BIASED MOISTURE	0527	DS12R887	85/85, 3.5 VOLTS	1000 HRS	70	0	
BIASED MOISTURE	0527	DS12R887	85/85, 3.5 VOLTS	1000 HRS	72	0	
BIASED MOISTURE	0527	DSQ3301-K02	85/85, 5.5 VOLTS	1000 HRS	82	0	
BIASED MOISTURE	0528	DS5002	85/85, 5.5 VOLTS	1000 HRS	42	0	
BIASED MOISTURE	0548	DS12885	85/85, 5.5 VOLTS	1000 HRS	77	0	
BIASED MOISTURE	0548	DS12885	85/85, 5.5 VOLTS	1000 HRS	77	0	
BIASED MOISTURE	0549	DS80C320	85/85, 5.5 VOLTS	1000 HRS	77	0	
HAST	0612	DS12885	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	0518	DS80C320	121C, 2 ATM STEAM, UNBIASED	168 HRS	45	0	

MOISTURE SOAK	0526	DS1955B0 60C/90% R.H.	1000	HRS	77	0
MOISTURE SOAK	0527	DSQ3301- 85 C/85% R.H. K02	1000	HRS	77	0
AUTOCLAVE	0528	DS5002 121C, 2 ATM STEAM, UNBIASED	96	HRS	40	0
MOISTURE SOAK	0529	DS1955B0 60C/90% R.H.	1000	HRS	77	0
MOISTURE SOAK	0529	DS1955B0 60C/90% R.H.	1000	HRS	77	0
MOISTURE SOAK	0529	DS1955B0 60C/90% R.H.	1000	HRS	77	0
MOISTURE SOAK	0541	DS1744 60C/90% R.H.	1000	HRS	77	0
AUTOCLAVE	0548	DS12885 121C, 2 ATM STEAM, UNBIASED	168	HRS	76	0
AUTOCLAVE	0548	DS12885 121C, 2 ATM STEAM, UNBIASED	168	HRS	75	0
AUTOCLAVE	0549	DS80C320 121C, 2 ATM STEAM, UNBIASED	168	HRS	77	0
AUTOCLAVE	0612	DS12885 121C, 2 ATM STEAM, UNBIASED	168	HRS	77	0
					Total:	0

FAILURE RATE: MTTF (YRS): 74869 FITS: 1.5