

**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
DS1720	DS1721	DS1722	DS1726	DS1731
DS1743	DS1748	DS1775	DS1805	DS1809
DS1820B	DS1822	DS1830	DS1831	DS1845
DS1846	DS1847	DS1848	DS1849	DS1851
DS1854	DS1855	DS1858	DS1870	DS1921
DS1921H	DS1921Z	DS1961	DS2117M	DS2118M
DS2119M	DS2120	DS2125	DS2127	DS2129
DS21349	DS21352	DS21354	DS21448	DS2148
DS2149	DS21552	DS21554	DS21600	DS21602
DS21604	DS21610	DS2196	DS2197	DS21Q43
DS21Q50	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	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:

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

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 VOLTAGE LIFE	0505	DS87C550	125C, 5.5 VOLTS	1000 HRS	45	0	
VISUAL INSPECTION			WHISKERS < 50uM		3	0	
HIGH VOLTAGE LIFE	0505	DS87C550	125C, 5.5 VOLTS	1000 HRS	45	0	
VISUAL INSPECTION			WHISKERS < 50uM		3	0	
HIGH TEMP OP LIFE	0509	DS80C320	125C, 5.5 VOLTS	1000 HRS	77	0	
HIGH TEMP OP LIFE	0511	DS12885	125C, 5.0 VOLTS	1000 HRS	45	0	
VISUAL INSPECTION			WHISKERS < 50uM		3	0	
HIGH TEMP OP LIFE	0511	DS12885	125C, 5.0 VOLTS	1000 HRS	45	0	
VISUAL INSPECTION			WHISKERS < 50uM		3	0	
HIGH TEMP OP LIFE	0511	DS12885	125C, 5.0 VOLTS	1000 HRS	45	0	
VISUAL INSPECTION			WHISKERS < 50uM		3	0	
HIGH TEMP OP LIFE	0518	DS80C320	125C, 5.5 VOLTS	1000 HRS	77	0	
HIGH TEMP OP LIFE	0520	DS21Q43	125C, 3.5 VOLTS	1000 HRS	45	0	
VISUAL INSPECTION			WHISKERS < 50uM		3	0	
HIGH TEMP OP LIFE	0521	DS1099	125C, 5.5 VOLTS	1000 HRS	77	0	
HIGH TEMP OP LIFE	0521	DS21Q43	125C, 3.5 VOLTS	1000 HRS	45	0	
VISUAL INSPECTION			WHISKERS < 50uM		3	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	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	0530	DS1482	125C, 4.9 V (PSA) & 3.6 V (PSB)	1000 HRS	45	0	
HIGH TEMP OP LIFE	0549	DS80C320	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	0505	DS87C550	150C	1000 HRS	77	0	
VISUAL INSPECTION			WHISKERS < 50uM		3	0	
STORAGE LIFE	0505	DS87C550	150C	1000 HRS	77	0	
VISUAL INSPECTION			WHISKERS < 50uM		3	0	
STORAGE LIFE	0509	DS80C320	150C	1000 HRS	50	0	
STORAGE LIFE	0511	DS12885	150C	1000 HRS	77	0	
VISUAL INSPECTION			WHISKERS < 50uM		3	0	
STORAGE LIFE	0511	DS12885	150C	1000 HRS	77	0	
VISUAL INSPECTION			WHISKERS < 50uM		3	0	

STORAGE LIFE	0511	DS12885	150C	1000	HRS	77	0
VISUAL INSPECTION			WHISKERS < 50uM			3	0
STORAGE LIFE	0520	DS21Q43	150C	1000	HRS	77	0
VISUAL INSPECTION			WHISKERS < 50uM			3	0
STORAGE LIFE	0521	DS21Q43	150C	1000	HRS	77	0
VISUAL INSPECTION			WHISKERS < 50uM			3	0
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	0549	DS80C320	150C	1000	HRS	77	0
Total:							0

TEMPERATURE CYCLE

DESCRIPTION	DATE	TEST	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
	CODE	VEHICLE					
TEMP CYCLE	0448	DS21352	-55C TO 125C	1000	CYS	80	0
TEMP CYCLE	0505	DS87C550	-55C TO 125C	1000	CYS	76	0
VISUAL INSPECTION			WHISKERS < 50uM			3	0
TEMP CYCLE	0505	DS87C550	-55C TO 125C	1000	CYS	77	0
VISUAL INSPECTION			WHISKERS < 50uM			3	0
TEMP CYCLE	0509	DS80C320	-55C TO 125C	1000	CYS	50	0
TEMP CYCLE	0511	DS12885	-55C TO 125C	1000	CYS	77	0
VISUAL INSPECTION			WHISKERS < 50uM			3	0
TEMP CYCLE	0511	DS12885	-55C TO 125C	1000	CYS	77	0
VISUAL INSPECTION			WHISKERS < 50uM			3	0
TEMP CYCLE	0511	DS12885	-55C TO 125C	1000	CYS	77	0
VISUAL INSPECTION			WHISKERS < 50uM			3	0
TEMP CYCLE	0518	DS80C320	-55C TO 125C	1000	CYS	45	0
TEMP CYCLE	0520	DS21Q43	-55C TO 125C	1000	CYS	77	0
VISUAL INSPECTION			WHISKERS < 50uM			3	0
TEMP CYCLE	0521	DS1099	-55C TO 125C	1000	CYS	77	0
TEMP CYCLE	0521	DS21Q43	-55C TO 125C	1000	CYS	77	0
VISUAL INSPECTION			WHISKERS < 50uM			3	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	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	0529	DS1955B0	-40 TO 85C	1000	CYS	77	0
TEMP CYCLE	0529	DS1955B0	-40 TO 85C	1000	CYS	77	0
TEMP CYCLE	0549	DS80C320	-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 VISUAL INSPECTION	0505	DS87C550	85/85, 5.5 VOLTS WHISKERS < 50uM	1000	HRS	45 3	0 0
BIASED MOISTURE VISUAL INSPECTION	0505	DS87C550	85/85, 5.5 VOLTS WHISKERS < 50uM	1000	HRS	45 3	0 0
HAST	0509	DS80C320	130C, 85%R.H.,5.5V	96	HRS	59	0
HAST VISUAL INSPECTION	0511	DS12885	130C, 85%R.H.,5.5V WHISKERS < 50uM	96	HRS	77 3	0 0
HAST VISUAL INSPECTION	0511	DS12885	130C, 85%R.H.,5.5V WHISKERS < 50uM	96	HRS	77 3	0 0
HAST VISUAL INSPECTION	0511	DS12885	130C, 85%R.H.,5.5V WHISKERS < 50uM	96	HRS	77 3	0 0
BIASED MOISTURE	0518	DS80C320	85/85, 5.5 VOLTS	1000	HRS	45	0
BIASED MOISTURE VISUAL INSPECTION	0520	DS21Q43	85/85, 5.5 VOLTS WHISKERS < 50uM	1000	HRS	45 3	0 0
HAST	0521	DS1099	130C, 85%R.H.,5.5V	96	HRS	77	0
BIASED MOISTURE VISUAL INSPECTION	0521	DS21Q43	85/85, 5.5 VOLTS WHISKERS < 50uM	1000	HRS	45 3	0 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	0549	DS80C320	85/85, 5.5 VOLTS	1000	HRS	77	0
Total:							0

UNBIASED MOISTURE RESISTANCE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
HAST, NO BIAS	0448	DS21352	130C, 85% R.H.	100	HRS	80	0
AUTOCLAVE VISUAL INSPECTION	0505	DS87C550	121C, 2 ATM STEAM, UNBIASED WHISKERS < 50uM	168	HRS	76 3	0 0
AUTOCLAVE VISUAL INSPECTION	0505	DS87C550	121C, 2 ATM STEAM, UNBIASED WHISKERS < 50uM	168	HRS	75 3	0 0
AUTOCLAVE VISUAL INSPECTION	0511	DS12885	121C, 2 ATM STEAM, UNBIASED WHISKERS < 50uM	168	HRS	77 3	0 0

AUTOCLAVE	0511	DS12885	121C, 2 ATM STEAM, UNBIASED	168	HRS	77	0
VISUAL INSPECTION			WHISKERS < 50uM			3	0
AUTOCLAVE	0511	DS12885	121C, 2 ATM STEAM, UNBIASED	168	HRS	77	0
VISUAL INSPECTION			WHISKERS < 50uM			3	0
AUTOCLAVE	0518	DS80C320	121C, 2 ATM STEAM, UNBIASED	168	HRS	45	0
HAST, NO BIAS	0520	DS21Q43	130C, 85% R.H.	200	HRS	77	0
VISUAL INSPECTION			WHISKERS < 50uM			3	0
AUTOCLAVE	0521	DS1099	121C, 2 ATM STEAM, UNBIASED	168	HRS	77	0
HAST, NO BIAS	0521	DS21Q43	130C, 85% R.H.	200	HRS	77	0
VISUAL INSPECTION			WHISKERS < 50uM			3	0
MOISTURE SOAK	0526	DS1955B0	60C/90% R.H.	1000	HRS	77	0
MOISTURE SOAK	0527	DSQ3301- K02	85 C/85% 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
AUTOCLAVE	0549	DS80C320	121C, 2 ATM STEAM, UNBIASED	168	HRS	77	0
Total:						0	0