

**RELIABILITY MONITOR REPORT  
FOR**

**0.6  $\mu\text{m}$  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:

DS1089L	DS1090	DS1310	DS1338	DS1338-3
DS1338-33	DS1340	DS1340C	DS1374	DS1374C
DS1375	DS13Q10	DS1500	DS1501	DS1558
DS1620	DS1621	DS1626	DS1631	DS1643
DS1743	DS1748	DS1775	DS1805	DS1820B
DS1822	DS1825	DS1847	DS1848	DS1849
DS1852	DS1854	DS1856	DS1857	DS1858
DS1859	DS1861	DS1870	DS18S20	DS1990
DS2118M	DS2119M	DS2120	DS2125	DS2127
DS21348	DS21352	DS21354	DS21448	DS2148
DS2149	DS2154	DS21552	DS21554	DS21600
DS21602	DS21604	DS21610	DS2198	DS21Q50
DS21Q58	DS21Q59	DS2401	DS2411	DS2432
DS2482-1	DS2482-8	DS2501	DS2502	DS2503
DS2505	DS2711	DS2712	DS2715	DS2740
DS2740B	DS2751	DS2761	DS2762	DS2764
DS2770	DS30MD	DS3231S	DS3232	DS3902
DS3903	DS3904	DS3905	DS3906	DS3930
DS4077	DS4077C	DS4301	DS4302	DS4520
DS4550	DS5002	DS5240	DS5250	DS7864B
DS7864D	DS80C310	DS80C320	DS80C323	DSQ3301-K01

The calculated failure rate for devices using this process is

**FAILURE RATE:                      MTTF (YRS): 33388                      FITS: 3.4**

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 12/31/05 and .

**Device Information:**

Process:                      0.6 µm Process-8"  
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	0440	DS2764	125C, 5.5 VOLTS	1000 HRS	77	0	
HIGH TEMP OP LIFE	0442	DS3902	125C, 5.5 VOLTS	1000 HRS	77	0	
HIGH TEMP OP LIFE	0443	DS1825	125C, 5.5 VOLTS	1000 HRS	77	0	
HIGH TEMP OP LIFE	0447	DS1849	125C, 5.5 VOLTS	1000 HRS	77	0	
HIGH VOLTAGE LIFE	0452	DS2761	125C, 5.5 VOLTS	1000 HRS	77	0	
HIGH TEMP OP LIFE	0453	DS3231S	125C, 5.5 VOLTS	1000 HRS	45	0	

HIGH VOLTAGE LIFE	0505	DS5240	125C, 5.5 VOLTS	1000	HRS	45	0
VISUAL INSPECTION			WHISKERS < 50uM			3	0
HIGH TEMP OP LIFE	0506	DS2482-8	125C, 5.5 VOLTS	1000	HRS	45	0
HIGH TEMP OP LIFE	0507	DS2715	125C, 5.5 V (PSA) & 17.0 V (PSB)	1000	HRS	45	0
HIGH TEMP OP LIFE	0509	DS1861	125C, 5.5 VOLTS	1000	HRS	45	2 30042301
HIGH TEMP OP LIFE	0523	DS1859	125C, 5.5 VOLTS	1000	HRS	77	0
HIGH TEMP OP LIFE	0523	DS3906	125C, 5.5 VOLTS	1000	HRS	45	0
HIGH TEMP OP LIFE	0524	DS80C320	125C, 5.5 VOLTS	1000	HRS	77	0
VISUAL INSPECTION			WHISKERS < 50uM			3	
HIGH TEMP OP LIFE	0525	DS1852	125C, 5.5 VOLTS	1000	HRS	77	0
HIGH TEMP OP LIFE	0543	DS1955B2	125C, 3.3 VOLTS	1000	HRS	77	0
<b>Total:</b>							<b>2</b>

### STORAGE LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
STORAGE LIFE	0453	DS3231S	125C	2300	HRS	77	0
STORAGE LIFE	0505	DS5240	150C	1000	HRS	77	0
VISUAL INSPECTION			WHISKERS < 50uM			3	0
STORAGE LIFE	0507	DS2715	150C	1000	HRS	77	0
STORAGE LIFE	0524	DS80C320	150C	1000	HRS	77	0
VISUAL INSPECTION			WHISKERS < 50uM			3	
STORAGE LIFE	0543	DS1955B2	85 C	1000	HRS	77	0
<b>Total:</b>							<b>0</b>

### TEMPERATURE CYCLE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
TEMP CYCLE	0447	DS1849	-55C TO 125C	1000	CYS	77	0
TEMP CYCLE	0505	DS5240	-55C TO 125C	1000	CYS	77	0
VISUAL INSPECTION			WHISKERS < 50uM			3	0
TEMP CYCLE	0524	DS80C320	-55C TO 125C	1000	CYS	77	0
VISUAL INSPECTION			WHISKERS < 50uM			3	0
TEMP CYCLE	0543	DS1955B2	-40 TO 85C	1000	CYS	77	0
<b>Total:</b>							<b>0</b>

### TEMPERATURE HUMIDITY BIAS

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
BIASED MOISTURE	0505	DS5240	85/85, 5.5 VOLTS	1000	HRS	45	0
VISUAL INSPECTION			WHISKERS < 50uM			3	0
HAST	0524	DS80C320	130C, 85%R.H.,5.5V	96	HRS	77	0
VISUAL INSPECTION			WHISKERS < 50uM			3	0
<b>Total:</b>							<b>0</b>

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**UNBIASED MOISTURE RESISTANCE**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
MOISTURE SOAK	0447	DS1849	85 C/85% R.H.	1000 HRS	77	0	
AUTOCLAVE VISUAL INSPECTION	0505	DS5240	121C, 2 ATM STEAM, UNBIASED WHISKERS < 50uM	168 HRS	75 3	0 0	
HAST, NO BIAS VISUAL INSPECTION	0524	DS80C320	130C, 85% R.H. WHISKERS < 50uM	200 HRS	77 3	0 0	
MOISTURE SOAK	0543	DS1955B2	60C/90% R.H.	1000 HRS	77	0	
<b>Total:</b>						<b>0</b>	

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**W/E ENDURANCE AND DATA RET'N**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
WRITE CYCLE STRESS (KCYS) STORAGE LIFE	0440	DS2764	70 C, 5.5 VOLTS 150C	30 KCYS 1000 HRS	77 74	1 0	30032101
WRITE CYCLE STRESS (KCYS) STORAGE LIFE	0442	DS3902	70 C, 5.5 VOLTS 150C	30 KCYS 1000 HRS	77 74	0 0	
WRITE CYCLE STRESS (KCYS) STORAGE LIFE	0443	DS1825	70 C, 5.5 VOLTS 150C	30 KCYS 1000 HRS	77 77	0 0	
WRITE CYCLE STRESS (KCYS) STORAGE LIFE	0447	DS1849	85 C, 5.5 VOLTS 150C	25 KCYS 1000 HRS	77 77	0 0	
WRITE CYCLE STRESS (KCYS) STORAGE LIFE	0452	DS2761	85 C, 5.5 VOLTS 150C	50 KCYS 1000 HRS	77 77	0 0	
WRITE CYCLE STRESS (KCYS) STORAGE LIFE	0509	DS1861	70 C, 5.5 VOLTS 150C	30 KCYS 1000 HRS	77 77	0 0	
WRITE CYCLE STRESS (KCYS) STORAGE LIFE	0523	DS1859	70 C, 5.5 VOLTS 150C	30 KCYS 1000 HRS	77 77	0 1	30040181
WRITE CYCLE STRESS (KCYS) STORAGE LIFE	0523	DS3906	70 C, 5.5 VOLTS 150C	30 KCYS 1000 HRS	77 75	0 0	
WRITE CYCLE STRESS (KCYS) STORAGE LIFE	0525	DS1852	85 C, 5.5 VOLTS 150C	25 KCYS 1000 HRS	77 76	1 0	30040425
<b>Total:</b>						<b>3</b>	

**FAILURE RATE:****MTTF (YRS): 33388****FITS: 3.4**