



1/25/2008

RELIABILITY MONITOR REPORT  
FOR

**DAL 0.35 $\mu$ m Silicon Gate CMOS**

**MAXIM Integrated Products**

120 San Gabriel Dr.  
Sunnyvale, CA 94086

This Report was prepared by  
Maxim Reliability Engineering

**Summary:**

The data in the tables that follow was generated as the result of an on-going Process Reliability Monitor. The specific products in this process monitor are:

DS2155	DS2431	DS2704R	DS2782	DS2784
DS2786	DS28DG02	DS3605	DS3641	DS3650
DS3882	DS3994	DS4026	DS75LX	MAX5477HETE

The calculated failure rate for devices using this process is:

**FAILURE RATE:**                      **MTTF (YRS): 126589**                      **FITS: 0.9**

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

**Cf: 60%**                      **Ea: 0.7**                      **Tu: 25 °C**

The reliability data follows and in this section is the detailed reliability data by stress. The reliability data section includes the latest data available. This report covers data between and

**Process Information:**

Process Description:                      DAL 0.35µm Silicon Gate CMOS

**DATA RETENTION**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
STORAGE LIFE	0651	DS3641	150C	1000 HRS	77	0	
STORAGE LIFE	0711	DS3650	150C	1000 HRS	77	0	
STORAGE LIFE	0715	DS3605	150C	1000 HRS	77	0	
<b>Total:</b>						<b>0</b>	

**OPERATING LIFE**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
HIGH TEMP OP LIFE	0618	MAX5477HETE	135C, 5.25V	1000 HRS	45	0	
			135C, 5.25V	1000 HRS	45	0	
HIGH TEMP OP LIFE	0619	MAX5477HETE	135C, 5.25V	1000 HRS	45	0	
HIGH TEMP OP LIFE	0642	DS2786	125C, 5.5 VOLTS	1000 HRS	45	0	
HIGH TEMP OP LIFE	0651	DS3641	125C, 3.6 VOLTS	1000 HRS	45	0	
HIGH TEMP OP LIFE	0702	DS2155	125C, 3.5 VOLTS	1000 HRS	77	0	
HIGH TEMP OP LIFE	0705	DS28DG02	125C, 3.6 VOLTS	1000 HRS	77	0	
HIGH TEMP OP LIFE	0709	DS2155	125C, 3.5 VOLTS	1000 HRS	77	0	
HIGH TEMP OP LIFE	0711	DS3650	125C, 3.0V (PSB) & 3.6V (PSA)	1000 HRS	45	0	
HIGH TEMP OP LIFE	0712	DS2155	125C, 3.5 VOLTS	1000 HRS	77	0	
HIGH TEMP OP LIFE	0713	DS3994	125C, 5.5 VOLTS	1000 HRS	77	0	
HIGH TEMP OP LIFE	0713	DS75LX	125C, 3.7 VOLTS	1000 HRS	45	0	
HIGH TEMP OP LIFE	0714	DS2784	125C, 5.5 V (PSA) & 15.0 V (PSB)	1000 HRS	77	0	

HIGH TEMP OP LIFE	0715	DS3605	125C, 3.6 VOLTS	1000 HRS	45	0
HIGH TEMP OP LIFE	0717	DS2704R	125C, 5.5 VOLTS	1000 HRS	45	0
HIGH TEMP OP LIFE	0723	DS2431	150C, 5.25 VOLTS	816 HRS	45	0
<b>Total:</b>					<b>0</b>	<b>0</b>

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#### STORAGE LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
STORAGE LIFE	0649	DS4026	125C	1000 HRS	77	0	
STORAGE LIFE	0649	DS4026	125C	1000 HRS	77	0	
STORAGE LIFE	0649	DS4026	85 C	1000 HRS	77	0	
STORAGE LIFE	0649	DS4026	125C	1000 HRS	77	0	
STORAGE LIFE	0711	DS3882	150C	500 HRS	77	0	
STORAGE LIFE	0715	DS2782	150C	1000 HRS	77	0	
STORAGE LIFE	0723	DS2431	150C	2000 HRS	77	0	
STORAGE LIFE	0723	DS2431	175C	500 HRS	77	0	
STORAGE LIFE	0723	DS3882	150C	500 HRS	68	0	
STORAGE LIFE	0723	DS3882	150C	500 HRS	77	0	
<b>Total:</b>					<b>0</b>	<b>0</b>	

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#### TEMPERATURE CYCLE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
TEMP CYCLE	0649	DS4026	-40 TO 85C	1000 CYS	77	0	
TEMP CYCLE	0649	DS4026	-40 TO 85C	1000 CYS	77	0	
TEMP CYCLE	0649	DS4026	-40 TO 85C	1000 CYS	77	0	
TEMP CYCLE	0702	DS2155	-55C TO 125C	1000 CYS	77	0	
TEMP CYCLE	0709	DS2155	-55C TO 125C	1000 CYS	77	0	
TEMP CYCLE	0711	DS3882	-55C TO 125C	1000 CYS	77	0	
BOND STRENGTH			MIL-STD-883-2011 : COND D	60 WIRES	5	0	
TEMP CYCLE	0712	DS2155	-55C TO 125C	1000 CYS	75	0	
TEMP CYCLE	0715	DS2782	-55C TO 125C	1000 CYS	77	0	
TEMP CYCLE	0723	DS3882	-55C TO 125C	1000 CYS	77	0	
BOND STRENGTH			MIL-STD-883-2011 : COND D	60 WIRES	5	0	
TEMP CYCLE	0723	DS2431	-65C TO 150C	1000 CYS	77	0	
BOND STRENGTH			MIL-STD-883-2011 : COND D	30 WIRES	15	0	
TEMP CYCLE	0723	DS3882	-55C TO 125C	1000 CYS	77	0	
BOND STRENGTH			MIL-STD-883-2011 : COND D	60 WIRES	5	0	
<b>Total:</b>					<b>0</b>	<b>0</b>	

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#### TEMPERATURE HUMIDITY BIAS

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
BIASED MOISTURE	0649	DS4026	85/85, 3.5 VOLTS	836 HRS	77	0	

BIASED MOISTURE	0649	DS4026	85/85, 3.5 VOLTS	836	HRS	77	0
BIASED MOISTURE	0649	DS4026	85/85, 3.5 VOLTS	836	HRS	77	0
HAST	0702	DS2155	130C, 85%R.H.,3.5V	96	HRS	45	0
HAST	0709	DS2155	130C, 85%R.H.,3.5V	96	HRS	45	0
BIASED MOISTURE	0711	DS3882	85/85, 5.5 VOLTS	1000	HRS	77	0
HAST	0712	DS2155	130C, 85%R.H.,3.5V	96	HRS	45	0
BIASED MOISTURE	0715	DS2782	85/85, 5.5 VOLTS	1000	HRS	77	0
HAST	0723	DS2431	130C, 85%R.H.,5.5V	192	HRS	76	0
BIASED MOISTURE	0723	DS3882	85/85, 5.5 VOLTS	1000	HRS	77	0
BIASED MOISTURE	0723	DS3882	85/85, 5.5 VOLTS	1000	HRS	77	0
<b>Total:</b>							<b>0</b>

### UNBIASED MOISTURE RESISTANCE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
AUTOCLAVE	0649	DS4026	121C, 2 ATM STEAM, UNBIASED	168	HRS	76	0
AUTOCLAVE	0649	DS4026	121C, 2 ATM STEAM, UNBIASED	168	HRS	76	0
AUTOCLAVE	0649	DS4026	121C, 2 ATM STEAM, UNBIASED	168	HRS	74	0
AUTOCLAVE	0711	DS3882	121C, 2 ATM STEAM, UNBIASED	168	HRS	77	0
AUTOCLAVE	0723	DS2431	121C, 2 ATM STEAM, UNBIASED	336	HRS	77	0
AUTOCLAVE	0723	DS3882	121C, 2 ATM STEAM, UNBIASED	168	HRS	77	0
AUTOCLAVE	0723	DS3882	121C, 2 ATM STEAM, UNBIASED	168	HRS	75	0
<b>Total:</b>							<b>0</b>

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

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
STORAGE LIFE	0642	DS2786	150C	1000	HRS	77	0
WRITE CYCLE STRESS (KCYS)			50 C, 5.5 VOLTS (PSA), 15.0 VOLTS (PSB)	10	KCYS	77	0
WRITE CYCLE STRESS (KCYS)	0642	DS2786	50 C, 5.5 VOLTS (PSA), 15.0 VOLTS (PSB)	1	KCYS	77	0
STORAGE LIFE			150C	1000	HRS	77	0
STORAGE LIFE	0642	DS2786	150C	1000	HRS	77	0
WRITE CYCLE STRESS (CYS)			50 C, 5.5 VOLTS (PSA), 15.0 VOLTS (PSB)	100	CYS	77	0
WRITE CYCLE STRESS (KCYS)	0705	DS28DG02	25 C, 3.6 VOLTS	200	KCYS	77	0
STORAGE LIFE			150C	1000	HRS	77	0
WRITE CYCLE STRESS (KCYS)	0711	DS3882	85 C, 5.25 VOLTS	30	KCYS	77	0
STORAGE LIFE			150C	500	HRS	77	0

WRITE CYCLE STRESS (KCYS)	0713	DS3994	70 C, 5.5 VOLTS	30	KCYS	77	0
STORAGE LIFE			150C	1000	HRS	77	0
WRITE CYCLE STRESS (KCYS)	0714	DS2784	50 C, 5.5 V (PSA) & 15.0 V (PSB)	50	KCYS	77	0
STORAGE LIFE			150C	1000	HRS	77	0
WRITE CYCLE STRESS (KCYS)	0723	DS3882	85 C, 5.25 VOLTS	30	KCYS	77	0
STORAGE LIFE			150C	500	HRS	77	0
STORAGE LIFE	0723	DS3882	150C	500	HRS	77	0
WRITE CYCLE STRESS (KCYS)			85 C, 5.25 VOLTS	30	KCYS	77	0
<b>Total:</b>							<b>0</b>

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#### W/E ENDURANCE AND OPERATING LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
HIGH TEMP OP LIFE	0711	DS3882	125C, 5.25 VOLTS	432	HRS	73	0
WRITE CYCLE STRESS (KCYS)			85 C, 5.25 VOLTS	30	KCYS	77	0
WRITE CYCLE STRESS (KCYS)	0723	DS3882	85 C, 5.25 VOLTS	30	KCYS	77	0
HIGH TEMP OP LIFE			125C, 5.25 VOLTS	408	HRS	75	0
HIGH TEMP OP LIFE	0725	DS3882	125C, 5.25 VOLTS	408	HRS	76	0
WRITE CYCLE STRESS (KCYS)			85 C, 5.25 VOLTS	30	KCYS	77	0
<b>Total:</b>							<b>0</b>

**FAILURE RATE:**

**MTTF (YRS): 126589**

**FITS: 0.9**