



4/20/2008

RELIABILITY MONITOR REPORT
FOR

DAL 0.35 μ 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:

DS1080L	DS1099	DS2155	DS2431	DS2704R
DS2782	DS2784	DS2786	DS28DG02	DS3605
DS3650	DS3882	DS3991	DS3994	DS7505
DS75LX	MAX5478ETE+			

The calculated failure rate for devices using this process is:

FAILURE RATE: **MTTF (YRS): 137165** **FITS: 0.8**

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 4/1/2007 and 3/31/2008 .

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	0711	DS3650	150C	1000 HRS	77	0	
STORAGE LIFE	0715	DS3605	150C	1000 HRS	77	0	
STORAGE LIFE	0730	DS3991	150C	1000 HRS	77	0	
					Total:	0	

OPERATING LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
HIGH TEMP OP LIFE		MAX5478ETE+	135C, 5.25V	1000 HRS	45	0	
			135C, 5.25V	1000 HRS	45	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	
HIGH TEMP OP LIFE	0723	DS2786	125C, 5.5 VOLTS	1000 HRS	45	0	

HIGH TEMP OP LIFE	0730	DS3991	125C, 5.5V (PSA) & 3.0V (PSB)	1000	HRS	45	0	
HIGH TEMP OP LIFE	0732	DS2784	125C, 5.5 V (PSA) & 15.0 V (PSB)	1000	HRS	77	0	
HIGH TEMP OP LIFE	0732	DS1099	125C, 5.5 VOLTS	408	HRS	45	0	
HIGH TEMP OP LIFE	0732	DS1099	125C, 5.5 VOLTS	408	HRS	32	0	
HIGH TEMP OP LIFE	0732	DS1080L	125C, 3.6 VOLTS	1000	HRS	45	0	
HIGH TEMP OP LIFE	0745	DS1099	125C, 5.5 VOLTS	240	HRS	45	0	
HIGH TEMP OP LIFE	0746	DS7505	125C, 3.7 VOLTS	1000	HRS	77	0	
Total:							0	0

STORAGE LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO	
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	
STORAGE LIFE	0732	DS1099	150C	1000	HRS	77	0	
STORAGE LIFE	0732	DS1080L	150C	1000	HRS	55	0	
Total:							0	0

TEMPERATURE CYCLE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
TEMP CYCLE, 5' RAMP, 10' DWELL	0709	DS2155	-55C TO 125C	1000	CYS	77	0
BOND STRENGTH	0711	DS3882	MIL-STD-883-2011 : COND D	60	WIRES	5	0
TEMP CYCLE, 5' RAMP, 10' DWELL			-55C TO 125C	1000	CYS	77	0
TEMP CYCLE, 5' RAMP, 10' DWELL	0712	DS2155	-55C TO 125C	1000	CYS	75	0
TEMP CYCLE, 5' RAMP, 10' DWELL	0715	DS2782	-55C TO 125C	1000	CYS	77	0
TEMP CYCLE, 5' RAMP, 10' DWELL	0723	DS3882	-55C TO 125C	1000	CYS	77	0
BOND STRENGTH			MIL-STD-883-2011 : COND D	60	WIRES	5	0
TEMP CYCLE, 5' RAMP, 10' DWELL	0723	DS2431	-65C TO 150C	1000	CYS	77	0
BOND STRENGTH			MIL-STD-883-2011 : COND D	30	WIRES	15	0
TEMP CYCLE, 5' RAMP, 10' DWELL	0723	DS3882	-55C TO 125C	1000	CYS	77	0
BOND STRENGTH			MIL-STD-883-2011 : COND D	60	WIRES	5	0
TEMP CYCLE, 5' RAMP, 10' DWELL	0732	DS1099	-55C TO 125C	1000	CYS	77	0
BOND STRENGTH			MIL-STD-883-2011 : COND D	30	WIRES	5	0

TEMP CYCLE, 5' RAMP, 10' DWELL	0732	DS1080L	-65C TO 150C	500	CYS	77	0
BOND STRENGTH			MIL-STD-883-2011 : COND D	40	WIRES	5	0
Total:						0	0

TEMPERATURE HUMIDITY BIAS

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
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
HAST	0732	DS1099	130C, 85%R.H.,5.5V	96	HRS	77	0
HAST	0732	DS1080L	130C, 85%R.H.,3.5V	96	HRS	77	0
Total:						0	0

UNBIASED MOISTURE RESISTANCE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
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
AUTOCLAVE	0732	DS1099	121C, 2 ATM STEAM, UNBIASED	168	HRS	77	0
AUTOCLAVE	0732	DS1080L	121C, 2 ATM STEAM, UNBIASED	168	HRS	77	0
Total:						0	0

W/E ENDURANCE AND DATA RET'N

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
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
WRITE CYCLE STRESS (KCYS)	0723	DS3882	85 C, 5.25 VOLTS	30 KCYS	77	0
STORAGE LIFE			150C	500 HRS	77	0
WRITE CYCLE STRESS (KCYS)	0732	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)	0746	DS7505	25 C, 3.7 VOLTS	80 KCYS	77	0
STORAGE LIFE			150C	1000 HRS	77	0
STORAGE LIFE	0746	DS7505	150C	1000 HRS	77	0
WRITE CYCLE STRESS (KCYS)			85 C, 3.7 VOLTS	20 KCYS	77	0
Total:						0

W/E ENDURANCE AND OPERATING LIFE

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

FAILURE RATE:

MTTF (YRS): 137165

FITS: 0.8