



4/8/2009

**RELIABILITY MONITOR REPORT  
FOR**

**DAL 0.8 $\mu$ 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:

DS1230	DS1232	DS1233	DS1302	DS1814
DS1818	DS1834	DS1844	DS2434	DS75
DS87C530	MAX6613MXK+	MAX9018BEKA	MAX9711ETC	MAX9711ETC+
MAX9711ETC+(	MAX9718AEUB			

The calculated failure rate for devices using this process is:

**FAILURE RATE:**                      **MTTF (YRS): 167324**                      **FITS: 0.7**

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 7/1/2007 and 6/30/2008 .

**Process Information:**

Process Description:                      DAL 0.8µm Silicon Gate CMOS

**OPERATING LIFE**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	LOT NO.
HIGH TEMP OP LIFE	0628	DS1232	125C, 5.5 VOLTS	1000 HRS	77	0	QD639652AB-NPI
HIGH TEMP OP LIFE	0646	DS75	125C, 5.5 VOLTS	1000 HRS	77	0	QD702665AB
HIGH TEMP OP LIFE	0710	DS1233	125C, 5.5 VOLTS	1000 HRS	80	0	DU646133BBB
HIGH TEMP OP LIFE	0726	DS87C530	125C, 5.5 VOLTS	1000 HRS	77	0	QK717663AB-NPI
HIGH TEMP OP LIFE	0727	MAX9718AEUB+	135C	1000 HRS	45	0	DJH3EA122B
HIGH TEMP OP LIFE	0732	MAX9018BEKA+	135C	1000 HRS	32	0	DER5NA010C#
HIGH TEMP OP LIFE	0732	MAX9018BEKA+	135C	500 HRS		0	DER5BA010C#
HIGH TEMP OP LIFE	0732	MAX9018BEKA+	135C	1000 HRS	48	0	DER5BA010C#
HIGH TEMP OP LIFE	0732	MAX6613MXK+T	135C	1000 HRS	50	0	DH10CQ001Q1
HIGH TEMP OP LIFE	0732	MAX6613MXK+T	135C	1000 HRS	50	0	DH10CQ001Q2
HIGH TEMP OP LIFE	0735	DS75	125C, 5.5 VOLTS	1000 HRS	77	0	QJ740138AB
HIGH TEMP OP LIFE	0742	DS2434	125C, 6.4 VOLTS	1000 HRS	77	0	ZU723402AB
VISUAL INSPECTION	0742	DS2434	WHISKERS < 50uM		77	0	ZU723402AB
HIGH TEMP OP LIFE	0742	DS2434	125C, 6.4 VOLTS	1000 HRS	77	0	ZU723402AC
VISUAL INSPECTION	0742	DS2434	WHISKERS < 50uM		77	0	ZU723402AC
VISUAL INSPECTION	0742	DS2434	WHISKERS < 50uM		77	0	ZU723402AD

HIGH TEMP OP LIFE	0742	DS2434	125C, 6.4 VOLTS	1000 HRS	77	0	ZU723402AD
HIGH TEMP OP LIFE	0742	DS1834	125C, 5.5 VOLTS	1000 HRS	77	0	VJ806167AFB
HIGH TEMP OP LIFE	0750	DS1302	125C, 5.5 VOLTS	1000 HRS	80	0	VJ801082ABA
HIGH TEMP OP LIFE	0751	DS75	125C, 5.5 VOLTS	1000 HRS	77	0	VJ754398AEG
HIGH TEMP OP LIFE	0808	DS1844	125C, 5.5 VOLTS	1000 HRS	54	0	ZK719430ABA
HIGH TEMP OP LIFE	0808	DS1844	125C, 5.5 VOLTS	1000 HRS	54	0	ZK719430ACA
HIGH TEMP OP LIFE	0808	DS1844	125C, 5.5 VOLTS	1000 HRS	54	0	ZK719430ADA

**Total: 0**

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### STORAGE LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	LOT NO.
STORAGE LIFE	0628	DS1232	150C	1000 HRS	75	0	QD639652AB-NPI
STORAGE LIFE	0722	DS1814	150C	1000 HRS	77	0	ZJ651284CBB-QUAL
STORAGE LIFE	0722	DS1814	150C	1000 HRS	77	0	ZJ651284CBB-1
STORAGE LIFE	0722	DS1814	150C	1000 HRS	77	0	ZJ651284CBB-2
STORAGE LIFE	0722	DS1814	150C	1000 HRS	77	0	ZM651284CCA-QUAL
STORAGE LIFE	0722	DS1814	150C	1000 HRS	77	0	ZM651284CCB-1
STORAGE LIFE	0722	DS1814	150C	1000 HRS	77	0	ZM651284CCB-2
STORAGE LIFE	0726	DS87C530	150C	1000 HRS	77	0	QK717663AB-NPI
STORAGE LIFE	0727	MAX9718AEUB+	150C	1000 HRS	80	0	DJH3EA122B
STORAGE LIFE	0732	MAX9018BEKA+	150C	500 HRS	45	0	DER5BA010C#
STORAGE LIFE	0735	DS75	150C	1000 HRS	45	0	QJ740138AB
VISUAL INSPECTION	0742	DS2434	WHISKERS < 50uM		77	0	ZU723402AB
STORAGE LIFE	0742	DS2434	150C	1000 HRS	77	0	ZU723402AB
VISUAL INSPECTION	0742	DS2434	WHISKERS < 50uM		77	0	ZU723402AC
STORAGE LIFE	0742	DS2434	150C	1000 HRS	77	0	ZU723402AC
VISUAL INSPECTION	0742	DS2434	WHISKERS < 50uM		77	0	ZU723402AD
STORAGE LIFE	0742	DS2434	150C	1000 HRS	77	0	ZU723402AD
STORAGE LIFE	0742	DS1834	150C	1000 HRS	76	0	VJ806167AFB
STORAGE LIFE	0744	DS1818	150C	1000 HRS	77	0	VJ753408AFB
STORAGE LIFE	0750	DS1302	150C	1000 HRS	77	0	VJ801082ABA
STORAGE LIFE	0751	DS75	150C	1000 HRS	77	0	VJ754398AEG
STORAGE LIFE	0808	DS1844	150C	1000 HRS	77	0	ZK719430ABA
STORAGE LIFE	0808	DS1844	150C	1000 HRS	77	0	ZK719430ACA

STORAGE LIFE	0808	DS1844	150C	1000	HRS	77	0	ZK719430ADA
STORAGE LIFE	0810	DS1814	150C	1000	HRS	75	0	ZQ649015ARB
STORAGE LIFE	0810	DS1814	150C	1000	HRS	72	0	ZQ649015ASB
<b>Total:</b>							<b>0</b>	

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### TEMPERATURE CYCLE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	LOT NO.
TEMP CYCLE, 5' RAMP, 10' DWELL	0536	MAX9711ETC	-65C TO 150C	1000	CYS	989	0 DBI0DQ003E
TEMP CYCLE, 5' RAMP, 10' DWELL	0536	MAX9711ETC+	-65C TO 150C	500	CYS	989	0 DBI0DQ003E
TEMP CYCLE, 5' RAMP, 10' DWELL	0628	DS1232	-55C TO 125C	1000	CYS	77	0 QD639652AB-NPI
TEMP CYCLE, 5' RAMP, 10' DWELL	0710	DS1233	-55C TO 125C	1000	CYS	40	0 DU646133BBB
TEMP CYCLE, 5' RAMP, 10' DWELL	0722	DS1814	-55C TO 125C	1000	CYS	77	0 ZJ651284CBB-QUAL
TEMP CYCLE, 5' RAMP, 10' DWELL	0722	DS1814	-55C TO 125C	1000	CYS	77	0 ZJ651284CBB-1
TEMP CYCLE, 5' RAMP, 10' DWELL	0722	DS1814	-55C TO 125C	1000	CYS	77	0 ZJ651284CBB-2
TEMP CYCLE, 5' RAMP, 10' DWELL	0722	DS1814	-55C TO 125C	1000	CYS	77	0 ZM651284CCA-QUAL
TEMP CYCLE, 5' RAMP, 10' DWELL	0722	DS1814	-55C TO 125C	1000	CYS	77	0 ZM651284CCB-1
TEMP CYCLE, 5' RAMP, 10' DWELL	0722	DS1814	-55C TO 125C	1000	CYS	77	0 ZM651284CCB-2
TEMP CYCLE, 5' RAMP, 10' DWELL	0727	MAX9718AEUB+	-65C TO 150C	1000	CYS	80	0 DJH3EA122B
TEMP CYCLE, 5' RAMP, 10' DWELL	0732	MAX9018BEKA+	-65C TO 150C	500	CYS	80	0 DER5BA010C#
BOND STRENGTH	0735	DS75	MIL-STD-883-2011 : COND D	40	WIRES	5	0 QJ740138AB
TEMP CYCLE, 5' RAMP, 10' DWELL	0735	DS75	-65C TO 150C	1000	CYS	77	0 QJ740138AB
VISUAL INSPECTION	0742	DS2434	WHISKERS < 50uM			77	0 ZU723402AB
TEMP CYCLE, 5' RAMP, 10' DWELL	0742	DS2434	-55C TO 125C	1000	CYS	77	0 ZU723402AB
TEMP CYCLE, 5' RAMP, 10' DWELL	0742	DS2434	-55C TO 125C	1000	CYS	77	0 ZU723402AC
VISUAL INSPECTION	0742	DS2434	WHISKERS < 50uM			77	0 ZU723402AC
TEMP CYCLE, 5' RAMP, 10' DWELL	0742	DS2434	-55C TO 125C	1000	CYS	77	0 ZU723402AD
VISUAL INSPECTION	0742	DS2434	WHISKERS < 50uM			77	0 ZU723402AD
TEMP CYCLE, 5' RAMP, 10' DWELL	0742	DS1834	-55C TO 125C	1000	CYS	77	0 VJ806167AFB
TEMP CYCLE, 5' RAMP, 10' DWELL	0742	MAX9711ETC	-65C TO 150C	1000	CYS	984	0 DBI0DA005C
TEMP CYCLE, 5' RAMP, 10' DWELL	0742	MAX9711ETC+	-65C TO 150C	500	CYS	985	0 DBI0DA005C

TEMP CYCLE, 5' RAMP, 10' DWELL	0742	MAX9711ETC+(AACB)	-65C TO 150C	1000	CYS	995	0	DBI0DA005C
TEMP CYCLE, 5' RAMP, 10' DWELL	0744	DS1818	-55C TO 125C	1000	CYS	77	0	VJ753408AFB
TEMP CYCLE, 5' RAMP, 10' DWELL	0750	DS1302	-55C TO 125C	1000	CYS	77	0	VJ801082ABA
TEMP CYCLE, 5' RAMP, 10' DWELL	0751	DS75	-55C TO 125C	1000	CYS	77	0	VJ754398AEG
TEMP CYCLE, 5' RAMP, 10' DWELL	0808	DS1844	-55C TO 125C	1000	CYS	77	0	ZK719430ABA
TEMP CYCLE, 5' RAMP, 10' DWELL	0808	DS1844	-55C TO 125C	1000	CYS	77	0	ZK719430ACA
TEMP CYCLE, 5' RAMP, 10' DWELL	0808	DS1844	-55C TO 125C	1000	CYS	77	0	ZK719430ADA
TEMP CYCLE, 5' RAMP, 10' DWELL	0810	DS1230	-40 TO 85C	1000	CYS	77	0	MG362516AAA-QAL
TEMP CYCLE, 5' RAMP, 10' DWELL	0810	DS1230	-40 TO 85C	1000	CYS	77	0	MG362517AAA-QAL
TEMP CYCLE, 5' RAMP, 10' DWELL	0810	DS1814	-55C TO 125C	1000	CYS	77	0	ZQ649015ARB
TEMP CYCLE, 5' RAMP, 10' DWELL	0810	DS1814	-55C TO 125C	1000	CYS	77	0	ZQ649015ASB
<b>Total:</b>							<b>0</b>	

#### TEMPERATURE HUMIDITY BIAS

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	LOT NO.	
BIASED MOISTURE	0628	DS1232	85/85, 5.5 VOLTS	1000	HRS	77	0	QD639652AB-NPI
HAST	0710	DS1233	130C, 85%R.H.,5.5V	96	HRS	77	0	DU646133BBB
HAST, NO BIAS	0710	DS1233	130C, 85% R.H.	96	HRS	40	0	DU646133BBB
BIASED MOISTURE	0727	MAX9718AEUB+	130C, 85% R.H.	96	HRS	50	0	DJH3EA122B
BIASED MOISTURE	0732	MAX9018BEKA+	130C, 85% R.H.	96	HRS	80	0	DER5BA010C#
BIASED MOISTURE	0732	MAX9018BEKA+	130C, 85% R.H.	96	HRS	40	0	DER5BA010C#
HAST	0735	DS75	130C, 85%R.H.,5.5V	96	HRS	77	0	QJ740138AB
HAST	0742	DS2434	130C, 85%R.H.,5.5V	96	HRS	77	0	ZU723402AB
VISUAL INSPECTION	0742	DS2434	WHISKERS < 50uM			77	0	ZU723402AB
VISUAL INSPECTION	0742	DS2434	WHISKERS < 50uM			77	0	ZU723402AC
HAST	0742	DS2434	130C, 85%R.H.,5.5V	96	HRS	77	0	ZU723402AC
VISUAL INSPECTION	0742	DS2434	WHISKERS < 50uM			77	0	ZU723402AD
HAST	0742	DS2434	130C, 85%R.H.,5.5V	96	HRS	77	0	ZU723402AD
BIASED MOISTURE	0742	DS1834	85/85, 5.5 VOLTS	1000	HRS	77	0	VJ806167AFB

BIASED MOISTURE	0750	DS1302	85/85, 5.5 VOLTS	1000	HRS	77	0	VJ801082ABA	
HAST	0751	DS75	130C, 85%R.H.,5.5V	96	HRS	77	0	VJ754398AEG	
BIASED MOISTURE	0808	DS1844	85/85, 5.5 VOLTS	1000	HRS	77	0	ZK719430ABA	
BIASED MOISTURE	0808	DS1844	85/85, 5.5 VOLTS	1000	HRS	77	0	ZK719430ACA	
BIASED MOISTURE	0808	DS1844	85/85, 5.5 VOLTS	1000	HRS	77	0	ZK719430ADA	
HAST	0810	DS1814	130C, 85%R.H.,5.0V	100	HRS	79	0	ZQ649015ARB	
HAST	0810	DS1814	130C, 85%R.H.,5.0V	100	HRS	79	0	ZQ649015ASB	
<b>Total:</b>							<b>0</b>		

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### UNBIASED MOISTURE RESISTANCE

DESCRIPTION	DATE	TEST CODE	VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	LOT NO.	
MOISTURE SOAK	0732	MAX9018	BEKA+	130C, 85% R.H.	96	HRS	80	0	DER5BA010C#
AUTOCLAVE	0735	DS75		121C, 2 ATM STEAM, UNBIASED	168	HRS	77	0	QJ740138AB
HAST, NO BIAS	0750	DS1302		130C, 85% R.H.	96	HRS	77	0	VJ801082ABA
MOISTURE SOAK	0810	DS1230		60C/90% R.H.	1000	HRS	77	0	MG362516AAA-QAL
MOISTURE SOAK	0810	DS1230		60C/90% R.H.	1000	HRS	77	0	MG362517AAA-QAL
HAST, NO BIAS	0810	DS1814		130C, 85% R.H.	100	HRS	77	0	ZQ649015ARB
HAST, NO BIAS	0810	DS1814		130C, 85% R.H.	100	HRS	77	0	ZQ649015ASB
<b>Total:</b>							<b>0</b>		

**FAILURE RATE:**

**MTTF (YRS): 167324**

**FITS: 0.7**