



4/11/2009

RELIABILITY MONITOR REPORT  
FOR

**MFN 1.2 $\mu$ 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:

LM4040CEM3-5.	LM4040CIX3-5.0	LM4050AEM3-2.	LM4050BEM3-5.	LM4050CEM3-5.
LM4050CEM3-5.	MAX1617MEE	MAX1644EAE+	MAX16821BATI	MAX1772EEI+
MAX4230AXK+	MAX4257ESA+	MAX4477AUA+	MAX5037AEMH	MAX525BCPP+
MAX6006BESA+	MAX6033AAUT	MAX6033AAUT	MAX6033AAUT	MAX6033AAUT
MAX6033AUI25	MAX6033BAUT	MAX618EEE+	MAX668EUB+	MAX8863TEUK
MAX8877EKZ29	MAX8877EZK29			

The calculated failure rate for devices using this process is:

**FAILURE RATE:**                      **MTTF (YRS): 203380**                      **FITS: 0.6**

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 10/1/2007 and 9/30/2008 .

**Process Information:**

Process Description:                      MFN 1.2µm Silicon Gate CMOS

**OPERATING LIFE**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	LOT NO.
HIGH TEMP OP LIFE	0711	MAX16821BATI+	135C	192 HRS	48	0	NFLYAQ001CQ
HIGH TEMP OP LIFE	0716	MAX6033BAUT41+	135C	1000 HRS	43	0	N5L2CA015Q4
HIGH TEMP OP LIFE	0716	MAX6033BAUT41+	135C	1000 HRS	45	0	N5L2CA015Q5
HIGH TEMP OP LIFE	0716	MAX6033BAUT41+	135C	1000 HRS	45	0	N5L2CA015Q6
HIGH TEMP OP LIFE	0721	MAX1644EAE+	135C	1000 HRS	80	0	JQUALA007A
HIGH TEMP OP LIFE	0725	MAX1772EEI+	135C	1000 HRS	50	0	J3ZAJA005Q2
HIGH TEMP OP LIFE	0725	MAX1772EEI+	135C	1000 HRS	50	0	JSZAJA005Q3
HIGH TEMP OP LIFE	0727	MAX4257ESA+	135C	192 HRS	50	0	JL3BDQ001AQ
HIGH TEMP OP LIFE	0733	MAX8863TEUK+T	135C	500 HRS	50	0	NJZAGA104Q1
HIGH TEMP OP LIFE	0733	MAX8863TEUK+T	135C	1000 HRS	50	0	NJZAGA104Q1
HIGH TEMP OP LIFE	0733	MAX8863TEUK+T	135C	500 HRS	50	0	NJZAGA104Q2
HIGH TEMP OP LIFE	0733	MAX8863TEUK+T	135C	1000 HRS	50	0	NJZAGA104Q2
HIGH TEMP OP LIFE	0733	MAX8863TEUK+T	135C	500 HRS	50	0	NJZAGA104Q3
HIGH TEMP OP LIFE	0733	MAX8863TEUK+T	135C	1000 HRS	50	0	NJZAGA104Q3
HIGH TEMP OP LIFE	0738	MAX1644EAE+	135C	1000 HRS	80	0	JQUALA014B#
HIGH TEMP OP LIFE	0741	MAX525BCPP+	135C	1000 HRS	50	0	NKYADA165Q1
HIGH TEMP OP LIFE	0741	MAX525BCPP+	135C	1000 HRS	50	0	NKYADA165Q2
HIGH TEMP OP LIFE	0741	MAX525BCPP+	135C	1000 HRS	50	0	NKYADA165Q3
HIGH TEMP OP LIFE	0805	LM4040CIX3-5.0+	135C	500 HRS	90	0	J57FEA006B#

HIGH TEMP OP LIFE	0805	MAX1617MEE	135C	500	HRS	80	0	J4BAMA041A
HIGH TEMP OP LIFE	0806	LM4050CEM3-5.0+	135C	0	HRS	80	0	J57FEA006A#
HIGH TEMP OP LIFE	0806	LM4050CEM3-5.0	135C	500	HRS	78	0	J57FEA006A#
HIGH TEMP OP LIFE	0806	LM4050CEM3-5.0+	135C	700	HRS	78	0	J57FEA006A#
HIGH TEMP OP LIFE	0808	MAX5037AEMH+	135C	500	HRS	45	0	NIQ0BQ002Q3
HIGH TEMP OP LIFE	0813	MAX8863TEUK+T	135C	500	HRS	50	0	NJZAGA123Q2
HIGH TEMP OP LIFE	0813	MAX8863TEUK+T	135C	500	HRS	50	0	NJZAGA123Q3
HIGH TEMP OP LIFE	0813	MAX8863TEUK+T	135C	1000	HRS	48	0	NJZAGA123Q3
<b>Total:</b>							<b>0</b>	

---

### STORAGE LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	LOT NO.	
STORAGE LIFE	0721	MAX1644EAE+	150C	1000 HRS	80	0	JQUALA007A	
STORAGE LIFE	0725	MAX4230AXK+	150C	1000 HRS	160	0	L3K0DQ001B#	
STORAGE LIFE	0733	MAX8863TEUK+T	150C	1000 HRS	77	0	NJZAGA104Q1	
STORAGE LIFE	0733	MAX8863TEUK+T	150C	1000 HRS	77	0	NJZAGA104Q2	
STORAGE LIFE	0733	MAX8863TEUK+T	150C	1000 HRS	77	0	NJZAGA104Q3	
STORAGE LIFE	0738	MAX1644EAE+	150C	1000 HRS	80	0	JQUALA014B#	
STORAGE LIFE	0741	MAX525BCPP+	150C	1000 HRS	77	0	NKYADA165Q1	
STORAGE LIFE	0741	MAX525BCPP+	150C	1000 HRS	77	0	NKYADA165Q2	
STORAGE LIFE	0741	MAX525BCPP+	150C	1000 HRS	77	0	NKYADA165Q3	
STORAGE LIFE	0746	MAX668EUB+	150C	1000 HRS	80	0	NYGAKA045D#	
STORAGE LIFE	0803	MAX8877EZK29+T	150C	1000 HRS	80	0	NM2AEA204Q1	
STORAGE LIFE	0803	MAX8877EZK29+T	150C	1000 HRS	80	0	NM2AEA204Q2	
STORAGE LIFE	0803	MAX8877EZK29+T	150C	1000 HRS	79	0	NM2AEA204Q3	
STORAGE LIFE	0805	MAX1617MEE	150C	1000 HRS	80	0	J4BAMA041A	
STORAGE LIFE	0808	MAX6006BESA+	150C	1000 HRS	80	0	N93ACU046Q1	
STORAGE LIFE	0808	MAX6006BESA+	150C	1000 HRS	80	0	N93ACU046Q2	
STORAGE LIFE	0808	MAX6006BESA+	150C	1000 HRS	80	0	N93ACU046Q3	
STORAGE LIFE	0808	MAX5037AEMH+	150C	1000 HRS	79	0	NIQ0BQ002Q1	
STORAGE LIFE	0808	MAX5037AEMH+	150C	1000 HRS	79	0	NIQ0BQ002Q2	
STORAGE LIFE	0808	MAX5037AEMH+	150C	1000 HRS	75	0	NIQ0BQ002Q3	
STORAGE LIFE	0813	MAX8863TEUK+T	150C	1000 HRS	80	0	NJZAGA123Q1	
STORAGE LIFE	0813	MAX8863TEUK+T	150C	1000 HRS	80	0	NJZAGA123Q2	
STORAGE LIFE	0813	MAX8863TEUK+T	150C	1000 HRS	80	0	NJZAGA123Q3	
STORAGE LIFE	0819	MAX6033AAUT25+	150C	500 HRS	80	0	N5L0CA017H	
STORAGE LIFE	0819	MAX6033AUI25+	150C	1000 HRS	80	0	N5L0CA017#	
STORAGE LIFE	0819	MAX6033AAUT25+	150C	1000 HRS	80	0	N5L0CA017HA	
<b>Total:</b>							<b>0</b>	

---

**TEMPERATURE CYCLE**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	LOT NO.
TEMP CYCLE, 5' RAMP, 10' DWELL	0725	MAX4230AXK+	-65C TO 150C	1000 CYS	77	0	L3K0DQ001B#
TEMP CYCLE, 5' RAMP, 10' DWELL	0733	MAX8863TEUK+T	-65C TO 150C	1000 CYS	76	0	NJZAGA104Q1
TEMP CYCLE, 5' RAMP, 10' DWELL	0733	MAX8863TEUK+T	-65C TO 150C	500 CYS	77	0	NJZAGA104Q2
TEMP CYCLE, 5' RAMP, 10' DWELL	0738	MAX1644EAE+	-65C TO 150C	1000 CYS	80	0	JQUALA014B#
TEMP CYCLE, 5' RAMP, 10' DWELL	0741	MAX525BCPP+	-65C TO 150C	1000 CYS	77	0	NKYADA165Q1
TEMP CYCLE, 5' RAMP, 10' DWELL	0741	MAX525BCPP+	-65C TO 150C	1000 CYS	76	0	NKYADA165Q2
TEMP CYCLE, 5' RAMP, 10' DWELL	0741	MAX525BCPP+	-65C TO 150C	500 CYS	77	0	NKYADA165Q3
TEMP CYCLE, 5' RAMP, 10' DWELL	0741	MAX525BCPP+	-65C TO 150C	1000 CYS	75	0	NKYADA165Q3
TEMP CYCLE, 5' RAMP, 10' DWELL	0746	MAX668EUB+	-65C TO 150C	500 CYS	80	0	NYGAKA045D#
TEMP CYCLE, 5' RAMP, 10' DWELL	0803	MAX8877EZK29+T	-65C TO 150C	500 CYS	80	0	NM2AEA204Q1
TEMP CYCLE, 5' RAMP, 10' DWELL	0803	MAX8877EZK29+T	-65C TO 150C	1000 CYS	79	0	NM2AEA204Q2
TEMP CYCLE, 5' RAMP, 10' DWELL	0803	MAX8877EZK29+T	-65C TO 150C	1000 CYS	80	0	NM2AEA204Q3
TEMP CYCLE, 5' RAMP, 10' DWELL	0805	MAX1617MEE	-65C TO 150C	1000 CYS	80	0	J4BAMA041A
TEMP CYCLE, 5' RAMP, 10' DWELL	0806	LM4040CEM3-5.0+	-65C TO 150C	1000 CYS	76	0	J57FEA006C
TEMP CYCLE, 5' RAMP, 10' DWELL	0808	MAX6006BESA+	-65C TO 150C	1000 CYS	80	0	N93ACU046Q1
TEMP CYCLE, 5' RAMP, 10' DWELL	0808	MAX6006BESA+	-65C TO 150C	1000 CYS	80	0	N93ACU046Q2
TEMP CYCLE, 5' RAMP, 10' DWELL	0808	MAX6006BESA+	-65C TO 150C	500 CYS	80	0	N93ACU046Q3
TEMP CYCLE, 5' RAMP, 10' DWELL	0808	MAX5037AEMH+	-65C TO 150C	1000 CYS	80	0	NIQ0BQ002Q1
TEMP CYCLE, 5' RAMP, 10' DWELL	0808	MAX5037AEMH+	-65C TO 150C	1000 CYS	80	0	NIQ0BQ002Q2
TEMP CYCLE, 5' RAMP, 10' DWELL	0808	MAX5037AEMH+	-65C TO 150C	1000 CYS	74	0	NIQ0BQ002Q3
TEMP CYCLE, 5' RAMP, 10' DWELL	0810	LM4050AEM3-2.1+	-65C TO 150C	500 CYS	80	0	J57BEQ003A#
TEMP CYCLE, 5' RAMP, 10' DWELL	0810	LM4050AEM3-2.1+	-65C TO 150C	1000 CYS	80	1	J57BEQ003A
TEMP CYCLE, 5' RAMP, 10' DWELL	0810	LM4040CEM3-5.0+	-65C TO 150C	1000 CYS	249	0	J57FEA006A#
TEMP CYCLE, 5' RAMP, 10' DWELL	0810	LM4050BEM3-5.0+	-65C TO 150C	500 CYS	80	0	J57FEA006G#

TEMP CYCLE, 5' RAMP, 10' DWELL	0813	MAX8863TEUK+T	-65C TO 150C	500	CYS	80	0	NJZAGA123Q1
TEMP CYCLE, 5' RAMP, 10' DWELL	0813	MAX8863TEUK+T	-65C TO 150C	1000	CYS	80	0	NJZAGA123Q2
TEMP CYCLE, 5' RAMP, 10' DWELL	0813	MAX8863TEUK+T	-65C TO 150C	500	CYS	80	0	NJZAGA123Q2
TEMP CYCLE, 5' RAMP, 10' DWELL	0813	MAX8863TEUK+T	-65C TO 150C	500	CYS	80	0	NJZAGA123Q3
TEMP CYCLE, 5' RAMP, 10' DWELL	0819	MAX6033AAUT25+	-65C TO 150C	1000	CYS	78	0	N5L0CA017H
<b>Total:</b>							<b>1</b>	

---

**TEMPERATURE HUMIDITY BIAS**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	LOT NO.
BIASED MOISTURE	0710	MAX4477AUA+	130C, 85% R.H.	100 HRS	50	0	N290CA035B#
BIASED MOISTURE	0712	MAX618EEE+	130C, 85% R.H.	96 HRS	50	0	NQRADA053K
BIASED MOISTURE	0718	MAX4477AUA+	130C, 85% R.H.	100 HRS	50	0	N290CA047B
BIASED MOISTURE	0721	MAX1644EAE+	130C, 85% R.H.	96 HRS	50	0	JQUALA007A
BIASED MOISTURE	0733	MAX8863TEUK+T	130C, 85% R.H.	100 HRS	50	0	NJZAGA104Q2
BIASED MOISTURE	0733	MAX8863TEUK+T	130C, 85% R.H.	100 HRS	50	0	NJZAGA104Q3
BIASED MOISTURE	0738	MAX1644EAE+	130C, 85% R.H.	96 HRS	50	0	JQUALA014B#
BIASED MOISTURE	0741	MAX525BCPP+	130C, 85% R.H.	96 HRS	50	0	NKYADA165Q1
BIASED MOISTURE	0741	MAX525BCPP+	130C, 85% R.H.	96 HRS	50	0	NKYADA165Q2
BIASED MOISTURE	0741	MAX525BCPP+	130C, 85% R.H.	96 HRS	45	0	NKYADA165Q3
BIASED MOISTURE	0746	MAX668EUB+	130C, 85% R.H.	96 HRS	40	0	NYGAKA045D#
BIASED MOISTURE	0803	MAX8877EZK29+T	130C, 85% R.H.	96 HRS	50	0	NM2AEA204Q1
BIASED MOISTURE	0803	MAX8877EZK29+T	130C, 85% R.H.	96 HRS	50	0	NM2AEA204Q2
BIASED MOISTURE	0803	MAX8877EZK29+T	130C, 85% R.H.	100 HRS	50	0	NM2AEA204Q3
BIASED MOISTURE	0805	MAX1617MEE	130C, 85% R.H.	96 HRS	50	0	J4BAMA041A
BIASED MOISTURE	0808	MAX5037AEMH+	130C, 85% R.H.	96 HRS	45	0	NIQ0BQ002Q1
BIASED MOISTURE	0808	MAX5037AEMH+	130C, 85% R.H.	96 HRS	50	0	NIQ0BQ002Q2
BIASED MOISTURE	0808	MAX5037AEMH+	130C, 85% R.H.	96 HRS	45	0	NIQ0BQ002Q3
BIASED MOISTURE	0810	LM4050BEM3-5.0+	130C, 85% R.H.	96 HRS	79	0	J57FEA006G#
BIASED MOISTURE	0813	MAX8863TEUK+T	130C, 85% R.H.	96 HRS	50	0	NJZAGA123Q1
BIASED MOISTURE	0813	MAX8863TEUK+T	130C, 85% R.H.	96 HRS	50	0	NJZAGA123Q2
BIASED MOISTURE	0813	MAX8863TEUK+T	130C, 85% R.H.	96 HRS	50	0	NJZAGA123Q3
BIASED MOISTURE	0819	MAX6033AAUT25+	130C, 85% R.H.	96 HRS	50	0	N5L0CAA017H
BIASED MOISTURE	0819	MAX6033AAUT25+	130C, 85% R.H.	96 HRS	50	0	N5L0CA017HA
<b>Total:</b>							<b>0</b>

---

**UNBIASED MOISTURE RESISTANCE**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	LOT NO.
-------------	-----------	--------------	-----------	-----------	----------	-------	---------

MOISTURE SOAK	0725	MAX4230AXK+	130C, 85% R.H.	96	HRS	160	0	L3K0DQ001B#
MOISTURE SOAK	0746	MAX668EUB+	130C, 85% R.H.	96	HRS	80	0	NYGAKA045D#
MOISTURE SOAK	0806	LM4040CEM3-5.0+	130C, 85% R.H.	96	HRS	77	0	J57FEA006C
MOISTURE SOAK	0808	MAX6006BESA+	85 C/85% R.H.	1000	HRS	45	0	N93ACU046Q1
MOISTURE SOAK	0808	MAX6006BESA+	85 C/85% R.H.	1000	HRS	50	0	N93ACU046Q2
MOISTURE SOAK	0808	MAX6006BESA+	85 C/85% R.H.	1000	HRS	45	0	N93ACU046Q3
MOISTURE SOAK	0810	LM4050BEM3-5.0+	130C, 85% R.H.	96	HRS	77	0	J57FEA006G#
							<b>Total:</b>	<b>0</b>

**FAILURE RATE:**

**MTTF (YRS): 203380**

**FITS: 0.6**