



4/8/2009

RELIABILITY MONITOR REPORT
FOR

MFN 1.2 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:

LM4040CEM3-5.	LM4040CIX3-5.0	LM4050AEM3-2.	LM4050BEM3-5.	LM4050CEM3-5.
MAX1510ETB+	MAX1617MEE	MAX1644EAE+	MAX16821BATI	MAX1772EEI
MAX1772EEI+	MAX3100EEE+	MAX4230AXK+	MAX4257ESA+	MAX4477AUA+
MAX5037AEMH	MAX525BCPP+	MAX6006BESA+	MAX6033AAUT	MAX6033AAUT
MAX6033AAUT	MAX6033BAUT	MAX6033BAUT	MAX6033BAUT	MAX6033BAUT
MAX6333UR23D	MAX668EUB+	MAX8863SEUK	MAX8863TEUK	MAX8877EKZ29
MAX8877EZK29				

The calculated failure rate for devices using this process is:

FAILURE RATE: **MTTF (YRS): 273510** **FITS: 0.4**

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: MFN 1.2µm Silicon Gate CMOS

OPERATING LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	LOT NO.
HIGH TEMP OP LIFE	0646	MAX6333UR23D2-C07	135C	1000 HRS	78	0	NP3BGQ001B#
HIGH TEMP OP LIFE	0706	MAX1510ETB+	135C	1000 HRS	48	0	SJM0BA021AA
HIGH TEMP OP LIFE	0711	MAX16821BATI+	135C	192 HRS	48	0	NFLYAQ001CQ
HIGH TEMP OP LIFE	0716	MAX8863SEUK+T	135C	1000 HRS	50	0	NJZBGA096Q1
HIGH TEMP OP LIFE	0716	MAX8863SEUK+T	135C	1000 HRS	50	0	NJZBGA096Q2
HIGH TEMP OP LIFE	0716	MAX8863SEUK+T	135C	1000 HRS	50	0	NJZBGA096Q3
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	0718	MAX4477AUA+	135C	1000 HRS	80	0	N290CA047B
HIGH TEMP OP LIFE	0721	MAX1644EAE+	135C	1000 HRS	80	0	JQUALA007A
HIGH TEMP OP LIFE	0725	MAX1772EEI	135C	1000 HRS	50	0	J3ZAJA005Q1
HIGH TEMP OP LIFE	0725	MAX1772EEI+	135C	500 HRS	50	0	J3ZAJA005Q2
HIGH TEMP OP LIFE	0725	MAX1772EEI+	135C	1000 HRS	50	0	J3ZAJA005Q2
HIGH TEMP OP LIFE	0725	MAX1772EEI+	135C	500 HRS	50	0	J3ZAJA005Q3
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	0810	LM4050AEM3-2.1+	135C	500 HRS	78	0	J57BEQ003A#
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
Total:						0	

STORAGE LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	LOT NO.
STORAGE LIFE	0706	MAX1510ETB+	150C	1000 HRS	80	0	SJM0BA021A#
STORAGE LIFE	0715	MAX6033BAUT41	150C	500 HRS	77	0	N5L2CA015Q1
STORAGE LIFE	0715	MAX6033BAUT41	150C	1000 HRS	77	0	N5L2CA015Q1
STORAGE LIFE	0715	MAX6033BAUT41	150C	500 HRS	77	0	N5L2CA015Q2
STORAGE LIFE	0715	MAX6033BAUT41	150C	1000 HRS	77	0	N5L2CA015Q2
STORAGE LIFE	0715	MAX6033BAUT41	150C	1000 HRS	77	0	N5L2CA015Q3
STORAGE LIFE	0716	MAX6033BAUT41+	150C	1000 HRS	77	0	N5L2CA015Q4
STORAGE LIFE	0716	MAX6033BAUT41+	150C	1000 HRS	77	0	N5L2CA015Q5
STORAGE LIFE	0716	MAX6033BAUT41+	150C	1000 HRS	77	0	N5L2CA015Q6
STORAGE LIFE	0718	MAX4477AUA+	150C	1000 HRS	80	0	N290CA047B
STORAGE LIFE	0721	MAX1644EAE+	150C	1000 HRS	80	0	JQUALA007A
STORAGE LIFE	0725	MAX4230AXK+	150C	1000 HRS	160	0	L3K0DQ001B#
STORAGE LIFE	0725	MAX1772EEI+	150C	1000 HRS	77	0	J3ZAJA005Q1
STORAGE LIFE	0725	MAX1772EEI+	150C	1000 HRS	77	0	J3ZAJA005Q2
STORAGE LIFE	0725	MAX1772EEI+	150C	1000 HRS	77	0	J3ZAJA005Q3
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
Total:							0	

TEMPERATURE CYCLE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	LOT NO.	
TEMP CYCLE, 5' RAMP, 10' DWELL	0706	MAX1510ETB+	-65C TO 150C	1000	CYS	80	0	SJM0BA021AA
TEMP CYCLE, 5' RAMP, 10' DWELL	0715	MAX6033BAUT41+T	-65C TO 150C	500	CYS	77	0	N5L2CA015Q1
TEMP CYCLE, 5' RAMP, 10' DWELL	0715	MAX6033BAUT41+T	-65C TO 150C	500	CYS	77	0	N5L2CA015Q3
TEMP CYCLE, 5' RAMP, 10' DWELL	0716	MAX6033BAUT41+	-65C TO 150C	500	CYS	73	0	N5L2CA015Q3
TEMP CYCLE, 5' RAMP, 10' DWELL	0716	MAX6033BAUT41+	-65C TO 150C	500	CYS	77	0	N5L2CA015Q4
TEMP CYCLE, 5' RAMP, 10' DWELL	0716	MAX6033BAUT+	-65C TO 150C	500	CYS	77	0	N5L2CA015Q6
TEMP CYCLE, 5' RAMP, 10' DWELL	0718	MAX4477AUA+	-65C TO 150C	1000	CYS	80	0	N290CA047B
TEMP CYCLE, 5' RAMP, 10' DWELL	0721	MAX1644EAE+	-65C TO 150C	1000	CYS	80	0	JQUALA007A
TEMP CYCLE, 5' RAMP, 10' DWELL	0725	MAX4230AXK+	-65C TO 150C	1000	CYS	77	0	L3K0DQ001B#
TEMP CYCLE, 5' RAMP, 10' DWELL	0725	MAX1772EEI+	-65C TO 150C	500	CYS	77	0	J3ZAJA005Q2
TEMP CYCLE, 5' RAMP, 10' DWELL	0725	MAX1772EEI	-65C TO 150C	1000	CYS	77	0	J3ZAJA005Q1
TEMP CYCLE, 5' RAMP, 10' DWELL	0725	MAX1772EEI	-65C TO 150C	1000	CYS	77	0	J3ZAJA005Q2

TEMP CYCLE, 5' RAMP, 10' DWELL	0725	MAX1772EEI+	-65C TO 150C	500	CYS	77	0	J3ZAJA005Q3
TEMP CYCLE, 5' RAMP, 10' DWELL	0725	MAX1772EEi	-65C TO 150C	1000	CYS	77	0	J3ZAJA005Q3
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	500	CYS	80	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	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
Total:							1	

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	0715	MAX6033BAUT41+T	130C, 85% R.H.	100 HRS	45	1	N5L2CA015Q1	
BIASED MOISTURE	0716	MAX6033BAUT41+	130C, 85% R.H.	96 HRS	45	0	N5L2CA015Q4	
BIASED MOISTURE	0716	MAX6033BAUT41+	130C, 85% R.H.	96 HRS	45	0	N5L2CA015Q5	
BIASED MOISTURE	0716	MAX6033BAUT+	130C, 85% R.H.	96 HRS	45	0	N5L2CA015Q6	
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	0725	MAX1772EEI+	130C, 85% R.H.	100 HRS	50	0	J3ZAJA005Q2	
BIASED MOISTURE	0725	MAX1772EEI	130C, 85% R.H.	100 HRS	50	0	J3ZAJA005Q2	
BIASED MOISTURE	0725	MAX1772EEI+	130C, 85% R.H.	100 HRS	50	0	J3ZAJA005Q3	
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	
Total:							1	

UNBIASED MOISTURE RESISTANCE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	LOT NO.
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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#
							Total:	0

FAILURE RATE: **MTTF (YRS): 273510** **FITS: 0.4**