



5/9/2009

**RELIABILITY MONITOR REPORT  
FOR**

**MFN SiGe HBT 0.5 $\mu$ m 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:

MAX19985AET	MAX2027EUP	MAX2027EUP+	MAX2055EUP+	MAX2065ETL+
MAX2140ETH+	MAX2507ELM#	MAX2538ETI+	MAX2741EGI+	MAX2820ETM+
MAX3642ETG+	MAX3656ETG+	MAX3735AETG	MAX3741ETE+	NAX2820ETM+

The calculated failure rate for devices using this process is:

**FAILURE RATE:**                      **MTTF (YRS): 212158**                      **FITS: 0.5**

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 1/1/2008 and 12/31/2008.

**Process Information:**

Process Description:                      MFN SiGe HBT 0.5µm CMOS

**OPERATING LIFE**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	LOT NO.
HIGH TEMP OP LIFE	0724	MAX2027EUP+	135C	1000 HRS	48	0	NL00B3049B#
HIGH TEMP OP LIFE	0729	MAX2027EUP	135C	1000 HRS	45	0	NL00B3051Q3
HIGH TEMP OP LIFE	0732	MAX3741ETE+	135C	1000 HRS	45	0	NMB0B3004Q4
HIGH TEMP OP LIFE	0732	MAX3741ETE+	135C	1000 HRS	45	0	NMB0B3004Q5
HIGH TEMP OP LIFE	0732	MAX3741ETE+	135C	1000 HRS	45	0	NMB0B3004Q6
HIGH TEMP OP LIFE	0734	MAX2027EUP+	135C	1000 HRS	48	0	NL00BA053A#
HIGH TEMP OP LIFE	0738	MAX19985AETX+	135C	192 HRS	48	0	NFIYD3002DQ
HIGH TEMP OP LIFE	0739	MAX2140ETH+	135C	1000 HRS	78	0	NEZ0EA592A
HIGH TEMP OP LIFE	0742	MAX2538ETI+	135C	1000 HRS	44	0	N9J0BA187Q1
HIGH TEMP OP LIFE	0742	MAX2538ETI+	135C	1000 HRS	45	0	N9J0BA187Q2
HIGH TEMP OP LIFE	0742	MAX2538ETI+	135C	1000 HRS	44	0	N9J0BA187Q3
HIGH TEMP OP LIFE	0743	MAX2140ETH+	135C	1000 HRS	78	0	NEZ0EA586CA
HIGH TEMP OP LIFE	0746	MAX3735AETG+	135C	500 HRS	45	0	NM1AAEA029E
HIGH TEMP OP LIFE	0746	MAX3735AETG+	135C	1000 HRS	44	0	NM1AAE029E
HIGH TEMP OP LIFE	0747	MAX3656ETG+	135C	1000 HRS	48	0	NEB0CA126B
HIGH TEMP OP LIFE	0752	MAX2065ETL+	135C	192 HRS	50	0	NHKZAQ002BQ
HIGH TEMP OP LIFE	0752	MAX2538ETI+	135C	1000 HRS	73	0	N9J0B3262A
HIGH TEMP OP LIFE	0804	MAX2820ETM+	135C	1000 HRS	78	0	N7N1EA0E0B
HIGH TEMP OP LIFE	0805	MAX2027EUP	135C	500 HRS	80	0	NL00BA060E#
HIGH TEMP OP LIFE	0805	MAX2027EUP	135C	1000 HRS	48	0	NL00BA060E

HIGH TEMP OP LIFE	0811	MAX2820ETM+	135C	1000	HRS	44	0	N7N1EA0E1C
HIGH TEMP OP LIFE	0811	MAX2820ETM+	135C	1000	HRS	44	0	N7N1EA0E1D
HIGH TEMP OP LIFE	0811	MAX2820ETM+	135C	524	HRS	45	0	N7N1EA0E1E
HIGH TEMP OP LIFE	0811	MAX2820ETM+	135C	1000	HRS	45	0	N7N1EA0E1E
HIGH TEMP OP LIFE	0826	MAX3642ETG+	135C	192	HRS	48	0	NWP0HQ001DQ
HIGH TEMP OP LIFE	0830	MAX19985AETX+	135C	192	HRS	48	0	NFIYBQ003CQ
<b>Total:</b>							<b>0</b>	<b>0</b>

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### STORAGE LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	LOT NO.	
STORAGE LIFE	0742	MAX2538ETI+	150C	1000 HRS	45	0	N9J0BA187Q1	
STORAGE LIFE	0742	MAX2538ETI+	150C	1000 HRS	45	0	N9J0BA187Q3	
STORAGE LIFE	0752	MAX2538ETI+	150C	1000 HRS	80	0	N9J0B3262A	
STORAGE LIFE	0805	MAX2027EUP	150C	1000 HRS	80	0	NL00BA060E	
STORAGE LIFE	0811	MAX2820ETM+	150C	1000 HRS	77	0	N7N1EA0E1C	
STORAGE LIFE	0811	MAX2820ETM+	150C	1000 HRS	77	0	N7N1EA0E1D	
STORAGE LIFE	0811	NAX2820ETM+	150C	1000 HRS	77	0	N7N1EA0E1E	
STORAGE LIFE	0812	MAX2055EUP+	150C	1000 HRS	77	0	NBN0B3008Q1	
STORAGE LIFE	0813	MAX2055EUP+	150C	1000 HRS	77	0	NBN0B3008Q2	
STORAGE LIFE	0814	MAX2055EUP+	150C	1000 HRS	77	0	NBN0B3008Q3	
<b>Total:</b>							<b>0</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	0726	MAX2741EGI+	-65C TO 150C	500 CYS	77	0	NG90EA010QA
TEMP CYCLE, 5' RAMP, 10' DWELL	0726	MAX2741EGI+	-65C TO 150C	500 CYS	77	0	NG90EA010QC
TEMP CYCLE, 5' RAMP, 10' DWELL	0742	MAX2538ETI+	-65C TO 150C	500 CYS	77	0	N9J0BA187Q1
TEMP CYCLE, 5' RAMP, 10' DWELL	0742	MAX2538ETI+	-65C TO 150C	500 CYS	77	0	N9J0BA187Q2
TEMP CYCLE, 5' RAMP, 10' DWELL	0750	MAX2507ELM#G42	-65C TO 150C	1000 CYS	77	0	NCN8F3123QA
TEMP CYCLE, 5' RAMP, 10' DWELL	0750	MAX2507ELM#G42	-65C TO 150C	1000 CYS	77	0	NCN8F3123QB
TEMP CYCLE, 5' RAMP, 10' DWELL	0750	MAX2507ELM#G42	-65C TO 150C	500 CYS	77	0	NCN8F3121QC
TEMP CYCLE, 5' RAMP, 10' DWELL	0750	MAX2507ELM#G42	-65C TO 150C	1000 CYS	77	0	NCN8F3123QC
TEMP CYCLE, 5' RAMP, 10' DWELL	0752	MAX2538ETI+	-65C TO 150C	500 CYS	80	0	N9J0B3262A
TEMP CYCLE, 5' RAMP, 10' DWELL	0752	MAX2538ETI+	-65C TO 150C	1000 CYS	80	0	N9L0B3262A
TEMP CYCLE, 5' RAMP, 10' DWELL	0805	MAX2027EUP	-65C TO 150C	1000 CYS	80	0	NL00BA060E

TEMP CYCLE, 5' RAMP, 10' DWELL	0811	MAX2820ETM+	-65C TO 150C	500	CYS	77	0	N7N1EA0E1C
TEMP CYCLE, 5' RAMP, 10' DWELL	0811	MAX2820ETM+	-65C TO 150C	500	CYS	77	0	N7N1EA0E1D
TEMP CYCLE, 5' RAMP, 10' DWELL	0813	MAX2055EUP+	-65C TO 150C	1000	CYS	77	0	NBN0B3008Q2
TEMP CYCLE, 5' RAMP, 10' DWELL	0814	MAX2055EUP+	-65C TO 150C	1000	CYS	73	0	NBN0B3008Q4
TEMP CYCLE, 5' RAMP, 10' DWELL	0814	MAX2055EUP+	-65C TO 150C	1000	CYS	73	0	NBN0B3008Q5
TEMP CYCLE, 5' RAMP, 10' DWELL	0814	MAX2055EUP+	-65C TO 150C	1000	CYS	73	0	NBN0B3008Q6
TEMP CYCLE, 5' RAMP, 10' DWELL	0814	MAX2055EUP+	-65C TO 150C	1000	CYS	77	0	NBN0B3008Q3
<b>Total:</b>							<b>0</b>	

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**UNBIASED MOISTURE RESISTANCE**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	LOT NO.	
MOISTURE SOAK	0729	MAX2027EUP+	85 C/85% R.H.	500 HRS	45	0	NL00B3051Q1	
MOISTURE SOAK	0729	MAX2027EUP+	85 C/85% R.H.	1000 HRS	45	0	NL00B3051Q2	
MOISTURE SOAK	0729	MAX2027EUP+	85 C/85% R.H.	1000 HRS	45	0	NL00B3051Q3	
MOISTURE SOAK	0742	MAX2538ETI+	85 C/85% R.H.	500 HRS	45	0	N9J0BA187Q1	
<b>Total:</b>							<b>0</b>	

**FAILURE RATE:**                      **MTTF (YRS): 212158**                      **FITS: 0.5**