



7/19/2012

**RELIABILITY MONITOR REPORT  
FOR**

**X3 SiGe HBT 0.35 $\mu$ m BiCMOS (MB3)**

**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:

MAX2090ETP+	MAX2121ETI+	MAX2135AETN/	MAX2135AETN	MAX2172ETL+
MAX2553ETN+	MAX25973LB+	MAX2597ELB+	MAX2659ELT+G	MAX2659ELT+T
MAX2769BETI/	MAX3541ELM+	MAX3636ETM+	MAX3710ETG+	MAX3711ETG+
MAX3948ETE+	MAX3989ETG+			

The calculated failure rate for devices using this process is:

**FAILURE RATE: MTTF (YRS): 118361 QUANTITY: 1434 FAILS: 0 FITS: 1.0**

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 7/1/2011 and 6/30/2012 .

**Process Information:**

Process Description: X3 SiGe HBT 0.35µm BiCMOS (MB3)

**OPERATING LIFE**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	LOT NO.
HIGH TEMP OP LIFE	1109	MAX3989ETG+	135C	192 HRS	80	0	ST7ZAQ001CQ
HIGH TEMP OP LIFE	1112	MAX3948ETE+	135C	192 HRS	80	0	SY1ZB3001BQ
HIGH TEMP OP LIFE	1114	MAX2121ETI+	135C	192 HRS	48	0	S1HZB3001EQ
HIGH TEMP OP LIFE	1114	MAX2121ETI+	135C	192 HRS	48	0	S1HZB3001CQ
HIGH TEMP OP LIFE	1114	MAX2121ETI+	135C	1000 HRS	48	0	S1HZB3001DQ
HIGH TEMP OP LIFE	1114	MAX2121ETI+	135C	1000 HRS	47	0	S1HZB3001BQ
HIGH TEMP OP LIFE	1120	MAX2597ELB+	135C	500 HRS	44	0	SYV7B3152Q1
HIGH TEMP OP LIFE	1120	MAX2597ELB+	135C	500 HRS	43	0	SYV7BA146Q2
HIGH TEMP OP LIFE	1120	MAX2597ELB+	135C	500 HRS	44	0	SYV7BA138Q3
HIGH TEMP OP LIFE	1122	MAX2090ETP+	135C	24 HRS	48	0	SL8ZEQ002CQ
HIGH TEMP OP LIFE	1123	MAX2769BETI/V+	135C	1000 HRS	50	0	SS70BQ002DA
HIGH TEMP OP LIFE	1127	MAX3710ETG+	135C	192 HRS	80	0	ST5ZCQ001CQ
HIGH TEMP OP LIFE	1127	MAX2659ELT+T	135C	1000 HRS	47	0	SBXZDA101Q1
HIGH TEMP OP LIFE	1127	MAX2659ELT+T	135C	1000 HRS	48	0	SBXZDA101Q2
HIGH TEMP OP LIFE	1127	MAX2659ELT+T	135C	1000 HRS	48	0	SBXZDA101Q3
HIGH TEMP OP LIFE	1129	MAX3636ETM+	135C	192 HRS	32	0	S24W5Q001GQ
HIGH TEMP OP LIFE	1129	MAX3636ETM+	135C	192 HRS	48	0	S24W5Q001EQ
HIGH TEMP OP LIFE	1129	MAX3636ETM+	135C	192 HRS	48	0	S24W5Q001DQ
HIGH TEMP OP LIFE	1129	MAX3636ETM+	135C	240 HRS	32	0	S24W5Q001FQ
HIGH TEMP OP LIFE	1132	MAX3711ETG+	135C	192 HRS	80	0	ST5ZDQ001CQ
HIGH TEMP OP LIFE	1134	MAX2553ETN+	135C	192 HRS	60	0	SZ7XDQ001AQ

HIGH TEMP OP LIFE	1134	MAX2553ETN+	135C	240	HRS	48	0	SZ7XDQ001BQ
HIGH TEMP OP LIFE	1151	MAX2135AETN+	135C	192	HRS	48	0	SD9YBA140D
HIGH TEMP OP LIFE	1201	MAX2659ELT+G126	135C	500	HRS	29	0	SBXZDA128Q1
HIGH TEMP OP LIFE	1201	MAX2659ELT+G126	135C	500	HRS	48	0	SBXZDA128Q2
HIGH TEMP OP LIFE	1201	MAX2659ELT+G126	135C	500	HRS	48	0	SBXZDA128Q3
HIGH TEMP OP LIFE	1203	MAX2172ETL+	135C	500	HRS	78	0	SPTZDA118D
HIGH TEMP OP LIFE	1208	MAX2135AETN/V+	135C	500	HRS	32	0	SD9YBA140E
<b>Total:</b>							<b>0</b>	

### STORAGE LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	LOT NO.	
STORAGE LIFE	1120	MAX2597ELB+	150C	1000	HRS	76	0	SYV7B3152Q1
STORAGE LIFE	1120	MAX2597ELB+	150C	1000	HRS	76	0	SYV7BA146Q2
STORAGE LIFE	1120	MAX2597ELB+	150C	1000	HRS	75	0	SYV7BA138Q3
STORAGE LIFE	1125	MAX3541ELM+	150C	500	HRS	77	0	SPTBF3026Q4
STORAGE LIFE	1127	MAX2659ELT+T	150C	1000	HRS	77	0	SBXZDA101Q2
STORAGE LIFE	1127	MAX2659ELT+T	150C	1000	HRS	77	0	SBXZDA101Q3
STORAGE LIFE	1129	MAX2597ELB+	150C	500	HRS	77	0	SYV7BA159Q1
STORAGE LIFE	1147	MAX3541ELM+	150C	1000	HRS	200	0	SPTBGA029HA
STORAGE LIFE	1147	MAX3541ELM+	150C	1000	HRS	200	0	SPTBGA029HB
STORAGE LIFE	1201	MAX2659ELT+G126	150C	1000	HRS	80	0	SBXZDA128Q1
STORAGE LIFE	1201	MAX2659ELT+G126	150C	1000	HRS	80	0	SBXZDA128Q2
STORAGE LIFE	1201	MAX2659ELT+G126	150C	1000	HRS	80	0	SBXZDA128Q3
<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	1123	MAX2769BETI/V+	-65C TO 150C	500	CYS	80	0	SS70BQ002DA
TEMP CYCLE, 5' RAMP, 10' DWELL	1125	MAX3541ELM+	-65C TO 150C	500	CYS	77	0	SPTBF3026Q4
TEMP CYCLE, 5' RAMP, 10' DWELL	1127	MAX2659ELT+T	-65C TO 150C	1000	CYS	77	0	SBXZDA101Q2
TEMP CYCLE, 5' RAMP, 10' DWELL	1127	MAX2659ELT+T	-65C TO 150C	1000	CYS	77	0	SBXZDA101Q3
TEMP CYCLE, 5' RAMP, 10' DWELL	1129	MAX2597ELB+	-65C TO 150C	1000	CYS	75	0	SYV7BA159Q1
TEMP CYCLE, 5' RAMP, 10' DWELL	1129	MAX2597ELB+	-65C TO 150C	1000	CYS	77	1	SYV7BA159Q3
TEMP CYCLE, 5' RAMP, 10' DWELL	1147	MAX3541ELM+	-65C TO 150C	500	CYS	200	1	SPTBGA029HA
TEMP CYCLE, 5' RAMP, 10' DWELL	1152	MAX2769BETI/V+	-65C TO 150C	500	CYS	80	0	SS70BQ002JA

TEMP CYCLE, 5' RAMP, 10' DWELL	1201	MAX2659ELT+G126	-65C TO 150C	1000	CYS	85	0	SBXZDA128Q1
TEMP CYCLE, 5' RAMP, 10' DWELL	1201	MAX2659ELT+G126	-65C TO 150C	1000	CYS	85	0	SBXZDA128Q2
TEMP CYCLE, 5' RAMP, 10' DWELL	1201	MAX2659ELT+G126	-65C TO 150C	1000	CYS	85	0	SBXZDA128Q3
TEMP CYCLE, 5' RAMP, 10' DWELL	1209	MAX2769BETI/V+	-65C TO 150C	500	CYS	80	0	SS70BQ002J
<b>Total:</b>							<b>2</b>	

**TEMPERATURE HUMIDITY BIAS**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	LOT NO.
BIASED MOISTURE	1201	MAX2659ELT+G126	130C, 85% R.H.	100	HRS	66	0 SBXZDA128Q1
BIASED MOISTURE	1201	MAX2659ELT+G126	130C, 85% R.H.	100	HRS	80	0 SBXZDA128Q2
BIASED MOISTURE	1201	MAX2659ELT+G126	130C, 85% R.H.	100	HRS	66	0 SBXZDA128Q3
<b>Total:</b>							<b>0</b>

**UNBIASED MOISTURE RESISTANCE**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	LOT NO.
MOISTURE SOAK	1120	MAX2597ELB+	85 C/85% R.H.	485	HRS	41	0 SYV7B3152Q1
MOISTURE SOAK	1120	MAX2597ELB+	85 C/85% R.H.	485	HRS	41	0 SYV7BA146Q2
MOISTURE SOAK	1120	MAX2597ELB+	85 C/85% R.H.	485	HRS	41	0 SYV7B138Q3
MOISTURE SOAK	1129	MAX25973LB+	85 C/85% R.H.	1000	HRS	40	0 SYV7BA159Q1
MOISTURE SOAK	1129	MAX2597ELB+	85 C/85% R.H.	1000	HRS	40	0 SYV7BA159Q2
MOISTURE SOAK	1129	MAX2597ELB+	85 C/85% R.H.	1000	HRS	40	0 SYV7BA159Q3
MOISTURE SOAK	1152	MAX2769BETI/V+	130C, 85% R.H.	96	HRS	80	0 SS70BQ002JA
MOISTURE SOAK	1201	MAX2659ELT+G126	130C, 85% R.H.	100	HRS	80	0 SBXZDA128Q1
MOISTURE SOAK	1201	MAX2659ELT+G126	130C, 85% R.H.	100	HRS	80	0 SBXZDA128Q2
MOISTURE SOAK	1201	MAX2659ELT+G126	130C, 85% R.H.	100	HRS	81	0 SBXZDA128Q3
<b>Total:</b>							<b>0</b>

**FAILURE RATE: MTTF (YRS): 118361 QUANTITY: 1434 FAILS: 0 FITS: 1.0**