

4/17/2013



**RELIABILITY MONITOR REPORT
FOR**

X3 SiGe HBT 0.35 μ m BiCMOS (MB3)

MAXIM INTEGRATED

**160 RIO ROBLES
SAN JOSE, CA 95134**

**This Report was prepared by
MAXIM INTEGRATED 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:

MAX19792ETX_	MAX19792ETX+	MAX19794ETX+	MAX2091ETP+	MAX2135AETN/
MAX2136AETJ/	MAX2136AETJ+	MAX2141ETH+	MAX2172ETL+	MAX2659ELT+
MAX2659ELT+G	MAX2659ELT+T	MAX2769BETI/	MAX2870ETJ+	MAX3541ELM+

The calculated failure rate for devices using this process is:

FAILURE RATE: MTTF (YRS): 50890 QUANTITY: 756 FAILS: 0 FITS: 2.2

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 4/1/2012 and 3/31/2013 .

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	1122	MAX2091ETP+	135°C	192 HRS	80	0	SL8ZEQ002JQ
HIGH TEMP OP LIFE	1122	MAX2091ETP+	135°C	192 HRS	32	0	SL8ZEQ002KQ
HIGH TEMP OP LIFE	1201	MAX2659ELT+G126	135°C	1000 HRS	29	0	SBXZDA128Q1
HIGH TEMP OP LIFE	1201	MAX2659ELT+G126	135°C	1000 HRS	28	0	SBXZDA128Q2
HIGH TEMP OP LIFE	1201	MAX2659ELT+G126	135°C	1000 HRS	29	0	SBXZDA128Q3
HIGH TEMP OP LIFE	1203	MAX2172ETL+	135°C	500 HRS	78	0	SPTZDA118D
HIGH TEMP OP LIFE	1207	MAX2870ETJ+	135°C	192 HRS	80	0	SADK2Q002CQ
HIGH TEMP OP LIFE	1207	MAX2659ELT+	135°C	500 HRS	48	0	SBXZDA126FA
HIGH TEMP OP LIFE	1208	MAX2135AETN/V+	135°C	500 HRS	32	0	SD9YBA140E
HIGH TEMP OP LIFE	1213	MAX19792ETX_	135°C	192 HRS	80	0	SADR2Q001DQ
HIGH TEMP OP LIFE	1213	MAX19794ETX+	135°C	192 HRS	80	0	SADR4Q001BQ
HIGH TEMP OP LIFE	1213	MAX19792ETX+	135°C	240 HRS	80	0	SADR2Q001CQ
HIGH TEMP OP LIFE	1228	MAX2136AETJ/V+	135°C	192 HRS	48	0	SAHA4Q002AQ
HIGH TEMP OP LIFE	1228	MAX2136AETJ+	135°C	192 HRS	32	0	SAHA4Q002BQ
Total:						0	

STORAGE LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	LOT NO.
STORAGE LIFE	1147	MAX3541ELM+	150°C	1000 HRS	200	0	SPTBGA029HA
STORAGE LIFE	1147	MAX3541ELM+	150°C	1000 HRS	200	0	SPTBGA029HB
STORAGE LIFE	1201	MAX2659ELT+G126	150°C	1000 HRS	80	0	SBXZDA128Q1
STORAGE LIFE	1201	MAX2659ELT+G126	150°C	1000 HRS	80	0	SBXZDA128Q2

STORAGE LIFE	1201	MAX2659ELT+G126	150°C	1000	HRS	80	0	SBXZDA128Q3
STORAGE LIFE	1222	MAX2659ELT+T	150°C	1000	HRS	80	0	SBXZDA169DA
STORAGE LIFE	1222	MAX2659ELT+T	150°C	1000	HRS	80	0	SBXZDA169DB
STORAGE LIFE	1222	MAX2659ELT+T	150°C	1000	HRS	80	0	SBXZDA169DC
Total:							0	

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	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
TEMP CYCLE, 5' RAMP, 10' DWELL	1222	MAX2659ELT+T	-65C TO 150C	1000	CYS	80	0	SBXZDA169DA
TEMP CYCLE, 5' RAMP, 10' DWELL	1222	MAX2659ELT+T	-65C TO 150C	1000	CYS	80	0	SBXZDA169DB
TEMP CYCLE, 5' RAMP, 10' DWELL	1222	MAX2659ELT+T	-65C TO 150C	1000	CYS	80	0	SBXZDA169DC
TEMP CYCLE, 5' RAMP, 10' DWELL	1248	MAX2141ETH+	-65C TO 150C	1000	CYS	77	0	SGWYDA206Q1
TEMP CYCLE, 5' RAMP, 10' DWELL	1248	MAX2141ETH+	-65C TO 150C	1000	CYS	77	0	SGWYDA206Q2
TEMP CYCLE, 5' RAMP, 10' DWELL	1248	MAX2141ETH+	-65C TO 150C	1000	CYS	77	0	SGWYDA206Q3
TEMP CYCLE, 5' RAMP, 10' DWELL	1248	MAX2141ETH+	-65C TO 150C	1000	CYS	77	0	SGWYDA206Q4
Total:							0	

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	80	0	SBXZDA128Q2
BIASED MOISTURE	1222	MAX2659ELT+T	130C, 85% R.H.	100	HRS	80	0	SBXZDA169DA
BIASED MOISTURE	1222	MAX2659ELT+T	130C, 85% R.H.	100	HRS	32	0	SBXZDA169DB
BIASED MOISTURE	1222	MAX2659ELT+T	130C, 85% R.H.	100	HRS	80	0	SBXZDA169DC
Total:							0	

UNBIASED MOISTURE RESISTANCE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	LOT NO.
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
MOISTURE SOAK	1222	MAX2659ELT+T	130C, 85% R.H.	100	HRS	80	0 SBXZDA169DA
MOISTURE SOAK	1222	MAX2659ELT+T	130C, 85% R.H.	100	HRS	80	0 SBXZDA169DB
MOISTURE SOAK	1222	MAX2659ELT+T	130C, 85% R.H.	100	HRS	80	0 SBXZDA169DC

Total: 0

FAILURE RATE: **MTTF (YRS): 50890** **QUANTITY: 756** **FAILS: 0** **FITS: 2.2**