



5/9/2009

**RELIABILITY MONITOR REPORT  
FOR**

**San Antonio 0.4 $\mu$ 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:

MAX14525ETA+	MAX14527ETA+	MAX14535EEVB	MAX15021ATI+	MAX15022AT1
MAX15023ETG+	MAX15027ATB/	MAX1589ETZ25	MAX1589EZT25	MAX17017GTM
MAX1707GTM+	MAX17103ETJ+	MAX17108ETI+	MAX17112ETB+	MAX1740IGTJ+
MAX17480GTL+	MAX1829ETL+	MAX1963EZT09	MAX1976AETA1	MAX4885EETG+
MAX4945LELA+	MAX4967EGEE+	MAX4967EQEE+	MAX4996LETG+	MAX4999ETJ+
MAX5137GTG+	MAX7357EUG+	MAX8517EUB+	MAX8527EUD+	MAX8527EUD+
MAX8606ETD+T	MAX8631XETI+	MAX8643ETG+	MAX8697SERQ+	MAX8697SEWQ
MAX8784ETL+	MAX8815AETB+	MAX8819AETI+	MAX8822ETE+	MAX8845YETC
MAX8856ETD+	MAX9591ETU	MAX9598CTL+	MAX9651AUA+	MAX9654AUB+
MAX9668ETP+	MAX9669ETI+	MAX9725EETC+	MAX9736BETJ+	MAX9737ETG+

The calculated failure rate for devices using this process is:

**FAILURE RATE:**                      **MTTF (YRS): 197923**                      **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 and

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## Process Information:

Process Description:                      San Antonio 0.4µm Silicon Gate CMOS

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## OPERATING LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	LOT NO.
HIGH TEMP OP LIFE	0731	MAX9725EETC+	135C	192 HRS	55	0	THYZAQ001EQ
HIGH TEMP OP LIFE	0738	MAX8822ETE+	135C	192 HRS	55	0	TFKZBQ001CQ
HIGH TEMP OP LIFE	0742	MAX4996LETG+	135C	192 HRS	48	0	TKIZA3001BQ
HIGH TEMP OP LIFE	0748	MAX15021ATI+	135C	192 HRS	48	0	TLWZAQ001HQ
HIGH TEMP OP LIFE	0748	MAX15022AT1	135C	192 HRS	50	0	TLWYAQ001HQ
HIGH TEMP OP LIFE	0802	MAX1589ETZ250+T	135C	1000 HRS	79	0	TM20G2060G
HIGH TEMP OP LIFE	0802	MAX8631XETI+	135C	192 HRS	80	0	TDPCCA291H
HIGH TEMP OP LIFE	0805	MAX4999ETJ+	135C	192 HRS	48	0	TMDZAQ001EQ
HIGH TEMP OP LIFE	0805	MAX9591ETU	135C	192 HRS	55	0	TNLZAQ001AQ
HIGH TEMP OP LIFE	0806	MAX1589EZT250+T	135C	1000 HRS	79	0	TM20G2125DC
HIGH TEMP OP LIFE	0812	MAX8815AETB+	135C	192 HRS	49	0	TKPZBQ001EQ
HIGH TEMP OP LIFE	0813	MAX15023ETG+	135C	192 HRS	55	0	TFWZBQ001EQ
HIGH TEMP OP LIFE	0814	MAX8631XETI+	135C	192 HRS	37	0	TDPCC2452K
HIGH TEMP OP LIFE	0814	MAX17017GTM+	135C	500 HRS	71	0	TGEIZ001PA
HIGH TEMP OP LIFE	0814	MAX17017GTM+	135C	1000 HRS	71	0	TGEZIZ001PA

HIGH TEMP OP LIFE	0816	MAX1740IGTJ+	135C	192	HRS	50	0	TDCZGQ002BQ
HIGH TEMP OP LIFE	0817	MAX17017GTM+	135C	1000	HRS	75	0	TGEZIA002A
HIGH TEMP OP LIFE	0818	MAX1707GTM+	135C	1000	HRS	74	0	TGEZ1Z001E
HIGH TEMP OP LIFE	0819	MAX4967EQEE+	135C	324	HRS	48	0	TKWZBQ001#
HIGH TEMP OP LIFE	0821	MAX9654AUB+	135C	192	HRS	50	0	TMYZBQ001EQ
HIGH TEMP OP LIFE	0822	MAX1963EZT090+T	135C	192	HRS	48	0	TM20GA1111Q
HIGH TEMP OP LIFE	0822	MAX8856ETD+	135C	192	HRS	48	0	TYA1AA004AQ
HIGH TEMP OP LIFE	0823	MAX7357EUG+	135C	192	HRS	48	0	TMTYBA004BQ
HIGH TEMP OP LIFE	0824	MAX8819AETI+	135C	192	HRS	48	0	TLIZEQ001AQ
HIGH TEMP OP LIFE	0825	MAX14525ETA+	135C	192	HRS	48	0	TQSZAQ001EQ
HIGH TEMP OP LIFE	0825	MAX8606ETD+T	135C	192	HRS	48	0	TYA0DQ003AQ
HIGH TEMP OP LIFE	0826	MAX9737ETG+	135C	192	HRS	48	0	TQXZAQ001EQ
HIGH TEMP OP LIFE	0826	MAX9651AUA+	135C	192	HRS	48	0	TOLZAQ001DQ
HIGH TEMP OP LIFE	0827	MAX9669ETI+	135C	500	HRS	80	0	TRMZAQ001A#
HIGH TEMP OP LIFE	0828	MAX5137GTG+	135C	192	HRS	48	0	TEMYBQ001BQ
HIGH TEMP OP LIFE	0829	MAX4967EGEE+	135C	333	HRS	3	0	TKWZBQ003B
HIGH TEMP OP LIFE	0829	MAX4885EETG+	135C	192	HRS	48	0	TPEZAQ002FQ
HIGH TEMP OP LIFE	0830	MAX8643ETG+	135C	192	HRS	48	0	TM0AEQ003IQ
HIGH TEMP OP LIFE	0830	MAX1829ETL+W	135C	500	HRS	48	0	TQ2042334A
HIGH TEMP OP LIFE	0830	MAX1829ETL+W	135C	1000	HRS	48	0	TQ20H2334A
HIGH TEMP OP LIFE	0830	MAX1829ETL+W	135C	1000	HRS	48	0	TQ20H2334C
HIGH TEMP OP LIFE	0831	MAX14527ETA+T	135C	192	HRS	48	0	TSIZAQ001CQ
HIGH TEMP OP LIFE	0837	MAX9598CTL+	135C	192	HRS	80	0	THGZBQ003C#
HIGH TEMP OP LIFE	0842	MAX17108ETI+	135C	192	HRS	48	0	TRXZBQ001AQ
HIGH TEMP OP LIFE	0842	MAX9736BETJ+	135C	138	HRS	40	0	TFUYCA014C#
HIGH TEMP OP LIFE	0844	MAX17112ETB+T	135C	192	HRS	50	0	TSMZDQ002DQ
HIGH TEMP OP LIFE	0844	MAX17112ETB+T	135C	192	HRS	48	0	TSMZDQ002Q
HIGH TEMP OP LIFE	0844	MAX4945LELA+T	135C	192	HRS	49	0	TY96EA004AQ
HIGH TEMP OP LIFE	0844	MAX8527EUD+	135C	138	HRS	1918	0	TAC0GA004M#
HIGH TEMP OP LIFE	0845	MAX14535EEVB+T	135C	192	HRS	50	0	TUEZAQ001BQ
HIGH TEMP OP LIFE	0847	MAX17103ETJ+	135C	192	HRS	50	0	TRVZCQ001BI
HIGH TEMP OP LIFE	0848	MAX8517EUB+	135C	138	HRS	48	0	TMT0HA025E#
HIGH TEMP OP LIFE	0850	MAX15027ATB/V+	135C	192	HRS	50	0	TJXZDQ001AQ
HIGH TEMP OP LIFE	0850	MAX17480GTL+	135C	192	HRS	47	0	TUVZAQ001BQ
HIGH TEMP OP LIFE	0851	MAX9669ETI+	135C	1000	HRS	77	0	TRMZBQ001BC
HIGH TEMP OP LIFE	0905	MAX8845YETC+	135C	192	HRS	48	0	TRHYCQ001LQ
HIGH TEMP OP LIFE	0907	MAX9668ETP+	135C	192	HRS	79	0	TRMYBQ001J
					<b>Total:</b>		<b>0</b>	

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**STORAGE LIFE**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	LOT NO.
STORAGE LIFE	0810	MAX1976AETA130+T	150C	1000 HRS	80	0	TM20GA071Q1
STORAGE LIFE	0814	MAX17017GTM+	150C	1000 HRS	80	0	TGEZIZ001PA
STORAGE LIFE	0817	MAX17017GTM+	150C	1000 HRS	80	0	TGEZIZ002A
STORAGE LIFE	0818	MAX17017GTM+	150C	1000 HRS	80	0	TGEZIZ001E
STORAGE LIFE	0819	MAX4967EGEE+	150C	500 HRS	45	0	TKWZBQ001#
STORAGE LIFE	0827	MAX9669ETI+	150C	500 HRS	80	0	TRMZAQ991A#
STORAGE LIFE	0827	MAX9669ETI+	150C	880 HRS	80	0	TRMZAQ001A#
STORAGE LIFE	0829	MAX4967EGEE+	150C	500 HRS	45	0	TKWZBQ003B#
STORAGE LIFE	0844	MAX8527EUD+T	150C	500 HRS	80	0	TAC0GA004M
STORAGE LIFE	0844	MAX8527EUD+T	150C	1000 HRS	80	0	TACOGA004M
STORAGE LIFE	0848	MAX8517EUB+	150C	500 HRS	45	0	TMT0HA025E#
STORAGE LIFE	0851	MAX9669ETI+	150C	500 HRS	80	0	TRMZBQ001BC
STORAGE LIFE	0907	MAX9668ETP+	150C	500 HRS	80	0	TRMY BQ001J
STORAGE LIFE	N/A	MAX8697SERQ+T	150C	500 HRS	77	0	TKQXC4042AD
STORAGE LIFE	N/A	MAX8697SERQ+T	150C	500 HRS	77	0	TKQXC4042AG
STORAGE LIFE	N/A	MAX8697SERQ+T	150C	500 HRS	77	0	TKQXC4042AH
<b>Total:</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	0744	MAX8784ETL+	-65C TO 150C	1000 CYS	79	0	TX40FQ001AC
TEMP CYCLE, 5' RAMP, 10' DWELL	0810	MAX1976AETA130+T	-65C TO 150C	1000 CYS	79	0	TM20GA071Q1
TEMP CYCLE, 5' RAMP, 10' DWELL	0810	MAX1976AETA130+T	-65C TO 150C	1000 CYS	80	0	TM20GA071Q2
TEMP CYCLE, 5' RAMP, 10' DWELL	0814	MAX17017GTM+	-65C TO 150C	1000 CYS	80	0	TGEZIZ001PA
TEMP CYCLE, 5' RAMP, 10' DWELL	0818	MAX17017GTM+	-65C TO 150C	1000 CYS	80	0	TGEZIZ001E
TEMP CYCLE, 5' RAMP, 10' DWELL	0819	MAX4967EGEE+	-65C TO 150C	497 CYS	80	0	TKWZBQ001#
TEMP CYCLE, 5' RAMP, 10' DWELL	0829	MAX4967EGEE+	-65C TO 150C	500 CYS	80	0	TKWZBQ003B#
TEMP CYCLE, 5' RAMP, 10' DWELL	0830	MAX1829ETL+W	-65C TO 150C	1000 CYS	80	0	TQ20H2334A
TEMP CYCLE, 5' RAMP, 10' DWELL	0830	MAX1829ETL+W	-65C TO 150C	1000 CYS	80	0	TQ20H2336C
TEMP CYCLE, 5' RAMP, 10' DWELL	0842	MAX9736BETJ+	-65C TO 150C	500 CYS	79	0	TFUYCA014C#
TEMP CYCLE, 5' RAMP, 10' DWELL	0844	MAX8527EUD+T	-65C TO 150C	500 CYS	80	0	TAC0GA004M

TEMP CYCLE, 15' RAMP, 15' DWELL	N/A	MAX8697SEWQ+T	-40C TO +125C	1000	CYS	76	0	TKQXC4033A
TEMP CYCLE, 15' RAMP, 15' DWELL	N/A	MAX8697SEWQ+T	-40C TO +125C	500	CYS	77	0	TKQXC4009BZ
<b>Total:</b>							<b>0</b>	

**TEMPERATURE HUMIDITY BIAS**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	LOT NO.
BIASED MOISTURE	0818	MAX17017GTM+	130C, 85% R.H.	1000	HRS	26	TGEZIZ001E
<b>Total:</b>						<b>0</b>	

**FAILURE RATE:**                      **MTTF (YRS): 197923**                      **FITS: 0.6**