



7/28/2009

**RELIABILITY MONITOR REPORT
FOR**

San Antonio 0.4 μ m Silicon Gate CMOS (S45)

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:

MAX13362ATL+	MAX14512ETI+	MAX14525ETA+	MAX14526EETI	MAX14527BETA
MAX14527ETA+	MAX14535EEVB	MAX14535EEVB	MAX15021ATI+	MAX15022AT1
MAX15023ETG+	MAX16834ATP+	MAX16917BGEE	MAX16917BGEE	MAX17017GTM
MAX17065ETI+	MAX17079GTL+	MAX17094ETM	MAX17097GTL+	MAX17100ETM
MAX17102ETM	MAX17103ETJ+	MAX17108ETI+	MAX17112ETB+	MAX17114ETM
MAX17115ETJ+	MAX1740IGTJ+	MAX17480GTL+	MAX1829ETL+	MAX4885EETG+
MAX4944ELA+T	MAX4945LELA+	MAX4967EGEE+	MAX4967EQEE+	MAX4981ETA+
MAX4995BAVB	MAX4999ETJ+	MAX5137GTG+	MAX7357EUG+	MAX7359ETG+
MAX8606ETD+T	MAX8670AETL+	MAX8697SERQ+	MAX8697SEWQ	MAX8815AETB+
MAX8819AETI+	MAX8822ETE+	MAX8844YETD	MAX8845YETC	MAX8845ZETC+
MAX8856ETD+	MAX8903AETI+	MAX8916ITL+	MAX9532AUB+	MAX9591ETU
MAX9650AUA+	MAX9651AUA+	MAX9668ETP+	MAX9669ETI+	MAX9697ATI+
MAX9736BETJ+	MAX9737ETG+	MAX9791AETI+	MAX9879ETJ+	MAX9895AETL+

The calculated failure rate for devices using this process is:

FAILURE RATE: **MTTF (YRS): 106114** **QUANTITY: 3520** **FAILS: 1** **FITS: 1.1**

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 7/1/2008 and 6/30/2009 .

Process Information:

Process Description: San Antonio 0.4µm Silicon Gate CMOS (S45)

OPERATING LIFE								
DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	LOT NO.	
HIGH TEMP OP LIFE		MAX17115ETJ+	135C	192	HRS	50	0	TUAZDQ001AQ
HIGH TEMP OP LIFE	0738	MAX8822ETE+	135C	192	HRS	55	0	TFKZBQ001CQ
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	0805	MAX4999ETJ+	135C	192	HRS	48	0	TMDZAQ001EQ
HIGH TEMP OP LIFE	0805	MAX9591ETU	135C	192	HRS	55	0	TNLZAQ001AQ
HIGH TEMP OP LIFE	0811	MAX4981ETA+	135C	192	HRS	48	0	TKBWBQ001EQ
HIGH TEMP OP LIFE	0812	MAX8815AETB+	135C	192	HRS	49	0	TKPZBQ001EQ
HIGH TEMP OP LIFE	0813	MAX14512ETI+	135C	192	HRS	48	0	TLXZBQ001CQ
HIGH TEMP OP LIFE	0813	MAX15023ETG+	135C	192	HRS	55	0	TFWZBQ001EQ
HIGH TEMP OP LIFE	0813	MAX9791AETI+	135C	192	HRS	50	0	TNPZBQ001AQ
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	0819	MAX4967EQEE+	135C	324	HRS	48	0	TKWZBQ001#
HIGH TEMP OP LIFE	0822	MAX8856ETD+	135C	192	HRS	48	0	TYA1AA004AQ
HIGH TEMP OP LIFE	0823	MAX16834ATP+	135C	192	HRS	48	0	TNOZBQ001BQ
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	MAX8606ETD+T	135C	192	HRS	48	0	TYA0DQ003AQ
HIGH TEMP OP LIFE	0825	MAX14525ETA+	135C	192	HRS	48	0	TQSZAQ001EQ
HIGH TEMP OP LIFE	0826	MAX9737ETG+	135C	192	HRS	48	0	TQXZAQ001EQ
HIGH TEMP OP LIFE	0826	MAX9650AUA+	135C	192	HRS	55	0	TNZZAQ001CQ
HIGH TEMP OP LIFE	0826	MAX9651AUA+	135C	192	HRS	48	0	TOLZAQ001DQ
HIGH TEMP OP LIFE	0827	MAX17065ETI+	135C	192	HRS	48	0	TJEZEQ001EQ
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	MAX8670AETL+	135C	192	HRS	47	1	TU44DQ003HQ
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	0831	MAX4995BAVB+	135C	192	HRS	48	0	TJUXCA007BQ
HIGH TEMP OP LIFE	0833	MAX17112ETB+T	135C	192	HRS	48	0	TSMZCQ001AM
HIGH TEMP OP LIFE	0833	MAX7359ETG+	135C	192	HRS	48	0	THMZCQ003IQ
HIGH TEMP OP LIFE	0839	MAX9895AETL+	135C	192	HRS	48	0	TTPZAQ001AQ
HIGH TEMP OP LIFE	0840	MAX8916ITL+	135C	192	HRS	44	0	TSHZDQ003BQ
HIGH TEMP OP LIFE	0840	MAX17094ETM+	135C	192	HRS	24	0	TQGZDQ001FQ
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	MAX4944ELA+T	135C	1000	HRS	80	0	TY91E2011F
HIGH TEMP OP LIFE	0844	MAX4945LELA+T	135C	192	HRS	49	0	TY96EA004AQ
HIGH TEMP OP LIFE	0844	MAX17112ETB+T	135C	192	HRS	48	0	TSMZDQ002Q
HIGH TEMP OP LIFE	0844	MAX4944ELA+T	135C	500	HRS	80	0	TY91E2011H
HIGH TEMP OP LIFE	0844	MAX14527BETA+	135C	192	HRS	48	0	TSIZAQ001A#
HIGH TEMP OP LIFE	0845	MAX14535EEVB+T	135C	192	HRS	50	0	TUEZAQ001BQ
HIGH TEMP OP LIFE	0845	MAX14535EEVB+	135C	500	HRS	47	0	TUEZAQ001B#
HIGH TEMP OP LIFE	0846	MAX9532AUB+	135C	192	HRS	50	0	TRFZBQ002EQ
HIGH TEMP OP LIFE	0847	MAX17103ETJ+	135C	192	HRS	50	0	TRVZCQ001BI

HIGH TEMP OP LIFE	0850	MAX17480GTL+	135C	192	HRS	47	0	TUVZAQ001BQ
HIGH TEMP OP LIFE	0851	MAX8903AETI+	135C	100	HRS	55	0	TJJZHQ001A4
HIGH TEMP OP LIFE	0851	MAX9669ETI+	135C	1000	HRS	77	0	TRMZBQ001BC
HIGH TEMP OP LIFE	0902	MAX8845ZETC+T	135C	192	HRS	50	0	TRHZBQ001JQ
HIGH TEMP OP LIFE	0903	MAX8844YETD+T	135C	192	HRS	48	0	TRGYEA005DQ
HIGH TEMP OP LIFE	0903	MAX16917BGEE/V+	135C	192	HRS	48	0	TSEYAQ001BQ
HIGH TEMP OP LIFE	0905	MAX8845YETC+	135C	192	HRS	48	0	TRHYCQ001LQ
HIGH TEMP OP LIFE	0905	MAX9879ETJ+	135C	192	HRS	50	0	TSJZCQ002AQ
HIGH TEMP OP LIFE	0906	MAX17114ETM+	135C	192	HRS	48	0	TURZCQ001A
HIGH TEMP OP LIFE	0907	MAX9697ATI+	135C	192	HRS	47	0	TSZZAQ001AQ
HIGH TEMP OP LIFE	0907	MAX9668ETP+	135C	1000	HRS	79	0	TRMYBQ001J
HIGH TEMP OP LIFE	0908	MAX17097GTL+	135C	500	HRS	45	0	TMFZCA021Q1
HIGH TEMP OP LIFE	0908	MAX17097GTL+	135C	500	HRS	45	0	TMFZCA021Q2
HIGH TEMP OP LIFE	0908	MAX17097GTL+	135C	500	HRS	45	0	TMFZCA021Q3
HIGH TEMP OP LIFE	0909	MAX14526EETI+	135C	192	HRS	48	0	TRTZEAA007CQ
HIGH TEMP OP LIFE	0910	MAX17102ETM+	135C	500	HRS	47	0	TQLZCA004Q1
HIGH TEMP OP LIFE	0910	MAX17102ETM+	135C	500	HRS	48	0	TQLZCA004Q2
HIGH TEMP OP LIFE	0912	MAX17100ETM+C8W	135C	500	HRS	45	0	TQPZDA008Q1
HIGH TEMP OP LIFE	0912	MAX17100ETM+C8W	135C	500	HRS	43	0	TQPZDA008Q2
Total:							1	

STORAGE LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	LOT NO.	
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	0845	MAX14535EEVB+	150C	500	HRS	80	0	TUEZAAQ001B#
STORAGE LIFE	0851	MAX9669ETI+	150C	500	HRS	80	0	TRMZBQ001BC
STORAGE LIFE	0907	MAX9668ETP+	150C	1000	HRS	80	0	TRMYBQ001J
STORAGE LIFE	0908	MAX17079GTL+	150C	1000	HRS	77	0	TMFZCA021Q1
STORAGE LIFE	0908	MAX17079GTL+	150C	1000	HRS	77	0	TMFZCA021Q2
STORAGE LIFE	0908	MAX17079GTL+	150C	1000	HRS	77	0	TMFZCA021Q3
STORAGE LIFE	0910	MAX17102ETM+	150C	1000	HRS	77	0	TQLZCA004Q1
STORAGE LIFE	0910	MAX17102ETM+	150C	1000	HRS	77	0	TQLZCA004Q2

STORAGE LIFE	0910	MAX17102ETM+	150C	500	HRS	77	0	TQLZCA004Q3
STORAGE LIFE	0912	MAX17100ETM+C8W	150C	1000	HRS	77	0	TQPZDA008Q1
STORAGE LIFE	0912	MAX17100ETM+C8W	150C	1000	HRS	77	0	TQPZDA008Q3
STORAGE LIFE	0914	MAX13362ATL+	150C	500	HRS	45	0	TKRZBQ002A#
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
STORAGE LIFE	N/A	MAX8697SERQ+T	150C	500	HRS	77	0	TKQXCA066AO
Total:							0	

TEMPERATURE CYCLE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	LOT NO.
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	MAX4944ELA+T	-65C TO 150C	1000 CYS	79	0	TY91E2011F
TEMP CYCLE, 5' RAMP, 10' DWELL	0844	MAX4944ELA+T	-65C TO 150C	1000 CYS	80	0	TY91E2011H
TEMP CYCLE, 5' RAMP, 10' DWELL	0844	MAX14527BETA+	-65C TO 150C	250 CYS	80	0	TSIZAQ001A#
TEMP CYCLE, 5' RAMP, 10' DWELL	0845	MAX14535EEVB+	-65C TO 150C	200 CYS	80	0	TUEZAQ001B#
TEMP CYCLE, 5' RAMP, 10' DWELL	0846	MAX16917BGEE+	-65C TO 150C	1000 CYS	77	0	TSEYAQ001DW
TEMP CYCLE, 5' RAMP, 10' DWELL	0908	MAX17079GTL+	-65C TO 150C	1000 CYS	75	0	TMFZCA021Q1
TEMP CYCLE, 5' RAMP, 10' DWELL	0908	MAX17079GTL+	-65C TO 150C	1000 CYS	77	0	TMFZCA021Q2
TEMP CYCLE, 5' RAMP, 10' DWELL	0908	MAX17079GTL+	-65C TO 150C	1000 CYS	77	0	TMFZCA021Q3
TEMP CYCLE, 5' RAMP, 10' DWELL	0910	MAX17102ETM+	-65C TO 150C	1000 CYS	77	0	TQLZCA004Q3
TEMP CYCLE, 5' RAMP, 10' DWELL	0912	MAX17100ETM+C8W	-65C TO 150C	1000 CYS	77	0	TQPZDA008Q1
TEMP CYCLE, 5' RAMP, 10' DWELL	0912	MAX17100ETM+C8W	-65C TO 150C	1000 CYS	77	0	TQPZDA008Q2

TEMP CYCLE, 5' RAMP, 10' DWELL	0912	MAX17100ETM+C8W	-65C TO 150C	1000	CYS	77	0	TQPZDA008Q3
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
TEMP CYCLE, 15' RAMP, 15' DWELL	N/A	MAX8697SERQ+T	-40C TO +125C	500	CYS	77	0	TKQXCA066AE
TEMP CYCLE, 5' RAMP, 10' DWELL	N/A	MAX8697SERQ+T	-65C TO 150C	500	CYS	77	0	TKQXCA066AE
TEMP CYCLE, 15' RAMP, 15' DWELL	N/A	MAX8697SERQ+T	-40C TO +125C	500	CYS	77	0	TKQXCA066AO
TEMP CYCLE, 15' RAMP, 15' DWELL	N/A	MAX8697SERQ+T	-40C TO +125C	500	CYS	77	0	TKQXCA066AC
TEMP CYCLE, 15' RAMP, 15' DWELL	N/A	MAX8697SERQ+T	-40C TO +125C	500	CYS	77	0	TKQXCA066AM
TEMP CYCLE, 15' RAMP, 15' DWELL	N/A	MAX8697SERQ+T	-40C TO +125C	500	CYS	77	0	TKQXCA066AW
TEMP CYCLE, 15' RAMP, 15' DWELL	N/A	MAX8697SERQ+T	-40C TO +125C	500	CYS	77	0	TKQXCA066AB
TEMP CYCLE, 15' RAMP, 15' DWELL	N/A	MAX8697SERQ+T	-40C TO +125C	500	CYS	77	0	TKQXCA066AL
TEMP CYCLE, 15' RAMP, 15' DWELL	N/A	MAX8697SERQ+T	-40C TO +125C	500	CYS	77	0	TKQXCA066AV
Total:							0	

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	0	TGEZIZ001E
Total:							0

UNBIASED MOISTURE RESISTANCE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	LOT NO.
MOISTURE SOAK	0910	MAX17102ETM+	85 C/85% R.H.	500 HRS	45	0	TQLZCA004Q1
MOISTURE SOAK	0910	MAX17102ETM+	85 C/85% R.H.	500 HRS	45	0	TQLZCA004Q2
MOISTURE SOAK	0912	MAX17100ETM+C8W	85 C/85% R.H.	500 HRS	45	0	TQPZDA008Q1
Total:							0

FAILURE RATE: **MTTF (YRS): 106114** **QUANTITY: 3520** **FAILS: 1** **FITS: 1.1**