

4/16/2014



**RELIABILITY MONITOR REPORT
FOR**

San Antonio 0.18 μ m Silicon Gate CMOS (S18)

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:

MAX14562ETA+	MAX14576EVB+	MAX14667EKA	MAX14676AEW	MAX14695ETE+
MAX16840ATB+	MAX17047	MAX17048	MAX17491GTA+	MAX20021ATIA
MAX3603CWG+	MAX44005EDT+	MAX44005EDT+	MAX44242AUA	MAX5704AUB+
MAX77311EWE	MAX77696AEW	MAX77803EWJ+	MAX77804EWJ+	MAX77804KEW
MAX77888EWJ+	MAX86900AEF	MAX86900EFD+	MAX88200EFD+	MAX88320EFD+
MAX88900EFD+	MAX88921EFD+	MAX88922AEF	MAX88922EFD+	MAX88922EFD+
MAX8973AEWI	MAX8983EWE+	MAX98504EWW		

The calculated failure rate for devices using this process is:

FAILURE RATE: MTTF (YRS): 394102 QUANTITY: 3527 FAILS: 0 FITS: 0.3

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 4/1/2013 and 3/31/2014 .

Process Information:

Process Description: San Antonio 0.18µm Silicon Gate CMOS (S18)

OPERATING LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	LOT NO.
HIGH TEMP OP LIFE	1250	MAX20021ATIA/V+	135°C	1000 HRS	79	0	TAKR5Q001FF
HIGH TEMP OP LIFE	1302	MAX17048	125C, 5.0 VOLTS	192 HRS	77	0	ZJ386023ABB
HIGH TEMP OP LIFE	1312	MAX14667EKA+	135°C	228 HRS	80	0	TAKN5Q001AQ
HIGH TEMP OP LIFE	1315	MAX44005EDT+T	135°C	1000 HRS	79	0	TAJK1Q001F
HIGH TEMP OP LIFE	1316	MAX8973AEWI+T	135°C	192 HRS	48	0	TAKK4Q001CQ
HIGH TEMP OP LIFE	1316	MAX8973AEWI+T	135°C	240 HRS	48	0	TAKK4Q001DQ
HIGH TEMP OP LIFE	1318	MAX3603CWG+T	135°C	192 HRS	48	0	TAOM4Q001CQ
HIGH TEMP OP LIFE	1318	MAX3603CWG+T	135°C	192 HRS	32	0	TAOM4Q001DQ
HIGH TEMP OP LIFE	1319	MAX77311EWE+T	135°C	500 HRS	48	0	TAML6Q001AQ
HIGH TEMP OP LIFE	1319	MAX88921EFD+	135°C	500 HRS	77	0	TALY4Q001Q1
HIGH TEMP OP LIFE	1319	MAX88921EFD+	135°C	500 HRS	77	0	TALY4Q001Q2
HIGH TEMP OP LIFE	1319	MAX88921EFD+	135°C	500 HRS	77	0	TALY4Q001Q3
HIGH TEMP OP LIFE	1320	MAX44005EDT+T	135°C	1000 HRS	77	0	TAJK12007DA
HIGH TEMP OP LIFE	1322	MAX8983EWE+TCAW	135°C	500 HRS	48	0	TAMS7Q001BQ
HIGH TEMP OP LIFE	1322	MAX8983EWE+TCAW	135°C	500 HRS	48	0	TAMS7Q001AQ
HIGH TEMP OP LIFE	1327	MAX17491GTA+	135°C	1000 HRS	79	0	TALM4Z001C
HIGH TEMP OP LIFE	1328	MAX88921EFD+	135°C	1000 HRS	77	0	TALY4Q002Q8

HIGH TEMP OP LIFE	1328	MAX88921EFD+	135°C	1000	HRS	77	0	TALY4Q002Q9
HIGH TEMP OP LIFE	1328	MAX88922EFD+	135°C	1000	HRS	80	0	TANM1A005HI
HIGH TEMP OP LIFE	1330	MAX16840ATB+	135°C	1000	HRS	79	0	TAMC4U004H
HIGH TEMP OP LIFE	1331	MAX14562ETA+	135°C	1000	HRS	80	0	TALN4Z003A
HIGH TEMP OP LIFE	1332	MAX14576EVB+	135°C	192	HRS	80	0	TANG9Q001AQ
HIGH TEMP OP LIFE	1332	MAX88922EFD+T	135°C	1000	HRS	80	0	TANM1A008EE
HIGH TEMP OP LIFE	1332	MAX88922EFD+	135°C	1000	HRS	80	0	TANM1A011HB
HIGH TEMP OP LIFE	1333	MAX88922EFD+	135°C	1000	HRS	80	0	TANM1A015BB
HIGH TEMP OP LIFE	1334	MAX5704AUB+	135°C	500	HRS	80	0	TAMB0Z001BC
HIGH TEMP OP LIFE	1335	MAX77804EWJ+T	135°C	192	HRS	28	0	TAOR4Z001BQ
HIGH TEMP OP LIFE	1335	MAX77804EWJ+T	135°C	192	HRS	46	0	TAOR4Z001AQ
HIGH TEMP OP LIFE	1337	MAX14695ETE+	135°C	192	HRS	80	0	TAOE8Q001CQ
HIGH TEMP OP LIFE	1337	MAX16840ATB+	135°C	1000	HRS	79	0	TAMC4U005P
HIGH TEMP OP LIFE	1339	MAX44242AUA+	135°C	192	HRS	80	0	TAOP4Q002BQ
HIGH TEMP OP LIFE	1344	MAX88922EFD+	135°C	1000	HRS	80	0	TANM1A094AG
HIGH TEMP OP LIFE	1344	MAX88922EFD+	135°C	1000	HRS	80	0	TANM1A094AO
HIGH TEMP OP LIFE	1344	MAX88922EFD+	135°C	1000	HRS	80	0	TANM1A094AU
HIGH TEMP OP LIFE	1345	MAX98504EWV+T	135°C	192	HRS	48	0	TANX4Q001BQ
HIGH TEMP OP LIFE	1345	MAX14676AEWO+	135°C	192	HRS	48	0	TAOW5Q002EQ
HIGH TEMP OP LIFE	1345	MAX77888EWJ+T	135°C	192	HRS	47	0	TAPV0Q001BQ
HIGH TEMP OP LIFE	1345	MAX98504EWV+T	135°C	192	HRS	32	0	TANX4Q001CQ
HIGH TEMP OP LIFE	1345	MAX88922EFD+	135°C	500	HRS	79	0	TANM1A154B1
HIGH TEMP OP LIFE	1345	MAX88922EFD+	135°C	500	HRS	78	0	TANM1A154B2
HIGH TEMP OP LIFE	1345	MAX88922EFD+	135°C	500	HRS	80	0	TANM1A154B3
HIGH TEMP OP LIFE	1346	MAX17491GTA+	135°C	1000	HRS	79	0	TALM4U003A
HIGH TEMP OP LIFE	1351	MAX88900EFD+T	135°C	1000	HRS	77	0	TAQH1Q001Q4
HIGH TEMP OP LIFE	1351	MAX88900EFD+T	135°C	1000	HRS	77	0	TAQH1Q001Q5
HIGH TEMP OP LIFE	1351	MAX88900EFD+T	135°C	1000	HRS	77	0	TAQH1Q001Q6
HIGH TEMP OP LIFE	1402	MAX88922EFD+	135°C	1000	HRS	80	0	TANM1A005HK
HIGH TEMP OP LIFE	1402	MAX88922EFD+	135°C	1000	HRS	80	0	TANM1A006CB
HIGH TEMP OP LIFE	1404	MAX86900AEFD+T	135°C	500	HRS	77	0	TARK7Q002Q4
HIGH TEMP OP LIFE	1404	MAX86900AEFD+T	135°C	500	HRS	77	0	TARK7Q002Q5
HIGH TEMP OP LIFE	1404	MAX86900AEFD+T	135°C	500	HRS	77	0	TARK7Q002Q6
HIGH TEMP OP LIFE	1406	MAX77804KEWJ+T	135°C	192	HRS	46	0	TARA3Z002AQ
Total:							0	

STORAGE LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	LOT NO.
STORAGE LIFE		MAX88922EFD+	150°C	120	HRS	52	0 TANM1A005H#

STORAGE LIFE	1314	MAX44005EDT+	150°C	1000	HRS	196	0	TAJK1Q001F
STORAGE LIFE	1315	MAX44005EDT+T	150°C	1000	HRS	80	0	TAJK1Q001F#
STORAGE LIFE	1319	MAX77803EWJ+T	150°C	1000	HRS	80	0	TAMU8Q001D#
STORAGE LIFE	1320	MAX44005EDT+T	150°C	1000	HRS	80	0	TAJK12007DA
STORAGE LIFE	1320	MAX44005EDT+	150°C	72	HRS	95	0	TAJK1Q007D
STORAGE LIFE	1327	MAX17491GTA+	150°C	1000	HRS	80	0	TALM4Z001C
STORAGE LIFE	1328	MAX88921EFD+	150°C	1000	HRS	77	0	TALY4Q002Q0
STORAGE LIFE	1328	MAX88921EFD+	150°C	1000	HRS	76	0	TALY4Q002Q8
STORAGE LIFE	1328	MAX88921EFD+	150°C	1000	HRS	77	0	TALY4Q002Q9
STORAGE LIFE	1330	MAX16840ATB+	150°C	1000	HRS	80	0	TAMC4U004H
STORAGE LIFE	1331	MAX14562ETA+	150°C	1000	HRS	80	0	TALN4Z003A
STORAGE LIFE	1332	MAX88922EFD+T	150°C	1000	HRS	80	0	TANM1A008EE
STORAGE LIFE	1332	MAX88922EFD+	150°C	1000	HRS	80	0	TANM1A011HB
STORAGE LIFE	1333	MAX88922EFD+	150°C	1000	HRS	80	0	TANM1A015BB
STORAGE LIFE	1334	MAX5704AUB+	150°C	500	HRS	80	0	TAMB0Z001BC
STORAGE LIFE	1334	MAX5704AUB+	150°C	1000	HRS	80	0	TAMB0Z001BC
STORAGE LIFE	1337	MAX16840ATB+	150°C	1000	HRS	80	0	TAMC4U005P
STORAGE LIFE	1344	MAX88922EFD+	150°C	160	HRS	80	0	TANM1A094AG
STORAGE LIFE	1344	MAX88922EFD+	150°C	1000	HRS	79	0	TANM1A094AG
STORAGE LIFE	1344	MAX88922EFD+	150°C	160	HRS	80	0	TANM1A094AO
STORAGE LIFE	1344	MAX88922EFD+	150°C	1000	HRS	79	0	TANM1A094AO
STORAGE LIFE	1344	MAX88922EFD+	150°C	1000	HRS	63	0	TANM1A094AU
STORAGE LIFE	1344	MAX88922EFD+	150°C	160	HRS	50	0	TANM1A094AU
STORAGE LIFE	1346	MAX17491GTA+	150°C	1000	HRS	80	0	TALM4U003A
STORAGE LIFE	1351	MAX88900EFD+T	150°C	1000	HRS	77	0	TAQH1Q001Q5
STORAGE LIFE	1351	MAX88900EFD+T	150°C	1000	HRS	77	1	TAQH1Q001Q6
STORAGE LIFE	1351	MAX86900EFD+T	150°C	1000	HRS	50	0	TAQH1Q001Q4
STORAGE LIFE	1402	MAX88922EFD+	150°C	1000	HRS	80	0	TANM1A005HI
STORAGE LIFE	1402	MAX88922EFD+	150°C	1000	HRS	79	0	TANM1A006CB
STORAGE LIFE	1404	MAX86900AEFD+T	150°C	1000	HRS	77	1	TARK7Q002BC
STORAGE LIFE	1404	MAX86900AEFD+T	150°C	1000	HRS	77	1	TARK7Q002Q5
STORAGE LIFE	1404	MAX86900AEFD+T	150°C	500	HRS	77	0	TARK7Q002Q6
STORAGE LIFE	1404	MAX86900AEFD+T	150°C	120	HRS	50	0	TARK7Q001Q4
STORAGE LIFE	1430	MAX86900AEFD+T	150°C	120	HRS	50	0	TARM53022Q3
STORAGE LIFE	1435	MAX86900AEFD+T	150°C	120	HRS	43	0	TARM5A012HY
STORAGE LIFE	N/A	MAX77696AEWI+T	150°C	1000	HRS	77	0	TANN8Q001AB

Total: 3

TEMPERATURE CYCLE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	LOT NO.	
TEMP CYCLE, 5' RAMP, 10' DWELL	1315	MAX44005EDT+T	-65C TO 150C	1000	CYS	80	0	TAJK1Q001F#
TEMP CYCLE, 15' RAMP, 15' DWELL	1319	MAX77803EWJ+T	-40C TO +125C	500	CYS	80	0	TAMU8Q001D#
TEMP CYCLE, 5' RAMP, 10' DWELL	1320	MAX44005EDT+T	-65C TO 150C	1000	CYS	79	0	TAJK12007DA
TEMP CYCLE, 5' RAMP, 10' DWELL	1327	MAX17491GTA+	-65C TO 150C	500	CYS	80	0	TALM4Z001C
TEMP CYCLE, 5' RAMP, 10' DWELL	1328	MAX88921EFD+	-65C TO 150C	300	CYS	80	1	TALY4Q002Q9
TEMP CYCLE, 5' RAMP, 10' DWELL	1330	MAX16840ATB+	-65C TO 150C	500	CYS	80	0	TAMC4U004H
TEMP CYCLE, 5' RAMP, 10' DWELL	1331	MAX14562ETA+	-65C TO 150C	500	CYS	80	0	TALN4Z003A
TEMP CYCLE, 5' RAMP, 10' DWELL	1332	MAX88922EFD+T	-65C TO 150C	1000	CYS	80	0	TANM1A008EE
TEMP CYCLE, 5' RAMP, 10' DWELL	1332	MAX88922EFD+T	-65C TO 150C	1000	CYS	80	0	TANM1A011HB
TEMP CYCLE, 5' RAMP, 10' DWELL	1333	MAX88922EFD+	-65C TO 150C	1000	CYS	78	0	TANM1A015BB
TEMP CYCLE, 5' RAMP, 10' DWELL	1334	MAX5704AUB+	-65C TO 150C	500	CYS	80	0	TAMB0Z001BC
TEMP CYCLE, 5' RAMP, 10' DWELL	1337	MAX16840ATB+	-65C TO 150C	500	CYS	80	0	TAMC4U005P
TEMP CYCLE, 5' RAMP, 10' DWELL	1344	MAX88922EFD+	-65C TO 150C	1000	CYS	77	0	TANM1A094AG
TEMP CYCLE, 5' RAMP, 10' DWELL	1344	MAX88922EFD+	-65C TO 150C	500	CYS	80	0	TANM1A094AO
TEMP CYCLE, 5' RAMP, 10' DWELL	1344	MAX88922EFD+	-65C TO 150C	1000	CYS	77	1	TANM1A094AO
TEMP CYCLE, 5' RAMP, 10' DWELL	1344	MAX88922EFD+	-65C TO 150C	500	CYS	80	0	TANM1A094AU
TEMP CYCLE, 5' RAMP, 10' DWELL	1344	MAX88922EFD+	-65C TO 150C	1000	CYS	76	0	TANM1A094AU
TEMP CYCLE, 5' RAMP, 10' DWELL	1344	MAX88922EFD+	-65C TO 150C	500	CYS	50	0	TANM1A094AG
TEMP CYCLE, 5' RAMP, 10' DWELL	1345	MAX88200EFD+	-65C TO 150C	1000	CYS	80	0	TAOZ1A173FA
TEMP CYCLE, 5' RAMP, 10' DWELL	1345	MAX88922EFD+	-65C TO 150C	1000	CYS	77	0	TAIZ1A173GB
TEMP CYCLE, 5' RAMP, 10' DWELL	1345	MAX88200EFD+	-65C TO 150C	1000	CYS	80	0	TAOZ1A173DA
TEMP CYCLE, 5' RAMP, 10' DWELL	1346	MAX17491GTA+	-65C TO 150C	500	CYS	80	0	TALM4U003A
TEMP CYCLE, 5' RAMP, 10' DWELL	1349	MAX88922AEFD+	-65C TO 150C	20	CYS	50	0	TAOY2317D#
TEMP CYCLE, 5' RAMP, 10' DWELL	1351	MAX86900EFD+T	-65C TO 150C	78	CYS	50	1	TAQH1Q001Q5

TEMP CYCLE, 5' RAMP, 10' DWELL	1402	MAX88922EFD+	-65C TO 150C	1000	CYS	80	0	TANM1A005HI
TEMP CYCLE, 5' RAMP, 10' DWELL	1402	MAX88922EFD+	-65C TO 150C	1000	CYS	80	0	TANM1A005HK
TEMP CYCLE, 5' RAMP, 10' DWELL	1402	MAX88922EFD+T	-65C TO 150C	1000	CYS	80	0	TANM1A006CF
TEMP CYCLE, 5' RAMP, 10' DWELL	1402	MAX86900AEFD+T	-65C TO 150C	20	CYS	50	0	TARK7Q002BC/R26947B
TEMP CYCLE, 5' RAMP, 10' DWELL	1404	MAX86900AEFD+T	-65C TO 150C	1000	CYS	77	0	TARK7Q002Q4
TEMP CYCLE, 5' RAMP, 10' DWELL	1404	MAX86900AEFD+T	-65C TO 150C	1000	CYS	76	0	TARK7Q002Q5
TEMP CYCLE, 5' RAMP, 10' DWELL	1404	MAX86900AEFD+T	-65C TO 150C	1000	CYS	77	0	TARK7Q002Q6
TEMP CYCLE, 5' RAMP, 10' DWELL	1430	MAX86900AEFD+T	-65C TO 150C	20	CYS	50	0	TARM53022Q3
TEMP CYCLE, 15' RAMP, 15' DWELL	N/A	MAX77696AEWI+T	-40C TO +125C	450	CYS	76	0	TANN8Q001AB
Total:							3	

TEMPERATURE HUMIDITY BIAS

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	LOT NO.
BIASED MOISTURE	1246	MAX17047	85/85, 1.9 & 4.5 VOLTS	1000 HRS	72	0	XX331002ACC/01387572
BIASED MOISTURE	1327	MAX17491GTA+	130C, 85% R.H.	100 HRS	32	0	TALM4Z001C
BIASED MOISTURE	1330	MAX16840ATB+	130C, 85% R.H.	100 HRS	38	0	TAMC4U004H
BIASED MOISTURE	1331	MAX14562ETA+	130C, 85% R.H.	100 HRS	80	0	TALN4Z003A
BIASED MOISTURE	1334	MAX5704AUB+	130C, 85% R.H.	100 HRS	80	0	TAMB0Z001BC
BIASED MOISTURE	1346	MAX17491GTA+	130C, 85% R.H.	100 HRS	32	0	TALM4U003A
Total:							0

UNBIASED MOISTURE RESISTANCE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	LOT NO.
MOISTURE SOAK		MAX88320EFD+	130C, 85% R.H.	24 HRS	100	0	TALY4Q001E#
MOISTURE SOAK		MAX88922EFD+	85 C/85% R.H.	120 HRS	52	1	TANM1A005H#
MOISTURE SOAK	1319	MAX88921EFD+	130C, 85% R.H.	24 HRS	77	0	TALY4Q001Q1
MOISTURE SOAK	1319	MAX88921EFD+	130C, 85% R.H.	24 HRS	77	0	TALY4Q001Q2
MOISTURE SOAK	1319	MAX88921EFD+	130C, 85% R.H.	24 HRS	77	0	TALY4Q001Q3
MOISTURE SOAK	1320	MAX44005EDT+T	85 C/85% R.H.	1000 HRS	79	0	TAJK12007DA
MOISTURE SOAK	1328	MAX88921EFD+	130C, 85% R.H.	500 HRS	77	1	TALY4Q002Q9

MOISTURE SOAK	1333	MAX88922EFD+	85 C/85% R.H.	500	HRS	80	0	TANM1A015BB
MOISTURE SOAK	1344	MAX88922EFD+	85 C/85% R.H.	1000	HRS	79	0	TANM1A094AG
MOISTURE SOAK	1344	MAX88922EFD+	130C, 85% R.H.	160	HRS	80	0	TANM1A094AO
MOISTURE SOAK	1344	MAX88922EFD+	85 C/85% R.H.	1000	HRS	79	0	TANM1A094AO
MOISTURE SOAK	1344	MAX88922EFD+	85 C/85% R.H.	160	HRS	80	0	TANM1A094AU
MOISTURE SOAK	1344	MAX88922EFD+	85 C/85% R.H.	1000	HRS	77	0	TANM1A094AU
MOISTURE SOAK	1344	MAX88922EFD+	130C, 85% R.H.	160	HRS	50	0	TANM1A094AG
MOISTURE SOAK	1344	MAX88922EFD+	130C, 85% R.H.	120	HRS	50	0	TANM1A154B1
MOISTURE SOAK	1349	MAX88922AEFD+	85 C/85% R.H.	120	HRS	50	0	TAOY2317D#
MOISTURE SOAK	1351	MAX88900EFD+T	85 C/85% R.H.	1000	HRS	77	0	TAQH1Q001Q5
MOISTURE SOAK	1351	MAX88900EFD+T	130C, 85% R.H.	1000	HRS	77	0	TAQH1Q001Q6
MOISTURE SOAK	1351	MAX86900EFD+T	85 C/85% R.H.	1000	HRS	50	0	TAQH1Q001Q4
MOISTURE SOAK	1402	MAX88922EFD+	85 C/85% R.H.	1000	HRS	80	0	TANM1A005HI
MOISTURE SOAK	1402	MAX88922EFD+	85 C/85% R.H.	1000	HRS	80	0	TANM1A005HK
MOISTURE SOAK	1402	MAX88922EFD+	85 C/85% R.H.	1000	HRS	80	0	TANM1A006CB
MOISTURE SOAK	1404	MAX86900AEFD+T	130C, 85% R.H.	24	HRS	77	0	TARK7Q002BC
MOISTURE SOAK	1404	MAX86900AEFD+T	85 C/85% R.H.	500	HRS	77	0	TARK7Q002Q4
MOISTURE SOAK	1404	MAX86900AEFD+T	130C, 85% R.H.	1000	HRS	77	0	TARK7Q002Q5
MOISTURE SOAK	1404	MAX86900AEFD+T	130C, 85% R.H.	500	HRS	77	0	TARK7Q002Q6
MOISTURE SOAK	1404	MAX86900AEFD+T	130C, 85% R.H.	100	HRS	50	0	TARK7Q001Q4
MOISTURE SOAK	1430	MAX86900AEFD+T	85 C/85% R.H.	120	HRS	50	0	TARM53022Q3

Total: 2

FAILURE RATE: MTTF (YRS): 394102 QUANTITY: 3527 FAILS: 0 FITS: 0.3