

8/1/2019



**RELIABILITY MONITOR REPORT
FOR**

San Antonio 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:

| | | | | |
|---------------|--------------|--------------|--------------|---------------|
| MAX14689EWL | MAX16936RATE | MAX16956AUB | MAX16992AUB | MAX20021ATIA/ |
| MAX20021ATIA/ | MAX20026SATI | MAX20030BAT | MAX20030BAT | MAX20418ATGB |
| MAX25105EQP/ | MAX25615AUT/ | MAX44284FAZT | MAX44284FAZT | MAX44284HAN |
| MAX77596ETBC | MAX8986EWG+ | | | |

The calculated failure rate for devices using this process is:

FAILURE RATE: MTTF (YRS): 120721 QUANTITY: 1447 FAILS: 0 FITS: 0.9

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 4/1/2019 and 8/1/2019 .

Process Information:

Process Description: San Antonio S18

OPERATING LIFE

| DESCRIPTION | DATE CODE | TEST VEHICLE | CONDITION | READPOINT | QUANTITY | FAILS | LOT NO. |
|-------------------|-----------|-------------------|-----------|-----------|----------|----------|-------------|
| HIGH TEMP OP LIFE | | MAX25105EQP/V+ | 125°C | 192 HRS | 80 | 0 | TCUN7Q001C |
| HIGH TEMP OP LIFE | | MAX25105EQP/V+ | 125°C | 192 HRS | 80 | 0 | TCUN7Q001FA |
| HIGH TEMP OP LIFE | 1739 | MAX20030BATMA/V+ | 125°C | 1000 HRS | 50 | 0 | TBSH7A016EA |
| HIGH TEMP OP LIFE | 1807 | MAX44284HANT+TG7 | 125°C | 1000 HRS | 80 | 0 | TBEO9A057AB |
| HIGH TEMP OP LIFE | 1824 | MAX20021ATIA/V+ | 125°C | 1000 HRS | 79 | 0 | TAKR5A125AX |
| HIGH TEMP OP LIFE | 1830 | MAX25615AUT/V+T | 125°C | 192 HRS | 80 | 0 | TCTJ3Q001FB |
| HIGH TEMP OP LIFE | 1835 | MAX20418ATGB/V+ | 125°C | 312 HRS | 225 | 0 | TBLT0A014G |
| HIGH TEMP OP LIFE | 1835 | MAX20418ATGB/V+ | 125°C | 240 HRS | 236 | 0 | TBLT0A014G |
| HIGH TEMP OP LIFE | 1842 | MAX20026SATIE/V+ | 125°C | 192 HRS | 80 | 0 | TCUN8A007EQ |
| HIGH TEMP OP LIFE | 1843 | MAX16956AUBD/V+ | 125°C | 500 HRS | 78 | 0 | TAQJ2A170DA |
| HIGH TEMP OP LIFE | 1843 | MAX16956AUBD/V+ | 125°C | 1000 HRS | 78 | 0 | TAQJ2A170DA |
| HIGH TEMP OP LIFE | 1851 | MAX20030BATMK/V+ | 125°C | 192 HRS | 80 | 0 | TBSH7A028HA |
| HIGH TEMP OP LIFE | 1851 | MAX20030BATMK/V+ | 125°C | 192 HRS | 78 | 0 | TBSH7A028HB |
| HIGH TEMP OP LIFE | 1907 | MAX14689EWL+T | 125°C | 192 HRS | 80 | 0 | TAYA9A023BC |
| HIGH TEMP OP LIFE | 1909 | MAX77596ETBC+TCMR | 125°C | 1000 HRS | 63 | 0 | TAQJ2A189A |
| Total: | | | | | | 0 | |

STORAGE LIFE

| DESCRIPTION | DATE CODE | TEST VEHICLE | CONDITION | READPOINT | QUANTITY | FAILS | LOT NO. |
|--------------|-----------|--------------|-----------|-----------|----------|-------|-------------|
| STORAGE LIFE | 1738 | MAX8986EWG+T | 150°C | 1000 HRS | 80 | 0 | TAEZ0A143KA |

| | | | | | | | | |
|---------------|------|-------------------|-------|------|-----|----|----------|-------------|
| STORAGE LIFE | 1738 | MAX8986EWG+T | 150°C | 1000 | HRS | 77 | 0 | TAEZ0A144L |
| STORAGE LIFE | 1820 | MAX16936RATEA/V+ | 150°C | 1000 | HRS | 80 | 0 | TAQT1A060CA |
| STORAGE LIFE | 1824 | MAX20021ATIA/V+ | 150°C | 1000 | HRS | 80 | 0 | TAKR5A125AX |
| STORAGE LIFE | 1843 | MAX16956AUBD/V+ | 150°C | 1000 | HRS | 79 | 0 | TAQJ2A170DA |
| STORAGE LIFE | 1909 | MAX77596ETBC+TCMR | 150°C | 1000 | HRS | 80 | 0 | TAQJ2A189A |
| Total: | | | | | | | 0 | |

TEMPERATURE CYCLE

| DESCRIPTION | DATE CODE | TEST VEHICLE | CONDITION | READPOINT | QUANTITY | FAILS | LOT NO. |
|---------------------------------|-----------|-------------------|-----------------------------|-----------|----------|-------|---------------|
| TEMP CYCLE, 15' RAMP, 15' DWELL | 1738 | MAX8986EWG+T | -40C TO +125C (Condition G) | 1000 | CYS | 80 | 0 TAEZ0A143KA |
| TEMP CYCLE, 5' RAMP, 10' DWELL | 1820 | MAX16936RATEA/V+ | -65C TO +150C (Condition C) | 1000 | CYS | 80 | 0 TAQT1A060CA |
| TEMP CYCLE, 5' RAMP, 10' DWELL | 1824 | MAX20021ATIA/V+ | -65C TO +150C (Condition C) | 1000 | CYS | 80 | 0 TAKR5A125AX |
| TEMP CYCLE, 5' RAMP, 10' DWELL | 1851 | MAX44284FAZT+ | -40C TO +125C (Condition G) | 850 | CYS | 80 | 0 TCAG0A131BM |
| TEMP CYCLE, 5' RAMP, 10' DWELL | 1904 | MAX44284FAZT+ | -65C TO +150C (Condition C) | 1000 | CYS | 80 | 0 TCAG0A131DM |
| TEMP CYCLE, 5' RAMP, 10' DWELL | 1909 | MAX77596ETBC+TCMR | -65C TO +150C (Condition C) | 1000 | CYS | 80 | 0 TAQJ2A189A |
| Total: | | | | | | | 0 |

TEMPERATURE HUMIDITY BIAS

| DESCRIPTION | DATE CODE | TEST VEHICLE | CONDITION | READPOINT | QUANTITY | FAILS | LOT NO. |
|-----------------|-----------|-------------------|----------------|-----------|----------|-------|---------------|
| BIASED MOISTURE | | MAX44284FAZT+TG7 | 130C, 85% R.H. | 264 | HRS | 77 | 0 TCAG0A131EH |
| BIASED MOISTURE | 1851 | MAX20030BATMK/V+ | 130C, 85% R.H. | 96 | HRS | 34 | 0 TBSh7A028HA |
| BIASED MOISTURE | 1851 | MAX20030BATMK/V+ | 130C, 85% R.H. | 96 | HRS | 40 | 0 TBSh7A028HA |
| BIASED MOISTURE | 1851 | MAX20030BATMK/V+ | 130C, 85% R.H. | 96 | HRS | 80 | 0 TBSh7A028HB |
| BIASED MOISTURE | 1851 | MAX20030BATMK/V+ | 130C, 85% R.H. | 96 | HRS | 80 | 0 TBSh7A028HB |
| BIASED MOISTURE | 1904 | MAX44284FAZT+ | 130C, 85% R.H. | 264 | HRS | 77 | 0 TCAG0A131DM |
| BIASED MOISTURE | 1907 | MAX14689EWL+T | 130C, 85% R.H. | 96 | HRS | 80 | 0 TAYA9A023BC |
| BIASED MOISTURE | 1908 | MAX20021ATIA/V+ | 130C, 85% R.H. | 96 | HRS | 40 | 0 TAKR5A179C |
| BIASED MOISTURE | 1909 | MAX77596ETBC+TCMR | 130C, 85% R.H. | 96 | HRS | 80 | 0 TAQJ2A189A |
| Total: | | | | | | | 0 |

UNBIASED MOISTURE RESISTANCE

| DESCRIPTION | DATE CODE | TEST VEHICLE | CONDITION | READPOINT | QUANTITY | FAILS | LOT NO. |
|---------------|-----------|---------------|----------------|-----------|----------|-------|---------------|
| MOISTURE SOAK | | MAX44284FAZT+ | 130C, 85% R.H. | 96 | HRS | 80 | 0 TCAG0A131DM |

| | | | | | | | | |
|---------------|------|------------------|----------------|----|-----|----|---|-------------|
| MOISTURE SOAK | | MAX44284FAZT+TG7 | 130C, 85% R.H. | 96 | HRS | 77 | 0 | TCAG0A131EH |
| MOISTURE SOAK | 1824 | MAX20021ATIA/V+ | 130C, 85% R.H. | 96 | HRS | 80 | 0 | TAKR5A125AX |
| MOISTURE SOAK | 1832 | MAX44284HANT+TG7 | 130C, 85% R.H. | 96 | HRS | 80 | 0 | TBEO9A080A |
| MOISTURE SOAK | 1840 | MAX44284HANT+TG7 | 130C, 85% R.H. | 96 | HRS | 80 | 0 | TBEO9A103AM |
| MOISTURE SOAK | 1842 | MAX44284HANT+TG7 | 130C, 85% R.H. | 96 | HRS | 80 | 0 | TBEO9A097CG |
| MOISTURE SOAK | 1842 | MAX44284HANT+TG7 | 130C, 85% R.H. | 96 | HRS | 80 | 0 | TBEO9A106BM |
| MOISTURE SOAK | 1851 | MAX44284FAZT+ | 130C, 85% R.H. | 96 | HRS | 80 | 0 | TCAG0A131BM |
| MOISTURE SOAK | 1851 | MAX20030BATMK/V+ | 130C, 85% R.H. | 96 | HRS | 80 | 0 | TBSH7A028HA |
| MOISTURE SOAK | 1851 | MAX20030BATMK/V+ | 130C, 85% R.H. | 96 | HRS | 80 | 0 | TBSH7A028HB |
| MOISTURE SOAK | 1851 | MAX20030BATMK/V+ | 130C, 85% R.H. | 96 | HRS | 80 | 0 | TBSH7A028HC |

Total: 0

FAILURE RATE: **MTTF (YRS): 120721** **QUANTITY: 1447** **FAILS: 0** **FITS: 0.9**