

4/23/2015



**RELIABILITY MONITOR REPORT
FOR**

X3 0.18 μ m Silicon Gate (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:

| | | | | |
|--------------|-------------|--------------|-------------|-------------|
| MAX11300GTL+ | MAX14900EAG | MAX16993AGJC | MAX44259AUK | MAX44284HAU |
| MAX44285FAU | MAX44285TAU | MAX44285TAU | MAX44286HAZ | |

The calculated failure rate for devices using this process is:

FAILURE RATE: MTTF (YRS): 65815 QUANTITY: 774 FAILS: 0 FITS: 1.7

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 4/1/2014 and 3/31/2015 .

Process Information:

Process Description: X3 0.18µm Silicon Gate (S18)

OPERATING LIFE

| DESCRIPTION | DATE CODE | TEST VEHICLE | CONDITION | READPOINT | QUANTITY | FAILS | LOT NO. |
|-------------------|-----------|--------------------|-----------|-----------|----------|----------|-------------|
| HIGH TEMP OP LIFE | 1330 | MAX44285FAUA+ | 135°C | 692 HRS | 80 | 0 | SANS1Q003BD |
| HIGH TEMP OP LIFE | 1342 | MAX44284HAUT+ | 135°C | 192 HRS | 79 | 0 | SAOK9Q002AQ |
| HIGH TEMP OP LIFE | 1412 | MAX44285TAUA+ | 135°C | 692 HRS | 80 | 0 | SANS0A004D |
| HIGH TEMP OP LIFE | 1415 | MAX44285TAUA+ | 135°C | 1000 HRS | 80 | 0 | SANS0A006C# |
| HIGH TEMP OP LIFE | 1420 | MAX14900EAGM+ | 135°C | 1000 HRS | 45 | 0 | SANJ4U004QA |
| HIGH TEMP OP LIFE | 1420 | MAX14900EAGM+ | 135°C | 1000 HRS | 45 | 0 | SANJ4Q001QB |
| HIGH TEMP OP LIFE | 1420 | MAX14900EAGM+ | 135°C | 1000 HRS | 45 | 0 | SANJ4Q001QC |
| HIGH TEMP OP LIFE | 1425 | MAX16993AGJC/VY+CT | 135°C | 192 HRS | 80 | 0 | SAKP6Q002K |
| HIGH TEMP OP LIFE | 1426 | MAX44286HAZS+T | 135°C | 192 HRS | 80 | 0 | SATX2A006AQ |
| HIGH TEMP OP LIFE | 1450 | MAX11300GTL+ | 135°C | 192 HRS | 80 | 0 | SAZS7Q001BQ |
| HIGH TEMP OP LIFE | 1450 | MAX11300GTL+ | 135°C | 192 HRS | 80 | 0 | SAZS7Q001CQ |
| Total: | | | | | | 0 | |

STORAGE LIFE

| DESCRIPTION | DATE CODE | TEST VEHICLE | CONDITION | READPOINT | QUANTITY | FAILS | LOT NO. |
|--------------|-----------|---------------|-----------|-----------|----------|-------|-------------|
| STORAGE LIFE | 1330 | MAX44285FAUA+ | 150°C | 1000 HRS | 80 | 0 | SANS1Q003BD |
| STORAGE LIFE | 1412 | MAX44285TAUA+ | 150°C | 1000 HRS | 80 | 0 | SANS0A004D |
| STORAGE LIFE | 1415 | MAX44285TAUA= | 150°C | 1000 HRS | 79 | 0 | SANS0A006C# |
| STORAGE LIFE | 1420 | MAX14900EAGM+ | 150°C | 1000 HRS | 45 | 0 | SANJ4U004QA |
| STORAGE LIFE | 1420 | MAX14900EAGM+ | 150°C | 1000 HRS | 80 | 0 | SANJ4Q001QB |
| STORAGE LIFE | 1423 | MAX44259AUK+ | 150°C | 1000 HRS | 80 | 0 | SW2YDQ001Q1 |

| | | | | | | | |
|---------------|------|--------------------|-------|----------|----|----------|-------------|
| STORAGE LIFE | 1423 | MAX44259AUK+ | 150°C | 1000 HRS | 80 | 0 | SW2YDQ001Q3 |
| STORAGE LIFE | 1424 | MAX44259AUK+ | 150°C | 1000 HRS | 80 | 0 | SW2YDQ001Q2 |
| STORAGE LIFE | 1425 | MAX16993AGJC/VY+CT | 150°C | 1000 HRS | 80 | 0 | SAKP6Q002K |
| Total: | | | | | | 0 | |

TEMPERATURE CYCLE

| DESCRIPTION | DATE CODE | TEST VEHICLE | CONDITION | READPOINT | QUANTITY | FAILS | LOT NO. |
|--------------------------------|-----------|--------------------|--------------------------------|-----------|----------|----------|-------------|
| TEMP CYCLE, 5' RAMP, 10' DWELL | 1330 | MAX44285FAUA+ | -65C TO +150C (Condition C) | 500 CYS | 80 | 0 | SANS1Q003BD |
| TEMP CYCLE, 5' RAMP, 10' DWELL | 1412 | MAX44285TAUA+ | -65C TO +150C (Condition C) | 500 CYS | 79 | 0 | SANS0A004D |
| TEMP CYCLE, 5' RAMP, 10' DWELL | 1415 | MAX44285TAUA+ | -65C TO +150C (Condition C) | 1000 CYS | 80 | 0 | SANS0A006C# |
| TEMP CYCLE, 5' RAMP, 10' DWELL | 1420 | MAX14900EAGM+ | -65C TO +150C (Condition C) | 1000 CYS | 73 | 0 | SANJ4Q001QC |
| TEMP CYCLE, 5' RAMP, 10' DWELL | 1422 | MAX44285FAUA+ | -65C TO +150C (Condition C) | 1000 CYS | 80 | 0 | SANS0A004Q4 |
| TEMP CYCLE, 5' RAMP, 10' DWELL | 1422 | MAX44285FAUA+ | -65C TO +150C (Condition C) | 1000 CYS | 80 | 0 | SANS0A004Q5 |
| TEMP CYCLE, 5' RAMP, 10' DWELL | 1422 | MAX44285FAUA+ | -65C TO +150C (Condition C) | 1000 CYS | 80 | 0 | SANS0A004Q6 |
| TEMP CYCLE, 5' RAMP, 10' DWELL | 1423 | MAX44259AUK+ | -65C TO +150C (Condition C) | 1000 CYS | 80 | 0 | SW2YDQ001Q1 |
| TEMP CYCLE, 5' RAMP, 10' DWELL | 1423 | MAX44259AUK+ | -65C TO +150C (Condition C) | 1000 CYS | 80 | 0 | SW2YDQ001Q3 |
| TEMP CYCLE, 5' RAMP, 10' DWELL | 1424 | MAX44259AUK+ | -65C TO +150C (Condition C) | 1000 CYS | 80 | 0 | SW2YDQ001Q2 |
| TEMP CYCLE, 5' RAMP, 10' DWELL | 1425 | MAX16993AGJC/VY+CT | -65C TO +150C (Condition C) | 1000 CYS | 80 | 0 | SAKP6Q002K |
| Total: | | | | | | 0 | |

TEMPERATURE HUMIDITY BIAS

| DESCRIPTION | DATE CODE | TEST VEHICLE | CONDITION | READPOINT | QUANTITY | FAILS | LOT NO. |
|-----------------|-----------|---------------|----------------|-----------|----------|-------|-------------|
| BIASED MOISTURE | 1330 | MAX44285FAUA+ | 130C, 85% R.H. | 100 HRS | 80 | 0 | SANS1Q003BD |
| BIASED MOISTURE | 1412 | MAX44285TAUA+ | 130C, 85% R.H. | 100 HRS | 80 | 0 | SANS0A004D |
| BIASED MOISTURE | 1415 | MAX44285TAUA+ | 130C, 85% R.H. | 100 HRS | 80 | 0 | SANS0A006C# |
| BIASED MOISTURE | 1422 | MAX44285FAUA+ | 130C, 85% R.H. | 100 HRS | 80 | 0 | SANS0A004Q4 |

| | | | | | | | | |
|-----------------|------|--------------------|-------------------|-----|-----|----|----------|-------------|
| BIASED MOISTURE | 1422 | MAX44285FAUA+ | 130C, 85% R.H. | 100 | HRS | 80 | 0 | SANS0A004Q5 |
| BIASED MOISTURE | 1422 | MAX44285FAUA+ | 130C, 85% R.H. | 100 | HRS | 80 | 0 | SANS0A004Q6 |
| BIASED MOISTURE | 1425 | MAX16993AGJC/VY+CT | 130C, 85% R.H. | 96 | HRS | 80 | 0 | SAKP6Q002K |
| Total: | | | | | | | 0 | |

UNBIASED MOISTURE RESISTANCE

| DESCRIPTION | DATE CODE | TEST VEHICLE | CONDITION | READPOINT | QUANTITY | FAILS | LOT NO. | |
|---------------|--------------|--------------------|-------------------|-----------|----------|-------|------------|------------|
| MOISTURE SOAK | 1425 | MAX16993AGJC/VY+CT | 130C, 85% R.H. | 96 | HRS | 80 | 0 | SAKP6Q002K |

Total: 0

FAILURE RATE: MTTF (YRS): 65815 QUANTITY: 774 FAILS: 0 FITS: 1.7