



4/17/2012

**RELIABILITY MONITOR REPORT
FOR**

HYBRID

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:

| | | | | |
|--------------|--------------|--------------|--------------|--------------|
| MAX11014BGT | MAX11014BGT | MAX1441GUP+ | MAX14521EETG | MAX1454AUE/V |
| MAX1480BCPI+ | MAX1480BEPI+ | MAX15301ETJ+ | MAX17130ETL+ | MAX2079CXE+ |
| MAX8655ETN+ | MAX8798ETX+ | MAX9679ETG+ | MAX9684ETN+ | MAX9851ETM+ |

The calculated failure rate for devices using this process is:

FAILURE RATE: MTTF (YRS): 55384 QUANTITY: 1499 FAILS: 3 FITS: 2.1

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 4/1/2011 and 3/31/2012 .

Process Information:

Process Description: HYBRID

OPERATING LIFE

| DESCRIPTION | DATE CODE | TEST VEHICLE | CONDITION | READPOINT | QUANTITY | FAILS | LOT NO. |
|-------------------|-----------|---------------|-----------|-----------|----------|-------|-----------|
| HIGH TEMP OP LIFE | 1025 | MAX17130ETL+ | 135C | 192 HRS | 41 | 0 | NFWTAA MQ |
| HIGH TEMP OP LIFE | 1038 | MAX9851ETM+ | 135C | 1000 HRS | 45 | 0 | BDPTAAQ1 |
| HIGH TEMP OP LIFE | 1038 | MAX9851ETM+ | 135C | 1000 HRS | 45 | 0 | BDPTAAQ2 |
| HIGH TEMP OP LIFE | 1038 | MAX9851ETM+ | 135C | 1000 HRS | 45 | 0 | BDPTAAQ3 |
| HIGH TEMP OP LIFE | 1042 | MAX1441GUP+ | 135C | 1000 HRS | 48 | 0 | NFTUBAHX |
| HIGH TEMP OP LIFE | 1047 | MAX8798ETX+ | 135C | 1000 HRS | 46 | 0 | BBKTBAQ1 |
| HIGH TEMP OP LIFE | 1047 | MAX8798ETX+ | 135C | 500 HRS | 46 | 0 | BBKTBAQ3 |
| HIGH TEMP OP LIFE | 1050 | MAX2079CXE+ | 135C | 1000 HRS | 45 | 0 | BHDXAAD |
| HIGH TEMP OP LIFE | 1051 | MAX2079CXE+ | 135C | 1000 HRS | 42 | 0 | BHDXAAI |
| HIGH TEMP OP LIFE | 1051 | MAX2079CXE+ | 135C | 1000 HRS | 43 | 0 | BHDXAAJ |
| HIGH TEMP OP LIFE | 1103 | MAX1480BEPI+ | 135C | 1000 HRS | 45 | 0 | EFEPBFQ3 |
| HIGH TEMP OP LIFE | 1103 | MAX1480BEPI+ | 135C | 1000 HRS | 45 | 0 | EFEPBGI |
| HIGH TEMP OP LIFE | 1105 | MAX8798ETX+ | 135C | 1000 HRS | 46 | 0 | BBKTBKQ5 |
| HIGH TEMP OP LIFE | 1105 | MAX8798ETX+ | 135C | 1000 HRS | 46 | 0 | BBKTBKQ6 |
| HIGH TEMP OP LIFE | 1110 | MAX11014BGTM+ | 135C | 1000 HRS | 41 | 0 | BDWTAGQ1 |
| HIGH TEMP OP LIFE | 1110 | MAX11014BGTM= | 135C | 1000 HRS | 44 | 0 | BDWTAGQ2 |
| HIGH TEMP OP LIFE | 1110 | MAX11014BGTM+ | 135C | 1000 HRS | 45 | 0 | BDWTAGQ3 |
| HIGH TEMP OP LIFE | 1114 | MAX9679ETG+ | 135C | 1000 HRS | 42 | 0 | NHETAAQ1 |
| HIGH TEMP OP LIFE | 1114 | MAX9679ETG+ | 135C | 1000 HRS | 45 | 0 | NHETAAQ2 |

| | | | | | | | |
|-------------------|------|---------------|------|----------|----|----------|-----------|
| HIGH TEMP OP LIFE | 1115 | MAX9679ETG+ | 135C | 1000 HRS | 45 | 1 | NHETAAQ3 |
| HIGH TEMP OP LIFE | 1122 | MAX1454AUE/V+ | 135C | 192 HRS | 79 | 0 | NHGUAABDQ |
| HIGH TEMP OP LIFE | 1122 | MAX1480BCPI+ | 135C | 1000 HRS | 77 | 0 | 8GKPBAQ2 |
| HIGH TEMP OP LIFE | 1122 | MAX1480BCPI+ | 135C | 1000 HRS | 77 | 0 | 8GKPBAQ3 |
| HIGH TEMP OP LIFE | 1131 | MAX9684ETN+ | 135C | 1000 HRS | 80 | 1 | NHHTAAQ1 |
| HIGH TEMP OP LIFE | 1131 | MAX9684ETN+ | 135C | 1000 HRS | 78 | 0 | NHHTAAQ3 |
| HIGH TEMP OP LIFE | 1144 | MAX8655ETN+ | 135C | 1000 HRS | 76 | 1 | BA1TABTA |
| HIGH TEMP OP LIFE | 1144 | MAX8655ETN+ | 135C | 500 HRS | 45 | 0 | BA1TABTB |
| HIGH TEMP OP LIFE | 1148 | MAX15301ETJ+ | 135C | 336 HRS | 20 | 0 | NHITAAGCQ |
| HIGH TEMP OP LIFE | 1150 | MAX8655ETN+ | 135C | 500 HRS | 77 | 0 | BA1TABQ7 |
| Total: | | | | | | 3 | |

STORAGE LIFE

| DESCRIPTION | DATE CODE | TEST VEHICLE | CONDITION | READPOINT | QUANTITY | FAILS | LOT NO. |
|--------------|-----------|---------------|-----------|-----------|----------|-------|----------|
| STORAGE LIFE | 1038 | MAX9851ETM+ | 150C | 1000 HRS | 77 | 0 | BDPTAAQ1 |
| STORAGE LIFE | 1038 | MAX9851ETM+ | 150C | 1000 HRS | 77 | 0 | BDPTAAQ2 |
| STORAGE LIFE | 1038 | MAX9851ETM+ | 150C | 1000 HRS | 77 | 0 | BDPTAAQ3 |
| STORAGE LIFE | 1050 | MAX2079CXE+ | 150C | 1000 HRS | 77 | 0 | BHDXAAD |
| STORAGE LIFE | 1051 | MAX2079CXE+ | 150C | 1000 HRS | 76 | 0 | BHDXAAI |
| STORAGE LIFE | 1051 | MAX2079CXE+ | 150C | 1000 HRS | 77 | 0 | BHDXAAJ |
| STORAGE LIFE | 1103 | MAX1480BEPI+ | 150C | 1000 HRS | 77 | 0 | EFEPBFQ1 |
| STORAGE LIFE | 1103 | MAX1480BEPI+ | 150C | 1000 HRS | 77 | 0 | EFEPBFQ3 |
| STORAGE LIFE | 1105 | MAX8798ETX+ | 150C | 1000 HRS | 77 | 0 | BBKTBKQ6 |
| STORAGE LIFE | 1108 | MAX1480BEPI+ | 150C | 1000 HRS | 77 | 0 | EFEPBGI |
| STORAGE LIFE | 1110 | MAX11014BGTM+ | 150C | 1000 HRS | 77 | 0 | BDWTAGQ1 |
| STORAGE LIFE | 1110 | MAX11014BGTM+ | 150C | 1000 HRS | 77 | 0 | BDWTAGQ2 |
| STORAGE LIFE | 1110 | MAX11014BGTM+ | 150C | 1000 HRS | 77 | 0 | BDWTAGQ3 |
| STORAGE LIFE | 1114 | MAX9679ETG+ | 150C | 1000 HRS | 77 | 0 | NHETAAQ1 |
| STORAGE LIFE | 1114 | MAX9679ETG+ | 150C | 1000 HRS | 77 | 0 | NHETAAQ2 |
| STORAGE LIFE | 1115 | MAX9679ETG+ | 150C | 1000 HRS | 77 | 0 | NHETAAQ3 |
| STORAGE LIFE | 1122 | MAX1480BCPI+ | 150C | 1000 HRS | 77 | 0 | 8GKPBAQ2 |
| STORAGE LIFE | 1122 | MAX1480BCPI+ | 150C | 1000 HRS | 77 | 0 | 8GKPBAQ3 |
| STORAGE LIFE | 1131 | MAX9684ETN+ | 150C | 1000 HRS | 77 | 0 | NHHTAAQ1 |
| STORAGE LIFE | 1131 | MAX9684ETN+ | 150C | 1000 HRS | 77 | 0 | NHHTAAQ2 |
| STORAGE LIFE | 1131 | MAX9684ETN+ | 150C | 1000 HRS | 77 | 0 | NHHTAAQ3 |
| STORAGE LIFE | 1144 | MAX8655ETN+ | 150C | 1000 HRS | 78 | 0 | BA1TABTB |
| STORAGE LIFE | 1150 | MAX8655ETN+ | 150C | 1000 HRS | 78 | 0 | BA1TABQ7 |

| | | | | | | | | |
|--------------|------|-------------|------|------|-----|---------------|----------|----------|
| STORAGE LIFE | 1150 | MAX8655ETN+ | 150C | 1000 | HRS | 78 | 0 | BA1TABQ8 |
| | | | | | | Total: | 0 | |

TEMPERATURE CYCLE

| DESCRIPTION | DATE CODE | TEST VEHICLE | CONDITION | READPOINT | QUANTITY | FAILS | LOT NO. |
|--------------------------------|-----------|---------------|--------------|-----------|----------|---------------|------------|
| TEMP CYCLE, 5' RAMP, 10' DWELL | 1038 | MAX9851ETM+ | -65C TO 150C | 1000 | CYS | 77 | 0 BDPTAAQ2 |
| TEMP CYCLE, 5' RAMP, 10' DWELL | 1050 | MAX2079CXE+ | -65C TO 150C | 1000 | CYS | 77 | 0 BHDXAAD |
| TEMP CYCLE, 5' RAMP, 10' DWELL | 1051 | MAX2079CXE+ | -65C TO 150C | 1000 | CYS | 77 | 0 BHDXAAI |
| TEMP CYCLE, 5' RAMP, 10' DWELL | 1051 | MAX2079CXE+ | -65C TO 150C | 1000 | CYS | 77 | 0 BHDXAAJ |
| TEMP CYCLE, 5' RAMP, 10' DWELL | 1103 | MAX1480BEPI+ | -65C TO 150C | 1000 | CYS | 77 | 0 EFEPBFQ1 |
| TEMP CYCLE, 5' RAMP, 10' DWELL | 1103 | MAX1480BEPI+ | -65C TO 150C | 1000 | CYS | 77 | 0 EFEPBFQ3 |
| TEMP CYCLE, 5' RAMP, 10' DWELL | 1105 | MAX8798ETX+ | -65C TO 150C | 1000 | CYS | 77 | 0 BBKTBKQ5 |
| TEMP CYCLE, 5' RAMP, 10' DWELL | 1105 | MAX8798ETX+ | -65C TO 150C | 1000 | CYS | 77 | 0 BBKTBKQ6 |
| TEMP CYCLE, 5' RAMP, 10' DWELL | 1108 | MAX1480BEPI+ | -65C TO 150C | 1000 | CYS | 77 | 0 EFEPBGI |
| TEMP CYCLE, 5' RAMP, 10' DWELL | 1110 | MAX11014BGTM+ | -65C TO 150C | 1000 | CYS | 77 | 0 BDWTAGQ1 |
| TEMP CYCLE, 5' RAMP, 10' DWELL | 1110 | MAX11014BGTM+ | -65C TO 150C | 500 | CYS | 77 | 0 BDETAGQ2 |
| TEMP CYCLE, 5' RAMP, 10' DWELL | 1110 | MAX11014BGTM+ | -65C TO 150C | 1000 | CYS | 77 | 0 BDWTAGQ3 |
| TEMP CYCLE, 5' RAMP, 10' DWELL | 1114 | MAX9679ETG+ | -65C TO 150C | 1000 | CYS | 76 | 0 NHETAAQ1 |
| TEMP CYCLE, 5' RAMP, 10' DWELL | 1114 | MAX9679ETG+ | -65C TO 150C | 1000 | CYS | 77 | 0 NHETAAQ2 |
| TEMP CYCLE, 5' RAMP, 10' DWELL | 1115 | MAX9679ETG+ | -65C TO 150C | 1000 | CYS | 77 | 0 NHETAAQ3 |
| TEMP CYCLE, 5' RAMP, 10' DWELL | 1122 | MAX1480BCPI+ | -65C TO 150C | 1000 | CYS | 77 | 0 8GKPBAQ2 |
| TEMP CYCLE, 5' RAMP, 10' DWELL | 1122 | MAX1480BCPI+ | -65C TO 150C | 1000 | CYS | 77 | 0 8GKPBAQ3 |
| TEMP CYCLE, 5' RAMP, 10' DWELL | 1131 | MAX9684ETN+ | -65C TO 150C | 1000 | CYS | 72 | 0 NHHTAAQ1 |
| TEMP CYCLE, 5' RAMP, 10' DWELL | 1131 | MAX9684ETN+ | -65C TO 150C | 1000 | CYS | 77 | 0 NHHTAAQ2 |
| TEMP CYCLE, 5' RAMP, 10' DWELL | 1144 | MAX8655ETN+ | -65C TO 150C | 1000 | CYS | 78 | 0 BA1TABTB |
| TEMP CYCLE, 5' RAMP, 10' DWELL | 1150 | MAX8655ETN+ | -65C TO 150C | 1000 | CYS | 78 | 0 BA1TABQ7 |
| TEMP CYCLE, 5' RAMP, 10' DWELL | 1150 | MAX8655ETN+ | -65C TO 150C | 1000 | CYS | 78 | 0 BA1TABQ8 |
| | | | | | | Total: | 0 |

TEMPERATURE HUMIDITY BIAS

| DESCRIPTION | DATE CODE | TEST VEHICLE | CONDITION | READPOINT | QUANTITY | FAILS | LOT NO. | |
|-----------------|--------------|-----------------|-------------------|-----------|----------|----------|------------|----------|
| BIASED MOISTURE | 1150 | MAX8655ETN+ | 130C, 85% R.H. | 100 | HRS | 38 | 0 | BA1TABQ7 |
| BIASED MOISTURE | 1150 | MAX8655ETN+ | 130C, 85% R.H. | 100 | HRS | 39 | 0 | BA1TABQ8 |
| Total: | | | | | | 0 | | |

UNBIASED MOISTURE RESISTANCE

| DESCRIPTION | DATE CODE | TEST VEHICLE | CONDITION | READPOINT | QUANTITY | FAILS | LOT NO. | |
|---------------|--------------|-----------------|-------------------|-----------|----------|----------|------------|----------|
| MOISTURE SOAK | 1015 | MAX14521EETG+ | 85 C/85% R.H. | 1000 | HRS | 45 | 0 | NEPTBAH# |
| MOISTURE SOAK | 1050 | MAX2079CXE+ | 85 C/85% R.H. | 1000 | HRS | 45 | 0 | BHDXAAD |
| MOISTURE SOAK | 1051 | MAX2079CXE+ | 85 C/85% R.H. | 1000 | HRS | 45 | 0 | BHDXAAI |
| MOISTURE SOAK | 1051 | MAX2079CXE+ | 85 C/85% R.H. | 1000 | HRS | 43 | 0 | BHDXAAJ |
| MOISTURE SOAK | 1105 | MAX8798ETX+ | 85 C/85% R.H. | 1000 | HRS | 19 | 0 | BBKTBQ5 |
| MOISTURE SOAK | 1110 | MAX11014BGTM+ | 85 C/85% R.H. | 1000 | HRS | 30 | 0 | BDWTAGQ2 |
| MOISTURE SOAK | 1110 | MAX11014BGTM+ | 85 C/85% R.H. | 500 | HRS | 30 | 1 | BDWTAGQ3 |
| MOISTURE SOAK | 1144 | MAX8655ETN+ | 130C, 85% R.H. | 100 | HRS | 77 | 0 | BA1TABTB |
| MOISTURE SOAK | 1150 | MAX8655ETN+ | 130C, 85% R.H. | 100 | HRS | 77 | 0 | BA1TABQ7 |
| MOISTURE SOAK | 1150 | MAX8655ETN+ | 130C, 85% R.H. | 100 | HRS | 77 | 0 | BA1TABQ8 |
| Total: | | | | | | 1 | | |

FAILURE RATE: MTTF (YRS): 55384 QUANTITY: 1499 FAILS: 3 FITS: 2.1