

1/24/2019



RELIABILITY MONITOR REPORT
FOR

QSOP Package

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 Package Reliability Monitor. The specific assemblies included in this package monitor are:

ASSY SITE	PINS	PACKAGE		
ATP (Amkor, PI)	16	QSOP (Pb-Free)	Carsem-M	16 QSOP (Pb-Free)
Greatek	16	QSOP (Pb-Free)	Greatek	24 QSOP (Pb-Free)
Greatek	28	QSOP (Pb-Free)	UTL (NSEB) UTAC	16 QSOP (Pb-Free)
UTL (NSEB) UTAC	24	QSOP (Pb-Free)		

The calculated failure rate for this assembly is:

FAILURE RATE: MTTF (YRS): 166722 FITS: 0.7

The parameters used to calculate this failure rate are as follows:

Cf: 60% Ea: 0.7 Tu: 25 °C

The reliability data follows. At the start of this data is a description of the assembly vehicle used to generate this reliability data. The next section is the detailed reliability data for each stress. The reliability data section includes the latest data available. This report covers data between 10/1/2018 and 12/31/2018.

Assembly Information:

Package Type: QSOP (Pb-Free)

Date Code Range: 1741 to 1828

OPERATING LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
HIGH TEMP OP LIFE		MAX1138EEE+	125°C	500 HRS	80	0	
HIGH TEMP OP LIFE		MAX1138EEE+	125°C	1000 HRS	80	0	
HIGH TEMP OP LIFE	1741	MAX1030BEEG+	135°C	1000 HRS	80	0	
HIGH TEMP OP LIFE	1745	MAX3645EEE+	135°C	1000 HRS	55	0	
HIGH TEMP OP LIFE	1745	MAX3645EEE+	135°C	1000 HRS	25	0	
HIGH TEMP OP LIFE	1747	MAX1617AMEE+	135°C	1000 HRS	80	0	
HIGH TEMP OP LIFE	1801	MAX5170BEEE+	135°C	1000 HRS	80	0	
HIGH TEMP OP LIFE	1804	MAX4582CUE+	125°C	1000 HRS	80	0	
HIGH TEMP OP LIFE	1811	MAX16953AEE/V+	125°C	500 HRS	44	0	
HIGH TEMP OP LIFE	1811	MAX16953AEE/V+	125°C	500 HRS	44	0	
HIGH TEMP OP LIFE	1811	MAX16953AEE/V+	125°C	1000 HRS	44	0	
HIGH TEMP OP LIFE	1811	MAX16953AEE/V+	125°C	500 HRS	44	0	
HIGH TEMP OP LIFE	1817	MAX1231BCEG+	125°C	1000 HRS	80	0	
HIGH TEMP OP LIFE	1817	MAX1231BCEG+	125°C	1000 HRS	80	0	
HIGH TEMP OP LIFE	1820	MAX3645EEE+	125°C	1000 HRS	55	0	
HIGH TEMP OP LIFE	1823	MAX16972AGEEB/V+	125°C	192 HRS	80	0	
Total:						0	

PACKAGE TESTS

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
CONVECTION REFLOW	1741	MAX1030BEEG+	260C +/-5C	3	PASS	320	0
CONVECTION REFLOW	1745	MAX3645EEEE+	260C +/-5C	3	PASS	320	0
CONVECTION REFLOW	1801	MAX5170BEEEE+	260C +/-5C		PASS	320	0
					Total:	0	

STORAGE LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
STORAGE LIFE		MAX1138EEEE+	150°C	1000	HRS	80	0
STORAGE LIFE		MAX1138EEEE+	150°C	1000	HRS	80	0
STORAGE LIFE	1741	MAX1030BEEG+	150°C	1000	HRS	80	0
STORAGE LIFE	1745	MAX3645EEEE+	150°C	1000	HRS	80	0
STORAGE LIFE	1747	MAX1617AMEE+	150°C	1000	HRS	80	0
STORAGE LIFE	1801	MAX5170BEEEE+	150°C	1000	HRS	80	0
STORAGE LIFE	1804	MAX4582CUE+	150°C	1000	HRS	80	0
STORAGE LIFE	1811	MAX16953AEE/V+	150°C	1000	HRS	80	0
STORAGE LIFE	1811	MAX16953AEE/V+	150°C	1000	HRS	80	0
STORAGE LIFE	1817	MAX1231BCEG+	150°C	1000	HRS	80	0
STORAGE LIFE	1817	MAX1231BCEG+	150°C	1000	HRS	80	0
STORAGE LIFE	1820	MAX3645EEEE+	150°C	1000	HRS	80	0
STORAGE LIFE	1828	MAX1030BEEG+	150°C	1000	HRS	80	0
					Total:	0	

TEMPERATURE CYCLE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
TEMP CYCLE, 5' RAMP, 10' DWELL		MAX1138EEEE+	-65C TO +150C (Condition C)	1000	CYS	78	0
TEMP CYCLE, 5' RAMP, 10' DWELL		MAX1138EEEE+	-65C TO +150C (Condition C)	1000	CYS	78	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1741	MAX1030BEEG+	-65C TO +150C (Condition C)	1000	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1745	MAX3645EEEE+	-65C TO +150C (Condition C)	1000	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1747	MAX1617AMEE+	-65C TO +150C (Condition C)	500	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1801	MAX5170BEEEE+	-65C TO +150C (Condition C)	1000	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1804	MAX4582CUE+	-65C TO +150C (Condition C)	1000	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1810	MAX8538EEI+	-65C TO +150C (Condition C)	1000	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1811	MAX16953AEE/V+	-65C TO +150C (Condition C)	1000	CYS	80	0

TEMP CYCLE, 5' RAMP, 10' DWELL	1811	MAX16953AEE/V+	-65C TO +150C (Condition C)	1000	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1820	MAX3645EEE+	-65C TO +150C (Condition C)	1000	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1828	MAX1030BEEG+	-65C TO +150C (Condition C)	1000	CYS	80	0
Total:						0	0

TEMPERATURE HUMIDITY BIAS

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
BIASED MOISTURE	1741	MAX1030BEEG+	85 C/85% R.H.	96	HRS	320	0
BIASED MOISTURE	1745	MAX3645EEE+	85 C/85% R.H.	96	HRS	79	0
BIASED MOISTURE	1747	MAX1617AMEE+	85 C/85% R.H.	96	HRS	79	0
BIASED MOISTURE	1801	MAX5170BEEE+	130C, 85% R.H.	96	HRS	78	0
BIASED MOISTURE	1817	MAX1231BCEG+	130C, 85% R.H.	96	HRS	80	0
BIASED MOISTURE	1817	MAX1231BCEG+	130C, 85% R.H.	96	HRS	80	0
BIASED MOISTURE	1820	MAX3645EEE+	130C, 85% R.H.		HRS	80	0
BIASED MOISTURE	1828	MAX1030BEEG+	130C, 85% R.H.	96	HRS	80	0
Total:						0	0

UNBIASED MOISTURE RESISTANCE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
MOISTURE SOAK		MAX1138EEE+	130C, 85% R.H.	96	HRS	80	0
MOISTURE SOAK		MAX1138EEE+	130C, 85% R.H.	96	HRS	80	0
Total:						0	0

FAILURE RATE: MTTF (YRS): 166722 FITS: 0.7