

1/24/2019



RELIABILITY MONITOR REPORT
FOR

uMAX 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)	8	uMax (Pb-Free)	ATP (Amkor, PI)	10 uMax (Pb-Free)
Greatek	10	uMax (Pb-Free)	UTL (NSEB) UTAC	3 uMax (Pb-Free)
UTL (NSEB) UTAC	8	uMax (Pb-Free)	UTL (NSEB) UTAC	10 uMax (Pb-Free)
UTL (NSEB) UTAC	20	uMax (Pb-Free)		

The calculated failure rate for this assembly is:

FAILURE RATE: MTTF (YRS): 127966 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. 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: uMax (Pb-Free)
Date Code Range: 1703 to 1822

OPERATING LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
HIGH TEMP OP LIFE	1739	MAX16956AUBA/V+	135°C	1000 HRS	78	0	
HIGH TEMP OP LIFE	1744	MAX9933EUA+	135°C	1000 HRS	80	0	
HIGH TEMP OP LIFE	1804	MAX6035BAUR50+T	125°C	1000 HRS	47	0	
HIGH TEMP OP LIFE	1804	MAX6035BAUR50+T	125°C	1000 HRS	43	0	
HIGH TEMP OP LIFE	1808	MAX16956AUBC/V+	135°C	1000 HRS	77	0	
HIGH TEMP OP LIFE	1808	MAX41464GUB+T	125°C	192 HRS	80	0	
HIGH TEMP OP LIFE	1811	MAX4003EUA+	125°C	1000 HRS	80	0	
HIGH TEMP OP LIFE	1812	MAX5441AEUA+	125°C	1000 HRS	80	0	
HIGH TEMP OP LIFE	1816	MAX5431AEUB+	125°C	1000 HRS	80	0	
HIGH TEMP OP LIFE	1821	MAX3747AEUB+	125°C	1000 HRS	80	0	
Total:						0	

PACKAGE TESTS

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
CONVECTION REFLOW	1703	MAX20090AUP/V+	260C +/-5C	PASS	100	0	
CONVECTION REFLOW	1744	MAX9933EUA+	260C +/-5C	3 PASS	320	0	
CONVECTION REFLOW	1747	MAX1617AMEE+	260C +/-5C	3 PASS	320	0	
Total:						0	

STORAGE LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
STORAGE LIFE	1739	MAX16956AUBA/V+	150°C	1000 HRS	80	0	
STORAGE LIFE	1744	MAX9933EUA+	150°C	1000 HRS	80	0	
STORAGE LIFE	1808	MAX16956AUBC/V+	150°C	1000 HRS	80	0	
STORAGE LIFE	1811	MAX4003EUA+	150°C	1000 HRS	80	0	
STORAGE LIFE	1812	MAX5441AEUA+	150°C	1000 HRS	79	0	
STORAGE LIFE	1816	MAX5431AEUB+	150°C	1000 HRS	80	0	
STORAGE LIFE	1821	MAX3747AEUB+	150°C	1000 HRS	80	0	
STORAGE LIFE	1822	MAX1744EUB/V+	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	1739	MAX16956AUBA/V+	-65C TO +150C (Condition C)	1000 CYS	78	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1744	MAX9933EUA+	-65C TO +150C (Condition C)	1000 CYS	80	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1811	MAX4003EUA+	-65C TO +150C (Condition C)	500 CYS	80	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1812	MAX5441AEUA+	-65C TO +150C (Condition C)	1000 CYS	80	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1816	MAX5431AEUB+	-65C TO +150C (Condition C)	1000 CYS	80	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1821	MAX3747AEUB+	-65C TO +150C (Condition C)	1000 CYS	80	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1822	MAX1744EUB/V+	-65C TO +150C (Condition C)	1000 CYS	80	0	
					Total:	0	

TEMPERATURE HUMIDITY BIAS

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
BIASED MOISTURE	1739	MAX16956AUBA/V+	85 C/85% R.H.	96 HRS	80	0	
BIASED MOISTURE	1744	MAX9933EUA+	85 C/85% R.H.	96 HRS	79	0	
BIASED MOISTURE	1808	MAX16956AUBC/V+	130C, 85% R.H.	96 HRS	77	0	
BIASED MOISTURE	1811	MAX1745EUB/V+	130C, 85% R.H.	500 HRS	80	0	
BIASED MOISTURE	1812	MAX5441AEUA+	130C, 85% R.H.	96 HRS	80	0	
BIASED MOISTURE	1816	MAX5431AEUB+	130C, 85% R.H.	HRS	80	0	
BIASED MOISTURE	1822	MAX1744EUB/V+	130C, 85% R.H.	HRS	80	0	
					Total:	0	

FAILURE RATE: MTTF (YRS): 127966 FITS: 0.9