

4/24/2015



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	ASSY SITE	PINS	PACKAGE
ATP (Amkor, PI)	8	uMax (Pb-Free)	ATP (Amkor, PI)	10	uMax (Pb-Free)
UTL (NSEB) UTAC	8	uMax (Pb-Free)	UTL (NSEB) UTAC	10	uMax (Pb-Free)

The calculated failure rate for this assembly is:

FAILURE RATE: MTTF (YRS): 72009 FITS: 1.6

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 4/1/2014 and 3/31/2015

Assembly Information:

Package Type: uMax (Pb-Free)

Date Code Range: 1330 to 1444

OPERATING LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
HIGH TEMP OP LIFE	1330	MAX44285FAUA+	135°C	692 HRS	80	0	
HIGH TEMP OP LIFE	1343	MAX31091	125C, 3.6 VOLTS	192 HRS	80	0	
HIGH TEMP OP LIFE	1352	MAX669EUB+	135°C	192 HRS	79	0	
HIGH TEMP OP LIFE	1352	MAX669EUB+	135°C	192 HRS	80	0	
HIGH TEMP OP LIFE	1407	MAX1744EUB+	135°C	1000 HRS	80	1	
HIGH TEMP OP LIFE	1412	MAX44285TAUA+	135°C	692 HRS	80	0	
HIGH TEMP OP LIFE	1415	MAX44285TAUA+	135°C	1000 HRS	80	0	
HIGH TEMP OP LIFE	1418	MAX44291AUA+	135°C	192 HRS	77	0	
HIGH TEMP OP LIFE	1433	MAX2750EUA+	135°C	764 HRS	200	0	
HIGH TEMP OP LIFE	1433	MAX2750EUA+	135°C	1000 HRS	200	0	
HIGH TEMP OP LIFE	1439	MAX31091	125C, 3.6 VOLTS	1000 HRS	80	0	
HIGH TEMP OP LIFE	1439	MAX31091	125C, 3.6 VOLTS	1000 HRS	80	0	
HIGH TEMP OP LIFE	1439	MAX31091AUA+	135°C	500 HRS	80	0	
HIGH TEMP OP LIFE	1444	MAX31091	125C, 3.6 VOLTS	1000 HRS	80	0	
Total:						1	

STORAGE LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
STORAGE LIFE	1330	MAX44285FAUA+	150°C	1000 HRS	80	0	
STORAGE LIFE	1352	MAX669EUB+	150°C	500 HRS	47	0	
STORAGE LIFE	1407	MAX1744EUB+	150°C	1000 HRS	80	0	

STORAGE LIFE	1412	MAX44285TAUA+	150°C	1000	HRS	80	0
STORAGE LIFE	1415	MAX44285TAUA+	150°C	1000	HRS	79	0
STORAGE LIFE	1418	MAX16956AUBB+	150°C	500	HRS	50	0
STORAGE LIFE	1418	MAX16956AUBB+	150°C	1000	HRS	50	0
STORAGE LIFE	1439	MAX31091	150°C	1000	HRS	50	0
STORAGE LIFE	1439	MAX31091	150°C	1000	HRS	50	0
STORAGE LIFE	1439	MAX31091AUA+	150°C	1000	HRS	50	0
STORAGE LIFE	1444	MAX31091	150°C	1000	HRS	50	0
Total:						0	0

TEMPERATURE CYCLE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
TEMP CYCLE, 5' RAMP, 10' DWELL	1330	MAX44285FAUA+	-65C TO +150C (Condition C)	500	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1352	MAX669EUB/V+	-65C TO +150C (Condition C)	500	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1407	MAX1744EUB+	-65C TO +150C (Condition C)	500	CYS	78	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1412	MAX44285TAUA+	-65C TO +150C (Condition C)	500	CYS	79	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1415	MAX44285TAUA+	-65C TO +150C (Condition C)	1000	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1418	MAX16956AUBB+	-65C TO +150C (Condition C)	500	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1422	MAX44285FAUA+	-65C TO +150C (Condition C)	1000	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1422	MAX44285FAUA+	-65C TO +150C (Condition C)	1000	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1422	MAX44285FAUA+	-65C TO +150C (Condition C)	1000	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1433	MAX2750AUA+	-65C TO +150C (Condition C)	200	CYS	100	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1433	MAX2750AUA	-65C TO +150C (Condition C)	1000	CYS	100	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1439	MAX31091	-65C TO +150C (Condition C)	500	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1439	MAX31091	-65C TO +150C (Condition C)	500	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1439	MAX31091AUA+	-65C TO +150C (Condition C)	500	CYS	80	0
BOND STRENGTH	1444	MAX31091	MIL-STD-883-2011 : COND D (IPC-TM-650_2.4.42.3)	500	WIRES	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1444	MAX31091	-65C TO +150C (Condition C)	500	CYS	80	0
Total:						0	0

TEMPERATURE HUMIDITY BIAS

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
BIASED MOISTURE	1330	MAX44285FAUA+	130C, 85% R.H.	100	HRS	80	0
BIASED MOISTURE	1352	MAX669EUB+	130C, 85% R.H.	100	HRS	80	0

BIASED MOISTURE	1412	MAX44285TAUA+	130C, 85% R.H.	100	HRS	80	0
BIASED MOISTURE	1415	MAX44285TAUA+	130C, 85% R.H.	100	HRS	80	0
BIASED MOISTURE	1418	MAX16956AUBB+	130C, 85% R.H.	100	HRS	80	0
BIASED MOISTURE	1422	MAX44285FAUA+	130C, 85% R.H.	100	HRS	80	0
BIASED MOISTURE	1422	MAX44285FAUA+	130C, 85% R.H.	100	HRS	80	0
BIASED MOISTURE	1422	MAX44285FAUA+	130C, 85% R.H.	100	HRS	80	0
HAST	1439	MAX31091	130C, 85%R.H., 3.5V	96	HRS	78	0
HAST	1439	MAX31091	130C, 85%R.H., 3.5V	96	HRS	80	0
BIASED MOISTURE	1439	MAX31091AUA+	130C, 85% R.H.	96	HRS	78	0
HAST	1444	MAX31091	130C, 85%R.H., 3.5V	96	HRS	79	0
Total:							0

UNBIASED MOISTURE RESISTANCE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
MOISTURE SOAK	1352	MAX669EUB+	130C, 85% R.H.	100	HRS	80	0
MOISTURE SOAK	1418	MAX16956AUBB+	130C, 85% R.H.	100	HRS	80	0
MOISTURE SOAK	1433	MAX2750AUA+	130C, 85% R.H.	96	HRS	200	0
HAST, NO BIAS	1439	MAX31091	130C, 85% R.H.	96	HRS	80	0
HAST, NO BIAS	1439	MAX31091	130C, 85% R.H.	96	HRS	80	0
MOISTURE SOAK	1439	MAX31091AUA+	130C, 85% R.H.	96	HRS	80	0
HAST, NO BIAS	1444	MAX31091	130C, 85% R.H.	96	HRS	80	0
Total:							0

FAILURE RATE: MTTF (YRS): 72009 FITS: 1.6