

1/24/2019



RELIABILITY MONITOR REPORT
FOR

SOT 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	SOT23 (Pb-Free)	ATP (Amkor, PI)	10 SOT23 (Pb-Free)
Carsem-M	3	SOT23 (Pb-Free)	Carsem-M	6 SOT23 (Pb-Free)
Carsem-M	7	SOT23 (Pb-Free)	Carsem-M	8 SOT23 (Pb-Free)
Greatek	5	SOT23 (Pb-Free)	Greatek	6 SOT23 (Pb-Free)
Greatek	8	SOT23 (Pb-Free)	JCAP	8 TSOT (Pb-Free)
UTL (NSEB) UTAC	3	SOT23 (Pb-Free)	UTL (NSEB) UTAC	5 SOT23 (Pb-Free)
UTL (NSEB) UTAC	6	SOT23 (Pb-Free)	UTL (NSEB) UTAC	8 SOT23 (Pb-Free)
UTL (NSEB) UTAC	10	SOT23 (Pb-Free)	UTL (NSEB) UTAC	16 SOT23 (Pb-Free)
UTL (NSEB) UTAC	6	TSOT (Pb-Free)		

The calculated failure rate for this assembly is:

FAILURE RATE: MTTF (YRS): 239654 FITS: 0.5

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: SOT23 (Pb-Free)
 Date Code Range: 1726 to 1835

OPERATING LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
HIGH TEMP OP LIFE	1726	MAX22191AUT+	135°C	192 HRS	80	0	
HIGH TEMP OP LIFE	1733	MAX16133LFM/V+	135°C	1000 HRS	80	0	
HIGH TEMP OP LIFE	1733	MAX16133LFM/V+	135°C	1000 HRS	80	0	
HIGH TEMP OP LIFE	1733	MAX16133LFM/V+	135°C	1000 HRS	79	0	
HIGH TEMP OP LIFE	1738	MAX6414UK31/V+	135°C	1000 HRS	80	0	
HIGH TEMP OP LIFE	1738	MAX6414UK31/V+	135°C	1000 HRS	80	0	
HIGH TEMP OP LIFE	1741	MAX2640AUT+T	135°C	1000 HRS	78	0	
HIGH TEMP OP LIFE	1744	MAX5026EUT+	135°C	1000 HRS	79	0	
HIGH TEMP OP LIFE	1751	MAX6035AAUR50+T	135°C	1000 HRS	45	0	
HIGH TEMP OP LIFE	1803	MAX4582CUE+	135°C	1000 HRS	79	0	
HIGH TEMP OP LIFE	1805	MAX669EUB+	135°C	1000 HRS	80	0	
HIGH TEMP OP LIFE	1810	MAX2640AUT+T	135°C	1000 HRS	79	0	
HIGH TEMP OP LIFE	1811	MAX9933BGUA+	125°C	500 HRS	80	0	
HIGH TEMP OP LIFE	1830	MAX25615AUT/V+T	125°C	192 HRS	80	0	
HIGH TEMP OP LIFE	1832	MAX2640AUT+T	125°C	500 HRS	80	0	

HIGH TEMP OP LIFE	1835	MAX6035BAUR50+T	125°C	1000	HRS	47	0
						Total:	0

PACKAGE TESTS

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
CONVECTION REFLOW		MAX40200AUK+	260C +/-5C	PASS	350	0	
CONVECTION REFLOW	1741	MAX2640AUT+T	260C +/-5C	3	PASS	320	0
CONVECTION REFLOW	1743	MAX6750KA30/V+	260C +/-5C	3	PASS	500	0
CONVECTION REFLOW	1751	MAX6035AAUR50+T	260C +/-5C	3	PASS	320	0
CONVECTION REFLOW	1801	MAX9933BGUA+	260C +/-5C	PASS	320	0	
CONVECTION REFLOW	1803	MAX4582CUE+	260C +/-5C	PASS	320	0	
CONVECTION REFLOW	1805	MAX669EUB+	260C +/-5C	PASS	320	0	
CONVECTION REFLOW	1807	MAX6747KA30/V+T	260C +/-5C	PASS	350	0	
CONVECTION REFLOW	1808	MAX6747KA30/V+T	260C +/-5C	PASS	350	0	
CONVECTION REFLOW	1808	MAX6747KA30/V+T	260C +/-5C	PASS	350	0	
CONVECTION REFLOW	1835	MAX6035BAUR50+T	260C +/-5C	PASS	320	0	
						Total:	0

STORAGE LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
STORAGE LIFE	1733	MAX16133LFM/V+	150°C	500	HRS	80	0
STORAGE LIFE	1733	MAX16133LFM/V+	150°C	500	HRS	80	0
STORAGE LIFE	1733	MAX16133LFM/V+	150°C	500	HRS	80	0
STORAGE LIFE	1738	MAX6414UK31/V+	150°C	1000	HRS	80	0
STORAGE LIFE	1738	MAX6414UK31/V+	150°C	1000	HRS	78	0
STORAGE LIFE	1741	MAX2640AUT+T	150°C	1000	HRS	80	0
STORAGE LIFE	1744	MAX5026EUT+	150°C	1000	HRS	90	0
STORAGE LIFE	1744	MAX3295AUT+T	150°C	1000	HRS	90	0
STORAGE LIFE	1751	MAX6035AAUR50+T	150°C	1000	HRS	80	0
STORAGE LIFE	1801	MAX9933BGUA+	150°C	1000	HRS	80	0
STORAGE LIFE	1801	MAX9933BGUA+	150°C	1000	HRS	80	0
STORAGE LIFE	1803	MAX4582CUE+	150°C	1000	HRS	80	0
STORAGE LIFE	1804	MAX6035BAUR50+T	150°C	1000	HRS	80	0
STORAGE LIFE	1805	MAX669EUB+	150°C	1000	HRS	80	0
STORAGE LIFE	1810	MAX2640AUT+T	150°C	1000	HRS	80	0
STORAGE LIFE	1811	MAX9933BGUA+	150°C	1000	HRS	80	0
STORAGE LIFE	1832	MAX2640AUT+T	150°C	1000	HRS	78	0
STORAGE LIFE	1833	MAX2607EUT+T	150°C	1000	HRS	80	0
STORAGE LIFE	1835	MAX6035BAUR50+T	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	1738	MAX6414UK31/V+	-65C TO +150C (Condition C)	1000 CYS	80	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1738	MAX6414UK31/V+	-65C TO +150C (Condition C)	1000 CYS	80	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1741	MAX2640AUT+T	-65C TO +150C (Condition C)	1000 CYS	79	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1743	MAX6750KA30/V+	-65C TO +150C (Condition C)	1000 CYS	80	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1743	MAX6750KA30/V+	-65C TO +150C (Condition C)	1000 CYS	79	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1744	MAX5026EUT+	-65C TO +150C (Condition C)	1000 CYS	80	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1744	MAX3295AUT+T	-65C TO +150C (Condition C)	1000 CYS	80	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1751	MAX6035AAUR50+T	-65C TO +150C (Condition C)	1000 CYS	80	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1801	MAX9933BGUA+	-65C TO +150C (Condition C)	1000 CYS	80	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1803	MAX4582CUE+	-65C TO +150C (Condition C)	1000 CYS	80	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1804	MAX6035BAUR50+T	-65C TO +150C (Condition C)	1000 CYS	80	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1805	MAX669EUB+	-65C TO +150C (Condition C)	1000 CYS	80	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1807	MAX6747KA30/V+T	-65C TO +150C (Condition C)	1000 CYS	79	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1808	MAX6747KA30/V+T	-65C TO +150C (Condition C)	1000 CYS	79	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1808	MAX6747KA30/V+T	-65C TO +150C (Condition C)	1000 CYS	79	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1808	MAX16956AUBC/V+	-65C TO +150C (Condition C)	1000 CYS	80	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1810	MAX2640AUT+T	-65C TO +150C (Condition C)	1000 CYS	79	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1811	MAX9933BGUA+	-65C TO +150C (Condition C)	1000 CYS	80	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1826	MAX2640AUT+T	-65C TO +150C (Condition C)	500 CYS	78	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1832	MAX2640AUT+T	-65C TO +150C (Condition C)	1000 CYS	80	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1833	MAX2607EUT+T	-65C TO +150C (Condition C)	1000 CYS	80	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1835	MAX6035BAUR50+T	-65C TO +150C (Condition C)	1000 CYS	79	0	
Total:						0	

TEMPERATURE HUMIDITY BIAS

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
BIASED MOISTURE	1733	MAX16133LFM/V+	85 C/85% R.H.	96 HRS	10	0	

BIASED MOISTURE	1738	MAX6414UK31/V+	130C, 85% R.H.	96	HRS	79	0
BIASED MOISTURE	1738	MAX6414UK31/V+	130C, 85% R.H.	96	HRS	79	0
BIASED MOISTURE	1741	MAX2640AUT+T	85 C/85% R.H.	96	HRS	80	0
BIASED MOISTURE	1743	MAX6750KA30/V+	85 C/85% R.H.	96	HRS	80	0
BIASED MOISTURE	1743	MAX6750KA30/V+	85 C/85% R.H.	96	HRS	80	0
BIASED MOISTURE	1744	MAX5026EUT+	85 C/85% R.H.	96	HRS	80	0
BIASED MOISTURE	1744	MAX3295AUT+T	85 C/85% R.H.	96	HRS	80	0
BIASED MOISTURE	1751	MAX6035AAUR50+T	85 C/85% R.H.	96	HRS	80	0
BIASED MOISTURE	1801	MAX9933BGUA+	130C, 85% R.H.	96	HRS	80	0
BIASED MOISTURE	1803	MAX4582CUE+	130C, 85% R.H.	96	HRS	78	0
BIASED MOISTURE	1804	MAX6035BAUR50+T	130C, 85% R.H.	96	HRS	80	0
BIASED MOISTURE	1805	MAX669EUB+	130C, 85% R.H.	96	HRS	80	0
BIASED MOISTURE	1810	MAX2640AUT+T	130C, 85% R.H.	96	HRS	80	0
BIASED MOISTURE	1811	MAX9933BGUA+	130C, 85% R.H.	96	HRS	77	0
BIASED MOISTURE	1833	MAX2607EUT+T	130C, 85% R.H.	96	HRS	80	0
BIASED MOISTURE	1835	MAX6035BAUR50+T	130C, 85% R.H.	96	HRS	80	0
Total:							0

UNBIASED MOISTURE RESISTANCE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
MOISTURE SOAK	1738	MAX6414UK31/V+	130C, 85% R.H.	96 HRS	80	0	
MOISTURE SOAK	1738	MAX6414UK31/V+	130C, 85% R.H.	96 HRS	80	0	
MOISTURE SOAK	1743	MAX6750KA30/V+	130C, 85% R.H.	96 HRS	80	0	
MOISTURE SOAK	1743	MAX6750KA30/V+	130C, 85% R.H.	96 HRS	80	0	
MOISTURE SOAK	1744	MAX5026EUT+	130C, 85% R.H.	96 HRS	80	0	
MOISTURE SOAK	1744	MAX3295AUT+T	130C, 85% R.H.	96 HRS	80	0	
MOISTURE SOAK	1807	MAX6747KA30/V+T	130C, 85% R.H.	HRS	80	0	
MOISTURE SOAK	1808	MAX6747KA30/V+T	130C, 85% R.H.	HRS	79	0	
MOISTURE SOAK	1808	MAX6747KA30/V+T	130C, 85% R.H.	HRS	80	0	
Total:							0

Assembly Information:

Package Type: TSOT (Pb-Free)
Date Code Range: 1811 to 1821

OPERATING LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
HIGH TEMP OP LIFE	1811	MAX6895AAZT/V+T	125°C	1000 HRS	80	0	
HIGH TEMP OP LIFE	1811	MAX6895AAZT/V+T	125°C	1000 HRS	80	0	
HIGH TEMP OP LIFE	1811	MAX6895AAZT/V+T	125°C	1000 HRS	80	0	

Total: 0

STORAGE LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
STORAGE LIFE	1811	MAX6895AAZT/V+T	150°C	1000 HRS	79	0	
STORAGE LIFE	1811	MAX6895AAZT/V+T	150°C	1000 HRS	79	0	
STORAGE LIFE	1811	MAX6895AAZT/V+T	150°C	1000 HRS	78	0	
STORAGE LIFE	1821	87-P171X+04D	150°C	1000 HRS	80	0	
STORAGE LIFE	1821	87-P171X+04D	150°C	1000 HRS	80	0	
STORAGE LIFE	1821	87-P171X+04D	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	1811	MAX6895AAZT/V+T	-65C TO +150C (Condition C)	1000 CYS	77	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1811	MAX6895AAZT/V+T	-65C TO +150C (Condition C)	1000 CYS	79	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1811	MAX6895AAZT/V+T	-65C TO +150C (Condition C)	1000 CYS	80	0	
TEMP CYCLE, 15' RAMP, 15' DWELL	1821	87-P171X+04D	-40C TO +125C (Condition G)	1000 CYS	80	0	
TEMP CYCLE, 15' RAMP, 15' DWELL	1821	87-P171X+04D	-40C TO +125C (Condition G)	1000 CYS	80	0	
TEMP CYCLE, 15' RAMP, 15' DWELL	1821	87-P171X+04D	-40C TO +125C (Condition G)	1000 CYS	80	0	
Total:						0	

TEMPERATURE HUMIDITY BIAS

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
BIASED MOISTURE	1811	MAX6895AAZT/V+T	130C, 85% R.H.	96 HRS	80	0	
BIASED MOISTURE	1811	MAX6895AAZT/V+T	130C, 85% R.H.	96 HRS	80	0	
BIASED MOISTURE	1811	MAX6895AAZT/V+T	130C, 85% R.H.	96 HRS	79	0	
BIASED MOISTURE	1821	87-P171X+04D	110C, 85% R.H.	264 HRS	80	0	
Total:						0	

UNBIASED MOISTURE RESISTANCE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
MOISTURE SOAK	1811	MAX6895AAZT/V+T	130C, 85% R.H.	96 HRS	80	0	
MOISTURE SOAK	1811	MAX6895AAZT/V+T	130C, 85% R.H.	96 HRS	80	0	
Total:						0	

FAILURE RATE: MTTF (YRS): 239654 FITS: 0.5