

8/1/2019



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		
Carsem-M	6	SOT23 (Pb-Free)	JCAP	8 TSOT (Pb-Free)
OUME	20	SOT23 (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	6 TSOT (Pb-Free)

The calculated failure rate for this assembly is:

FAILURE RATE: MTTF (YRS): 135579 FITS: 0.8

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 4/1/2019 and 8/1/2019.

Assembly Information:

Package Type: SOT23 (Pb-Free)

Date Code Range: 1804 to 1919

OPERATING LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
HIGH TEMP OP LIFE		MAX40025CAWT+T	125°C	192 HRS	79	0	
HIGH TEMP OP LIFE	1804	MAX9050AEUK+T	125°C	380 HRS	80	0	
HIGH TEMP OP LIFE	1830	MAX25615AUT/V+T	125°C	192 HRS	80	0	
HIGH TEMP OP LIFE	1833	MAX2607EUT+T	125°C	1000 HRS	50	0	
HIGH TEMP OP LIFE	1835	MAX6035BAUR50+T	125°C	1000 HRS	80	0	
HIGH TEMP OP LIFE	1837	MAX16135HRB/V+T	125°C	192 HRS	80	0	
HIGH TEMP OP LIFE	1837	MAX16135HRB/V+T	125°C	1000 HRS	80	0	
HIGH TEMP OP LIFE	1841	MAX40075AUT/V+T	125°C	1000 HRS	79	0	
HIGH TEMP OP LIFE	1850	MAX2640AUT+T	125°C	1000 HRS	79	0	
				Total:		0	

PACKAGE TESTS

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
CONVECTION REFLOW		MAX40200AUK+	260C +/-5C	3 PASS	350	0	
CONVECTION REFLOW		MAX6070BAUT12/V+T	260C +/-5C	3 PASS	500	0	
CONVECTION REFLOW	1804	MAX9050AEUK+T	260C +/-5C	3 PASS	350	0	
CONVECTION REFLOW	1832	MAX2640AUT+T	85 C/85% R.H.	3 PASS	320	0	
CONVECTION REFLOW	1833	MAX2607EUT+T	85 C/85% R.H.	3 PASS	320	0	
CONVECTION REFLOW	1835	MAX6035BAUR50+T	85 C/85% R.H.	3 PASS	320	0	

CONVECTION REFLOW	1847	LM4040AEM3-2.5+T	85 C/85% R.H.	3	PASS	316	0
CONVECTION REFLOW	1850	MAX2640AUT+T	85 C/85% R.H.	3	PASS	318	0
CONVECTION REFLOW	1919	MAX33040EAKA+T	260C +0/-5C	3	PASS	348	0
CONVECTION REFLOW	1919	MAX33040EAKA+T	260C +0/-5C	3	PASS	348	0
CONVECTION REFLOW	1919	MAX33040EAKA+T	260C +0/-5C	3	PASS	350	0
Total:							0

STORAGE LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
STORAGE LIFE	1804	MAX9050AEUK+T	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	79	0	
STORAGE LIFE	1835	MAX6035BAUR50+T	150°C	1000 HRS	80	0	
STORAGE LIFE	1847	LM4040AEM3-2.5+T	150°C	1000 HRS	79	0	
STORAGE LIFE	1850	MAX2640AUT+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		MAX6070BAUT12/V+T	-65C TO +150C (Condition C)	1000 CYS	80	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	1835	MAX6035BAUR50+T	-65C TO +150C (Condition C)	1000 CYS	79	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1847	LM4040AEM3-2.5+T	-65C TO +150C (Condition C)	1000 CYS	77	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1850	MAX2640AUT+T	-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	1804	MAX9050AEUK+T	130C, 85% R.H.	96 HRS	80	0	
BIASED MOISTURE	1832	MAX2640AUT+T	130C, 85% R.H.	96 HRS	80	0	
BIASED MOISTURE	1833	MAX2607EUT+T	130C, 85% R.H.	96 HRS	80	0	
BIASED MOISTURE	1850	MAX2640AUT+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	1804	MAX9050AEUK+T	130C, 85% R.H.	96 HRS	80	0	
MOISTURE SOAK	1847	LM4040AEM3-2.5+T	130C, 85% R.H.	96 HRS	75	0	
MOISTURE SOAK	1919	MAX33040EAKA+T	130C, 85% R.H.	96 HRS	80	0	

MOISTURE SOAK	1919	MAX33040EAKA+T	130C, 85% R.H.	96	HRS	80	0
MOISTURE SOAK	1919	MAX33040EAKA+T	130C, 85% R.H.	96	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	
HIGH TEMP OP LIFE	1811	MAX6895AAZT/V+T	125°C	192 HRS	80	0	
Total:							0

PACKAGE TESTS

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
BOND CRATER	1811	MAX6895AAZT/V+T			15	0	
SOLDERABILITY	1811	MAX6895AAZT/V+T	JESD22-B102, COND C (245C)		15	0	
BOND STRENGTH	1811	MAX6895AAZT/V+T	> 5 GMS	WIRES	15	0	
CSAM	1811	MAX6895AAZT/V+T			22	0	
BOND CRATER	1811	MAX6895AAZT/V+T			20	0	
SOLDERABILITY	1811	MAX6895AAZT/V+T	JESD22-B102, COND C (245C)		15	0	
CSAM	1811	MAX6895AAZT/V+T			22	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	1811	MAX6895AAZT/V+T	150°C	1000 HRS	79	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, 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	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	1811	MAX6895AAZT/V+T	130C, 85% R.H.	96	HRS	79	0
Total:						0	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	0

FAILURE RATE: MTTF (YRS): 135579 FITS: 0.8