

10/27/2017



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		
ASE Weihai	5	SOT23 (Pb-Free)	ASE Weihai	8 SOT23 (Pb-Free)
ATP (Amkor, PI)	6	TSOT (Pb-Free)	Carsem-M	5 SOT23 (Pb-Free)
Carsem-M	6	SOT23 (Pb-Free)	Carsem-M	8 SOT23 (Pb-Free)
Carsem-S	6	SOT23 (Pb-Free)	UTL (NSEB) UTAC	6 SOT23
UTL (NSEB) UTAC	4	SOT23 (Pb-Free)	UTL (NSEB) UTAC	6 SOT23 (Pb-Free)
UTL (NSEB) UTAC	8	SOT23 (Pb-Free)		

The calculated failure rate for this assembly is:

FAILURE RATE: MTTF (YRS): 418999 FITS: 0.3

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 7/1/2017 and 9/30/2017.

Assembly Information:

Package Type: SOT23
Date Code Range: 1234 to 1234

UNBIASED MOISTURE RESISTANCE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
MOISTURE SOAK	1234	MAX5048CAUT+T	130C, 85% R.H.	100 HRS	80	0	
MOISTURE SOAK	1234	MAX5048CAUT+T	130C, 85% R.H.	100 HRS	80	0	
Total:						0	

Assembly Information:

Package Type: SOT23 (Pb-Free)
Date Code Range: 1037 to 1727

OPERATING LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
HIGH TEMP OP LIFE	1037	MAX2607EUT+	135°C	1000 HRS	30	0	
HIGH TEMP OP LIFE	1229	MAX16053AUT+	135°C	1000 HRS	90	0	
HIGH TEMP OP LIFE	1328	MAX16053AUT+	135°C	1000 HRS	89	0	
HIGH TEMP OP LIFE	1426	MAX16053AUT+	135°C	1000 HRS	90	0	
HIGH TEMP OP LIFE	1531	MAX44251AKA+	135°C	1000 HRS	79	0	
HIGH TEMP OP LIFE	1542	MAX16086AUS18E/V +T	135°C	1000 HRS	80	0	
HIGH TEMP OP LIFE	1544	MAX16086AUS18E/V +T	135°C	1000 HRS	80	0	
HIGH TEMP OP LIFE	1607	MAX6070AAUT50+T	135°C	1000 HRS	79	0	

HIGH TEMP OP LIFE	1607	MAX6070AAUT50/V+ 135°C		1000	HRS	79	0
HIGH TEMP OP LIFE	1607	MAX6070AAUT50/V+ 135°C		1000	HRS	79	0
HIGH TEMP OP LIFE	1617	MAX9017AEKA/V+ 135°C		1000	HRS	78	0
HIGH TEMP OP LIFE	1617	MAX9017AEKA/V+ 135°C		1000	HRS	78	0
HIGH TEMP OP LIFE	1617	MAX9017AEKA/V+ 135°C		1000	HRS	79	0
HIGH TEMP OP LIFE	1622	MAX6414UK31/V+ 135°C		1000	HRS	45	0
HIGH TEMP OP LIFE	1648	MAX16135HRB/V+T 135°C		1000	HRS	80	0
HIGH TEMP OP LIFE	1648	MAX16135HRB/V+T 135°C		1000	HRS	80	0
HIGH TEMP OP LIFE	1648	MAX16135HRB/V+T 135°C		1000	HRS	80	0
HIGH TEMP OP LIFE	1651	MAX9017AEKA/V+T 135°C		1000	HRS	81	0
HIGH TEMP OP LIFE	1651	MAX9017AEKA/V+T 135°C		1000	HRS	82	0
HIGH TEMP OP LIFE	1651	MAX9017AEKA/V+T 135°C		1000	HRS	83	0
HIGH TEMP OP LIFE	1704	MAX40010FAUT+ 135°C		192	HRS	80	0
HIGH TEMP OP LIFE	1710	MAX2640AUT+ 135°C		1000	HRS	80	0
HIGH TEMP OP LIFE	1714	MAX40088AUT+ 135°C		192	HRS	80	0
HIGH TEMP OP LIFE	1722	MAX44251AKA+T 135°C		1000	HRS	79	0
HIGH TEMP OP LIFE	1727	MAX9017AEKA/V+T 135°C		1000	HRS	77	0
HIGH TEMP OP LIFE	1727	MAX9017AEKA/V+T 135°C		1000	HRS	80	0
HIGH TEMP OP LIFE	1727	MAX9017AEKA/V+T 135°C		1000	HRS	79	0
Total:						0	0

PACKAGE TESTS

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
BOND STRENGTH	1648	MAX16135HRB/V+T	> 5 GMS	200	WIRES	40	0
BOND STRENGTH	1648	MAX16135HRB/V+T	> 5 GMS	200	WIRES	40	0
ULTRASOUND	1727	MAX9017AEKA/V+T	J-STD-020			22	0
ULTRASOUND	1727	MAX9017AEKA/V+T	J-STD-020			22	0
ULTRASOUND	1727	MAX9017AEKA/V+T	J-STD-020			22	0
BOND STRENGTH	1727	MAX9017AEKA/V+T	> 5 GMS	200	WIRES	20	0
Total:						0	0

PRECONDITIONING LEVEL 1

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
CONVECTION REFLOW	1646	MAX16984RATI/VY+	260C +0/-5C	PASS	396	0	
CONVECTION REFLOW	1710	MAX2640AUT+	260C +0/-5C	PASS	309	0	
CONVECTION REFLOW	1722	MAX44251AKA+T	260C +0/-5C	PASS	305	0	
CONVECTION REFLOW	1727	MAX9017AEKA/V+T	260C +0/-5C	PASS	498	0	
CONVECTION REFLOW	1727	MAX9017AEKA/V+T	260C +0/-5C	PASS	499	0	
CONVECTION REFLOW	1727	MAX9017AEKA/V+T	260C +0/-5C	PASS	483	0	
Total:						0	0

SOLDER SHOCK

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
SOLDER SHOCK	1727	MAX9017AEKA/V+T	300C		15	0	
SOLDER SHOCK	1727	MAX9017AEKA/V+T	300C		15	0	
SOLDER SHOCK	1727	MAX9017AEKA/V+T	300C		15	0	
					Total:	0	

STORAGE LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
STORAGE LIFE	1229	MAX16053AUT+	150°C	1000 HRS	50	0	
STORAGE LIFE	1328	MAX16053AUT+	150°C	1000 HRS	50	0	
STORAGE LIFE	1426	MAX16053AUT+	150°C	1000 HRS	47	0	
STORAGE LIFE	1531	MAX44251AKA+	150°C	1000 HRS	80	0	
STORAGE LIFE	1542	MAX16086AUS18E/V+T	150°C	1000 HRS	60	0	
STORAGE LIFE	1607	MAX6070AAUT50/V+	150°C	1000 HRS	20	0	
STORAGE LIFE	1607	MAX6070AAUT50/V+	150°C	1000 HRS	20	0	
STORAGE LIFE	1616	MAX6425UK23+	150°C	1000 HRS	80	0	
STORAGE LIFE	1616	MAX6425UK23+	150°C	500 HRS	41	0	
STORAGE LIFE	1616	MAX6425UK23+	150°C	1000 HRS	79	0	
STORAGE LIFE	1617	MAX9017AEKA/V+	150°C	1000 HRS	90	0	
STORAGE LIFE	1617	MAX9017AEKA/V+	150°C	1000 HRS	87	0	
STORAGE LIFE	1617	MAX9017AEKA/V+	150°C	1000 HRS	80	0	
STORAGE LIFE	1621	MAX6896AAZT/V+	150°C	1000 HRS	77	0	
STORAGE LIFE	1621	MAX6896AAZT/V+	150°C	1000 HRS	78	0	
STORAGE LIFE	1621	MAX6896AAZT/V+	150°C	1000 HRS	79	0	
STORAGE LIFE	1622	MAX6414UK31/V+	150°C	1000 HRS	80	0	
STORAGE LIFE	1648	MAX16135HRB/V+T	150°C	1000 HRS	80	0	
STORAGE LIFE	1648	MAX16135HRB/V+T	150°C	1000 HRS	80	0	
STORAGE LIFE	1648	MAX16135HRB/V+T	150°C	1000 HRS	80	0	
STORAGE LIFE	1710	MAX2640AUT+	150°C	1000 HRS	80	0	
STORAGE LIFE	1722	MAX44251AKA+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	1531	MAX44251AKA+	-65C TO +150C (Condition C)	1000 CYS	80	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1542	MAX16086AUS18E/V+T	-65C TO +150C (Condition C)	500 CYS	100	0	

TEMP CYCLE, 5' RAMP, 10' DWELL	1546	MAX2640EUT+	-65C TO +150C (Condition C)	1000	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1616	MAX6425UK23+	-65C TO +150C (Condition C)	500	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1616	MAX6425UK23+	-65C TO +150C (Condition C)	500	CYS	71	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1616	MAX6425UK23+	-65C TO +150C (Condition C)	500	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1622	MAX6414UK31/V+	-65C TO +150C (Condition C)	1000	CYS	120	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1648	MAX16135HRB/V+T	-65C TO +150C (Condition C)	500	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1648	MAX16135HRB/V+T	-65C TO +150C (Condition C)	500	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1648	MAX16135HRB/V+T	-65C TO +150C (Condition C)	500	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1651	MAX9017AEKA/V+T	-65C TO +150C (Condition C)	500	CYS	120	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1651	MAX9017AEKA/V+T	-65C TO +150C (Condition C)	500	CYS	120	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1651	MAX9017AEKA/V+T	-65C TO +150C (Condition C)	500	CYS	120	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1710	MAX2640AUT+	-65C TO +150C (Condition C)	1000	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1722	MAX44251AKA+T	-65C TO +150C (Condition C)	1000	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1727	MAX9017AEKA/V+T	-65C TO +150C (Condition C)	500	CYS	120	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1727	MAX9017AEKA/V+T	-65C TO +150C (Condition C)	500	CYS	120	0
Total:						0	0

TEMPERATURE HUMIDITY BIAS

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
BIASED MOISTURE	1249	MAX16053AUT+	130C, 85% R.H.	100 HRS	80	0	
BIASED MOISTURE	1328	MAX16053AUT+	130C, 85% R.H.	100 HRS	80	0	
BIASED MOISTURE	1328	MAX16053AUT+	130C, 85% R.H.	100 HRS	80	0	
BIASED MOISTURE	1426	MAX16053AUT+	130C, 85% R.H.	100 HRS	80	0	
BIASED MOISTURE	1544	MAX16053AUT+	130C, 85% R.H.	100 HRS	79	0	
BIASED MOISTURE	1544	MAX16053AUT+	130C, 85% R.H.	100 HRS	80	0	
BIASED MOISTURE	1710	MAX2640AUT+	130C, 85% R.H.	96 HRS	80	0	
BIASED MOISTURE	1722	MAX44251AKA+T	130C, 85% R.H.	96 HRS	80	0	
BIASED MOISTURE	1727	MAX9017AEKA/V+T	130C, 85% R.H.	100 HRS	80	0	
Total:						0	0

UNBIASED MOISTURE RESISTANCE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
MOISTURE SOAK	1531	MAX44251AKA+	130C, 85% R.H.	96 HRS	80	0	

MOISTURE SOAK	1616	MAX6425UK23+	130C, 85% R.H.	96	HRS	79	0
MOISTURE SOAK	1616	MAX6425UK23+	130C, 85% R.H.	96	HRS	33	0
MOISTURE SOAK	1616	MAX6425UK23+	130C, 85% R.H.	96	HRS	80	0
MOISTURE SOAK	1651	MAX9017AEKA/V+T	130C, 85% R.H.	96	HRS	80	0
MOISTURE SOAK	1651	MAX9017AEKA/V+T	130C, 85% R.H.	96	HRS	80	0
MOISTURE SOAK	1651	MAX9017AEKA/V+T	130C, 85% R.H.	96	HRS	80	0
MOISTURE SOAK	1727	MAX9017AEKA/V+T	130C, 85% R.H.	96	HRS	80	0
MOISTURE SOAK	1727	MAX9017AEKA/V+T	130C, 85% R.H.	96	HRS	80	0
MOISTURE SOAK	1727	MAX9017AEKA/V+T	130C, 85% R.H.	96	HRS	80	0
Total:							0

Assembly Information:

Package Type: TSOT (Pb-Free)

Date Code Range: 1642 to 1642

OPERATING LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
HIGH TEMP OP LIFE	1642	MAX6896AAZT/V+	135°C	1000 HRS	80	0	
HIGH TEMP OP LIFE	1642	MAX6896AAZT/V+	135°C	1000 HRS	80	0	
HIGH TEMP OP LIFE	1642	MAX6896AAZT/V+	135°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	1642	MAX6896AAZT/V+	-65C TO +150C (Condition C)	1000 CYS	84	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1642	MAX6896AAZT/V+	-65C TO +150C (Condition C)	1000 CYS	85	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1642	MAX6896AAZT/V+	-65C TO +150C (Condition C)	1000 CYS	85	0	
Total:							0

UNBIASED MOISTURE RESISTANCE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
MOISTURE SOAK	1642	MAX6896AAZT/V+	130C, 85% R.H.	96 HRS	80	0	
MOISTURE SOAK	1642	MAX6896AAZT/V+	130C, 85% R.H.	96 HRS	79	0	
MOISTURE SOAK	1642	MAX6896AAZT/V+	130C, 85% R.H.	96 HRS	80	0	
Total:							0

FAILURE RATE: MTTF (YRS): 418999 FITS: 0.3