

4/23/2015



RELIABILITY MONITOR REPORT
FOR

TSSOP 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)	16	TSSOP (Pb-Free)	ATP (Amkor, PI)	16 TSSOP-EP (Pb-Free)
UTL (NSEB) UTAC	14	TSSOP (Pb-Free)	UTL (NSEB) UTAC	16 TSSOP (Pb-Free)
UTL (NSEB) UTAC	20	TSSOP (Pb-Free)	UTL (NSEB) UTAC	16 TSSOP-EP (Pb-Free)
UTL (NSEB) UTAC	20	TSSOP-EP (Pb-Free)	UTL (NSEB) UTAC	28 TSSOP-EP (Pb-Free)

The calculated failure rate for this assembly is:

FAILURE RATE: MTTF (YRS): 86712 FITS: 1.3

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 4/1/2014 and 3/31/2015.

Assembly Information:

Package Type: TSSOP (Pb-Free)

Date Code Range: 1409 to 1450

OPERATING LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
HIGH TEMP OP LIFE	1409	MAX8869EUE25+	135°C	1000 HRS	80	0	
HIGH TEMP OP LIFE	1426	LMX324AUD+B3Q	135°C	1000 HRS	80	0	
HIGH TEMP OP LIFE	1427	MAX34407	135C, 3.6V (V6) & 16V (V8)	192 HRS	80	0	
HIGH TEMP OP LIFE	1438	MAX3222EUP+	135°C	500 HRS	80	0	
HIGH TEMP OP LIFE	1438	MAX3222EUP+	135°C	500 HRS	80	0	
Total:						0	

STORAGE LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
STORAGE LIFE	1409	MAX8869EUE25+	150°C	1000 HRS	80	0	
STORAGE LIFE	1412	MAX17842	150°C	500 HRS	77	0	
STORAGE LIFE	1413	MAX17842	150°C	500 HRS	77	0	
STORAGE LIFE	1414	MAX17842	150°C	500 HRS	77	0	
STORAGE LIFE	1426	LMX324AUD+B3Q	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	1409	MAX8869EUE25+	-65C TO +150C (Condition C)	500 CYS	80	0	

TEMP CYCLE, 5' RAMP, 10' DWELL	1412	MAX17842	-65C TO +150C (Condition C)	500	CYS	77	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1413	MAX17842	-65C TO +150C (Condition C)	500	CYS	77	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1414	MAX17842	-65C TO +150C (Condition C)	500	CYS	77	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1426	LMX324AUD+B3Q	-65C TO +150C (Condition C)	500	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1450	MAX4395EUD+	-65C TO +150C (Condition C)	500	CYS	80	0
Total:							0

TEMPERATURE HUMIDITY BIAS

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
HAST	1412	MAX17842	130C, 85%R.H., 3.3V	96	HRS	77	0
HAST	1412	MAX17842	130C, 85%R.H., 3.3V	96	HRS	80	0
HAST	1413	MAX17842	130C, 85%R.H., 3.3V	96	HRS	77	0
HAST	1413	MAX17842	130C, 85%R.H., 3.3V	96	HRS	40	0
HAST	1414	MAX17842	130C, 85%R.H., 3.3V	96	HRS	77	0
Total:							0

UNBIASED MOISTURE RESISTANCE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
HAST, NO BIAS	1412	MAX17842	130C, 85% R.H.	96	HRS	77	0
HAST, NO BIAS	1412	MAX17842	130C, 85% R.H.	96	HRS	80	0
HAST, NO BIAS	1413	MAX17842	130C, 85% R.H.	96	HRS	77	0
HAST, NO BIAS	1413	MAX17842	130C, 85% R.H.	96	HRS	80	0
HAST, NO BIAS	1414	MAX17842	130C, 85% R.H.	96	HRS	77	0
HAST, NO BIAS	1414	MAX17842	130C, 85% R.H.	96	HRS	80	0
Total:							0

Assembly Information:

Package Type: TSSOP-EP (Pb-Free)

Date Code Range: 1321 to 1442

OPERATING LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
HIGH TEMP OP LIFE	1321	MAX16833FAUE+	135°C	1000	HRS	78	0
HIGH TEMP OP LIFE	1321	MAX16833FAUE+	135°C	500	HRS	79	0
HIGH TEMP OP LIFE	1347	MAX16935RAUE+	135°C	1000	HRS	80	0
HIGH TEMP OP LIFE	1402	MAX16935RAUE+ GE	135°C	1000	HRS	80	0
HIGH TEMP OP LIFE	1402	MAX16935RAUE+ GE	135°C	500	HRS	80	0
HIGH TEMP OP LIFE	1409	MAX16935RAUE+ GE	135°C	500	HRS	80	0

HIGH TEMP OP LIFE	1420	MAX14871EUE+	135°C	192	HRS	80	0
HIGH TEMP OP LIFE	1420	MAX16935RAUE+ GE	135°C	500	HRS	80	0
HIGH TEMP OP LIFE	1420	MAX16935RAUE+ GE	135°C	1000	HRS	80	0
HIGH TEMP OP LIFE	1423	MAX1793EUE33+	135°C	192	HRS	80	0
HIGH TEMP OP LIFE	1426	MAX5066EUI+	135°C	1000	HRS	48	0
HIGH TEMP OP LIFE	1427	MAX1793EUE33+	135°C	192	HRS	80	0
HIGH TEMP OP LIFE	1429	MAX16813AUPV+	135°C	2000	HRS	80	0
HIGH TEMP OP LIFE	1429	MAX16813AUPV+	135°C	1500	HRS	80	0
HIGH TEMP OP LIFE	1429	MAX1793EUE33+	135°C	192	HRS	80	0
HIGH TEMP OP LIFE	1430	MAX16833CAUE+ QA	135°C	750	HRS	58	0
HIGH TEMP OP LIFE	1430	MAX16833CAUE+ QA	135°C	380	HRS	60	1
HIGH TEMP OP LIFE	1442	MAX16833CAUE+ QA	135°C	500	HRS	80	0
Total:							1

STORAGE LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
STORAGE LIFE	1402	MAX16935RAUE+ GE	150°C	1000 HRS	80	0	
STORAGE LIFE	1420	MAX16935RAUE+ GE	150°C	1000 HRS	80	0	
STORAGE LIFE	1420	MAX16935RAUE+	150°C	1000 HRS	80	0	
STORAGE LIFE	1420	MAX16935RAUE+	150°C	500 HRS	80	0	
STORAGE LIFE	1423	MAX1793EUE33+T	150°C	500 HRS	50	0	
STORAGE LIFE	1426	MAX5066EUI+	150°C	1000 HRS	80	0	
STORAGE LIFE	1429	MAX16813AUPV+	150°C	1500 HRS	50	0	
STORAGE LIFE	1429	MAX16813AUPV+	150°C	2000 HRS	50	0	
Total:							0

TEMPERATURE CYCLE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
TEMP CYCLE, 5' RAMP, 10' DWELL	1351	MAX16935SAUE+ GE	-65C TO +150C (Condition C)	500 CYS	80	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1402	MAX16935RAUE+ GE	-65C TO +150C (Condition C)	1000 CYS	80	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1402	MAX16935RAUE+ GE	-65C TO +150C (Condition C)	500 CYS	80	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1407	MAX16935SAUE+ GE	-65C TO +150C (Condition C)	500 CYS	80	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1409	MAX16935RAUE+ GE	-65C TO +150C (Condition C)	500 CYS	80	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1409	MAX16833EAUE+	-65C TO +150C (Condition C)	250 CYS	6644	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1420	MAX16935RAUE+ GE	-65C TO +150C (Condition C)	500 CYS	80	0	

TEMP CYCLE, 5' RAMP, 10' DWELL	1420	MAX16935RAUE+	-65C TO +150C (Condition C)	500	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1420	MAX16935RAUE+ GE	-65C TO +150C (Condition C)	1000	CYS	75	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1423	MAX1793EUE33+T	-65C TO +150C (Condition C)	500	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1426	MAX5066EUI+	-65C TO +150C (Condition C)	500	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1427	MAX1793EUE33+	-65C TO +150C (Condition C)	500	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1429	MAX16813AUPV+	-65C TO +150C (Condition C)	500	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1429	MAX16813AUP+	-65C TO +150C (Condition C)	500	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1429	MAX1793EUE33+T	-65C TO +150C (Condition C)	500	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1436	MAX16813AUP+	-65C TO +150C (Condition C)	500	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1442	MAX16833CAUE+ QA	-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	1351	MAX16935SAUE+ GE	130C, 85% R.H.	96	HRS	78	0
BIASED MOISTURE	1402	MAX16935RAUE+ GE	130C, 85% R.H.	96	HRS	78	0
BIASED MOISTURE	1407	MAX16935SAUE+ GE	130C, 85% R.H.	96	HRS	80	0
BIASED MOISTURE	1409	MAX16935RAUE+ GE	130C, 85% R.H.	96	HRS	78	0
BIASED MOISTURE	1420	MAX16935RAUE+ GE	130C, 85% R.H.	96	HRS	78	0
BIASED MOISTURE	1420	MAX16935RAUE+	130C, 85% R.H.	96	HRS	80	0
BIASED MOISTURE	1420	MAX16935RAUE+ GE	130C, 85% R.H.	96	HRS	80	0
BIASED MOISTURE	1429	MAX16813AUPV+	130C, 85% R.H.	100	HRS	80	0
BIASED MOISTURE	1429	MAX16813AUP+	130C, 85% R.H.	100	HRS	80	0
BIASED MOISTURE	1436	MAX16813AUP+	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	1351	MAX16935SAUE+ GE	130C, 85% R.H.	96	HRS	80	0
MOISTURE SOAK	1402	MAX16935RAUE+ GE	130C, 85% R.H.	96	HRS	80	0
MOISTURE SOAK	1407	MAX16935SAUE+ GE	130C, 85% R.H.	96	HRS	80	0

MOISTURE SOAK	1409	MAX16935RAUE+ GE	130C, 85% R.H.	96	HRS	80	0
MOISTURE SOAK	1420	MAX16935RAUE+ GE	130C, 85% R.H.	96	HRS	80	0
MOISTURE SOAK	1420	MAX16935RAUE+	130C, 85% R.H.	96	HRS	80	0
MOISTURE SOAK	1420	MAX16935RAUE+ GE	130C, 85% R.H.	96	HRS	80	0
MOISTURE SOAK	1423	MAX1793EUE33+T	130C, 85% R.H.	96	HRS	80	0
MOISTURE SOAK	1427	MAX1793EUE33+	130C, 85% R.H.	96	HRS	80	0
MOISTURE SOAK	1429	MAX16813AUPV+	130C, 85% R.H.	100	HRS	80	0
MOISTURE SOAK	1429	MAX16813AUP+	130C, 85% R.H.	100	HRS	80	0
MOISTURE SOAK	1429	MAX1793EUE33+T	130C, 85% R.H.	100	HRS	80	0
MOISTURE SOAK	1436	MAX16813AUP+	130C, 85% R.H.	100	HRS	80	0
Total:							0

FAILURE RATE: MTTF (YRS): 86712 FITS: 1.3