

10/23/2014



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	38 TSSOP (Pb-Free)
UTL (NSEB) UTAC	16	TSSOP-EP (Pb-Free)		

The calculated failure rate for this assembly is:

FAILURE RATE: MTTF (YRS): 24084 FITS: 4.7

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 10/1/2013 and 9/30/2014.

Assembly Information:

Package Type: TSSOP (Pb-Free)

Date Code Range: 1323 to 1426

OPERATING LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
HIGH TEMP OP LIFE	1334	MAX17841	135C, 5.0V (PSA)	1000 HRS	80	0	
HIGH TEMP OP LIFE	1342	MAX17841	135C, 5.0V (PSA)	500 HRS	80	0	
Total:						0	

STORAGE LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
STORAGE LIFE	1412	MAX17841	150°C	500 HRS	77	0	
STORAGE LIFE	1413	MAX17841	150°C	500 HRS	77	0	
STORAGE LIFE	1414	MAX17841	150°C	500 HRS	77	0	
Total:						0	

TEMPERATURE CYCLE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
BOND STRENGTH	1323	MAX11068	MIL-STD-883-2011 : COND D (IPC-TM-650_2.4.42.3)	500 WIRES	80	1	
TEMP CYCLE, 5' RAMP, 10' DWELL	1323	MAX11068	-65C TO +150C (Condition C)	500 CYS	80	1	
TEMP CYCLE, 5' RAMP, 10' DWELL	1325	MAX11068	-65C TO +150C (Condition C)	500 CYS	80	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1412	MAX17841	-65C TO +150C (Condition C)	500 CYS	77	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1413	MAX17841	-65C TO +150C (Condition C)	500 CYS	77	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1414	MAX17841	-65C TO +150C (Condition C)	500 CYS	77	0	

TEMP CYCLE, 5' RAMP, 10' DWELL	1426	LMX324AUD+B3Q	-65C TO +150C (Condition C)	200	CYS	80	0
Total:							2

TEMPERATURE HUMIDITY BIAS

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
HAST	1323	MAX11068	130C, 85%R.H., 3.6V, 70V	96	HRS	48	0
HAST	1323	MAX11068	130C, 85%R.H., 3.6V, 70V	96	HRS	32	0
HAST	1325	MAX11068	130C, 85%R.H., 3.6V, 70V	96	HRS	47	0
HAST	1325	MAX11068	130C, 85%R.H., 3.6V, 70V	96	HRS	31	0
HAST	1412	MAX17841	130C, 85%R.H., 3.3V	96	HRS	77	0
HAST	1412	MAX17841	130C, 85%R.H., 3.3V	96	HRS	80	0
HAST	1413	MAX17841	130C, 85%R.H., 3.3V	96	HRS	77	0
HAST	1413	MAX17841	130C, 85%R.H., 3.3V	96	HRS	40	0
HAST	1414	MAX17841	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	1323	MAX11068	130C, 85% R.H.	96	HRS	80	0
HAST, NO BIAS	1325	MAX11068	130C, 85% R.H.	96	HRS	80	0
HAST, NO BIAS	1338	MAX17841	130C, 85% R.H.	96	HRS	80	0
HAST, NO BIAS	1412	MAX17841	130C, 85% R.H.	96	HRS	77	0
HAST, NO BIAS	1412	MAX17841	130C, 85% R.H.	96	HRS	80	0
HAST, NO BIAS	1413	MAX17841	130C, 85% R.H.	96	HRS	77	0
HAST, NO BIAS	1413	MAX17841	130C, 85% R.H.	96	HRS	80	0
HAST, NO BIAS	1414	MAX17841	130C, 85% R.H.	96	HRS	77	0
HAST, NO BIAS	1414	MAX17841	130C, 85% R.H.	96	HRS	80	0
Total:							0

Assembly Information:

Package Type: TSSOP-EP (Pb-Free)
 Date Code Range: 1320 to 1430

OPERATING LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
HIGH TEMP OP LIFE	1320	MAX16833FAUE/V+	135°C	1000	HRS	43	1
HIGH TEMP OP LIFE	1347	MAX16935SAUE/V+ G2Z	135°C	192	HRS	80	0
HIGH TEMP OP LIFE	1347	MAX16833FAUE/V+	135°C	1000	HRS	79	0
HIGH TEMP OP LIFE	1347	MAX16935RAUE/V+	135°C	1000	HRS	80	0
HIGH TEMP OP LIFE	1402	MAX16935RAUE/V+ GE	135°C	1000	HRS	80	0

HIGH TEMP OP LIFE	1402	MAX16935RAUE/V+ GE	135°C	500	HRS	80	0
HIGH TEMP OP LIFE	1409	MAX16935RAUE/V+ GE	135°C	500	HRS	80	0
HIGH TEMP OP LIFE	1430	MAX16833CAUE/V+ QA	135°C	380	HRS	58	0
HIGH TEMP OP LIFE	1430	MAX16833CAUE/V+ QA	135°C	380	HRS	60	1
Total:							2

STORAGE LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
STORAGE LIFE	1330	MAX16833BAUE/V+	150°C	1000 HRS	80	0	
STORAGE LIFE	1330	MAX16833BAUE/V+	150°C	1000 HRS	80	0	
STORAGE LIFE	1330	MAX16833BAUE/V+	150°C	1000 HRS	80	0	
STORAGE LIFE	1332	MAX16935RAUE/V+ G2Z	150°C	1000 HRS	50	0	
STORAGE LIFE	1347	MAX16833FAUE/V+	150°C	1000 HRS	80	0	
STORAGE LIFE	1402	MAX16935RAUE/V+ GE	150°C	1000 HRS	80	0	
STORAGE LIFE	1420	MAX16935RAUE/V+	150°C	500 HRS	80	0	
STORAGE LIFE	1423	MAX1793EUE33/V+T	150°C	500 HRS	50	0	
Total:							0

TEMPERATURE CYCLE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
TEMP CYCLE, 5' RAMP, 10' DWELL	1330	MAX16833BAUE/V+	-65C TO +150C (Condition C)	1000 CYS	80	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1330	MAX16833BAUE/V+	-65C TO +150C (Condition C)	1000 CYS	80	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1330	MAX16833BAUE/V+	-65C TO +150C (Condition C)	1000 CYS	80	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1332	MAX16935RAUE/V+ G2Z	-65C TO +150C (Condition C)	1000 CYS	64	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1351	MAX16935SAUE/V+ GE	-65C TO +150C (Condition C)	500 CYS	80	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1402	MAX16935RAUE/V+ GE	-65C TO +150C (Condition C)	1000 CYS	80	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1402	MAX16935RAUE/V+ GE	-65C TO +150C (Condition C)	500 CYS	80	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1407	MAX16935SAUE/V+ GE	-65C TO +150C (Condition C)	500 CYS	80	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1409	MAX16935RAUE/V+ GE	-65C TO +150C (Condition C)	500 CYS	80	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1409	MAX16833EAUE/V+	-65C TO +150C (Condition C)	20 CYS	6889	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1420	MAX16935RAUE/V+	-65C TO +150C (Condition C)	500 CYS	80	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1423	MAX1793EUE33/V+T	-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
BIASED MOISTURE	1332	MAX16935RAUE/V+ G2Z	130C, 85% R.H.	100 HRS	78	0	
BIASED MOISTURE	1402	MAX16935RAUE/V+ GE	130C, 85% R.H.	96 HRS	78	0	
BIASED MOISTURE	1402	MAX16935RAUE/V+ GE	130C, 85% R.H.	96 HRS	78	0	
BIASED MOISTURE	1407	MAX16935SAUE/V+ GE	130C, 85% R.H.	96 HRS	80	0	
BIASED MOISTURE	1409	MAX16935RAUE/V+ GE	130C, 85% R.H.	96 HRS	78	0	
Total:						0	

UNBIASED MOISTURE RESISTANCE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
MOISTURE SOAK	1332	MAX16935RAUE/V+ G2Z	130C, 85% R.H.	100 HRS	80	0	
MOISTURE SOAK	1351	MAX16935SAUE/V+ GE	130C, 85% R.H.	96 HRS	80	0	
MOISTURE SOAK	1402	MAX16935RAUE/V+ GE	130C, 85% R.H.	96 HRS	80	0	
MOISTURE SOAK	1402	MAX16935RAUE/V+ GE	130C, 85% R.H.	96 HRS	80	0	
MOISTURE SOAK	1407	MAX16935SAUE/V+ GE	130C, 85% R.H.	96 HRS	80	0	
MOISTURE SOAK	1409	MAX16935RAUE/V+ GE	130C, 85% R.H.	96 HRS	80	0	
MOISTURE SOAK	1420	MAX16935RAUE/V+ GE	130C, 85% R.H.	96 HRS	80	0	
MOISTURE SOAK	1423	MAX1793EUE33/V+T	130C, 85% R.H.	96 HRS	80	0	
MOISTURE SOAK	1427	MAX1793EUE33/V+T	130C, 85% R.H.	96 HRS	80	0	
MOISTURE SOAK	1429	MAX1793EUE33/V+T	130C, 85% R.H.	100 HRS	80	0	
Total:						0	

FAILURE RATE: MTTF (YRS): 24084 FITS: 4.7