

4/17/2013



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)	8	TSSOP (Pb-Free)	ATP (Amkor, PI)	20 TSSOP (Pb-Free)
ATP (Amkor, PI)	28	TSSOP (Pb-Free)	ATP (Amkor, PI)	38 TSSOP (Pb-Free)
ATP (Amkor, PI)	16	TSSOP-EP (Pb-Free)	ATP (Amkor, PI)	28 TSSOP-EP (Pb-Free)
Carsem-M	20	TSSOP (Pb-Free)	Carsem-M	28 TSSOP (Pb-Free)
UTL Thailand	8	TSSOP (Pb-Free)	UTL Thailand	14 TSSOP (Pb-Free)
UTL Thailand	16	TSSOP (Pb-Free)	UTL Thailand	20 TSSOP (Pb-Free)
UTL Thailand	20	TSSOP Hyb (Pb-Free)	UTL Thailand	16 TSSOP-EP (Pb-Free)
UTL Thailand	20	TSSOP-EP (Pb-Free)	UTL Thailand	28 TSSOP-EP (Pb-Free)

The calculated failure rate for this assembly is:

FAILURE RATE: MTTF (YRS): 58030 FITS: 2.0

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 4/1/2012 and 3/31/2013.

Assembly Information:

Package Type: TSSOP (Pb-Free)

Date Code Range: 1140 to 1229

OPERATING LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
HIGH TEMP OP LIFE	1140	MAX3222CUP+	135°C	192 HRS	78	0	
HIGH TEMP OP LIFE	1140	MAX3225EUP+	135°C	192 HRS	80	0	
HIGH TEMP OP LIFE	1146	MAX5825AAUP+	135°C	192 HRS	80	0	
HIGH TEMP OP LIFE	1205	MAX17806EUI+	135°C	1000 HRS	80	0	
HIGH TEMP OP LIFE	1207	MAX9095AUD+	135°C	1000 HRS	80	0	
HIGH TEMP OP LIFE	1207	MAX9095AUD+	135°C	168 HRS	80	0	
HIGH TEMP OP LIFE	1207	MAX9095AUD+	135°C	192 HRS	80	0	
HIGH TEMP OP LIFE	1207	MAX9095AUD+	135°C	192 HRS	80	0	
HIGH TEMP OP LIFE	1207	MAX9095AUD+	135°C	192 HRS	80	0	
HIGH TEMP OP LIFE	1207	MAX17806EUI+	135°C	1000 HRS	79	0	
HIGH TEMP OP LIFE	1211	MAX17806EUI+	135°C	1000 HRS	79	0	
HIGH TEMP OP LIFE	1215	DS1081L	125C, 3.6 VOLTS	1000 HRS	77	0	
HIGH TEMP OP LIFE	1219	MAX5815AAUD+	135°C	192 HRS	80	0	
HIGH TEMP OP LIFE	1220	MAX71020	125C, 3.6 VOLTS	480 HRS	80	0	
HIGH TEMP OP LIFE	1221	DS1856M	125C, 5.5 VOLTS	192 HRS	80	0	
HIGH TEMP OP LIFE	1221	MAX11040KGUU+	135°C	1000 HRS	48	0	
HIGH TEMP OP LIFE	1221	MAX11040GUU+	135°C	1000 HRS	48	0	

HIGH TEMP OP LIFE	1221	MAX11040KGUU+	135°C	1000 HRS	48	0
HIGH TEMP OP LIFE	1223	DS1081L	125C, 3.6 VOLTS	1000 HRS	77	1
HIGH TEMP OP LIFE	1223	DS1081L	125C, 3.6 VOLTS	1000 HRS	77	0
HIGH TEMP OP LIFE	1226	MAX3222EEUP+	135°C	1000 HRS	80	0
HIGH TEMP OP LIFE	1226	MAX3222EEUP+	135°C	192 HRS	80	0
HIGH TEMP OP LIFE	1229	MAX14572EUD+	135°C	240 HRS	80	0
HIGH TEMP OP LIFE	1229	MAX14572EUD+	135°C	240 HRS	80	0
Total:						1

STORAGE LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
STORAGE LIFE	1145	MAX17806EUI+	150°C	1000 HRS	80	0	
STORAGE LIFE	1146	MAX17806EUI+	150°C	1000 HRS	80	0	
STORAGE LIFE	1205	MAX17806EUI+	150°C	1000 HRS	80	0	
STORAGE LIFE	1205	MAX17806EUI+	150°C	1000 HRS	80	0	
STORAGE LIFE	1207	MAX17806EUI+	150°C	1000 HRS	80	0	
STORAGE LIFE	1211	MAX17807EUI+	150°C	1000 HRS	79	0	
STORAGE LIFE	1213	MAX17806EUI+	150°C	1000 HRS	80	0	
STORAGE LIFE	1215	DS1081L	150°C	1000 HRS	50	0	
STORAGE LIFE	1221	MAX11040GUU+	150°C	1000 HRS	78	0	
STORAGE LIFE	1221	MAX11040GUU+	150°C	1000 HRS	80	0	
STORAGE LIFE	1221	MAX11040GUU+	150°C	1000 HRS	79	0	
Total:						0	

TEMPERATURE CYCLE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
TEMP CYCLE, 5' RAMP, 10' DWELL	1213	MAX17806EUI+	-65C TO 150C	500 CYS	80	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1215	DS1081L	-65C TO 150C	500 CYS	77	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1215	DS1081L	-65C TO 150C	500 CYS	77	1	40042730
TEMP CYCLE, 5' RAMP, 10' DWELL	1217	DS1081L	-65C TO 150C	500 CYS	77	1	40046975
TEMP CYCLE, 5' RAMP, 10' DWELL	1221	MAX11040GUU+	-65C TO 150C	1000 CYS	77	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1221	MAX11040GUU+	-65C TO 150C	1000 CYS	79	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1221	MAX11040GUU+	-65C TO 150C	1000 CYS	80	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1223	DS1081L	-65C TO 150C	500 CYS	77	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1223	DS1081L	-65C TO 150C	500 CYS	77	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1226	MAX3222EEUP+	-65C TO 150C	500 CYS	80	0	

Total: 2

TEMPERATURE HUMIDITY BIAS

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
HAST	1215	DS1081L	130C, 85%R.H., 3.5V	96	HRS	77	0
HAST	1215	DS1081L	130C, 85%R.H., 3.5V	96	HRS	77	0
HAST	1215	DS1081L	130C, 85%R.H., 3.5V	96	HRS	77	0
HAST	1217	DS1081L	130C, 85%R.H., 3.5V	96	HRS	77	0
BIASED MOISTURE	1221	MAX11040GUU+	130C, 85% R.H.	100	HRS	32	0
BIASED MOISTURE	1221	MAX11040GUU+	130C, 85% R.H.	100	HRS	32	0
BIASED MOISTURE	1221	MAX11040GUU+	130C, 85% R.H.	100	HRS	33	0
HAST	1223	DS1081L	130C, 85%R.H., 3.5V	96	HRS	77	0
HAST	1223	DS1081L	130C, 85%R.H., 3.5V	96	HRS	77	0
BIASED MOISTURE	1226	MAX3222EEUP+	130C, 85% R.H.	100	HRS	32	0
						Total:	0

UNBIASED MOISTURE RESISTANCE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
HAST, NO BIAS	1215	DS1081L	130C, 85% R.H.	96	HRS	72	0
HAST, NO BIAS	1215	DS1081L	130C, 85% R.H.	96	HRS	77	0
HAST, NO BIAS	1215	DS1081L	130C, 85% R.H.	96	HRS	77	0
HAST, NO BIAS	1217	DS1081L	130C, 85% R.H.	96	HRS	77	0
MOISTURE SOAK	1221	MAX11040GUU+	130C, 85% R.H.	100	HRS	80	0
MOISTURE SOAK	1221	MAX11040GUU+	130C, 85% R.H.	100	HRS	80	0
HAST, NO BIAS	1223	DS1081L	130C, 85% R.H.	96	HRS	77	0
HAST, NO BIAS	1223	DS1081L	130C, 85% R.H.	96	HRS	77	0
MOISTURE SOAK	1226	MAX3222EEUP+	130C, 85% R.H.	100	HRS	80	0
						Total:	0

Assembly Information:

Package Type: TSSOP Hyb (Pb-Free)

Date Code Range: 1212 to 1212

OPERATING LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
HIGH TEMP OP LIFE	1212	MAX1441GUP/V+	135°C	500	HRS	48	0
						Total:	0

STORAGE LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
STORAGE LIFE	1212	MAX1441GUP/V+	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	1212	MAX1441GUP/V+	-65C TO 150C	500	CYS	80	0
						Total:	0

Assembly Information:

Package Type: TSSOP-EP (Pb-Free)
Date Code Range: 1017 to 1252

OPERATING LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
HIGH TEMP OP LIFE	1017	MAX13326GUI/V+	135°C	500	HRS	48	0
HIGH TEMP OP LIFE	1105	MAX16908RAUE50/V+	135°C	1000	HRS	85	0
HIGH TEMP OP LIFE	1124	MAX16941AUE/V+	135°C	500	HRS	26	0
HIGH TEMP OP LIFE	1131	MAX16904SAUE50/V+	135°C	1000	HRS	80	0
HIGH TEMP OP LIFE	1151	MAX16952AUE/V+	135°C	1000	HRS	80	0
HIGH TEMP OP LIFE	1153	MAX16833FAUE/V+	135°C	700	HRS	47	0
HIGH TEMP OP LIFE	1216	MAX5051AAUI+	135°C	192	HRS	47	0
HIGH TEMP OP LIFE	1218	MAX31910	135C, 36V (V8)	192	HRS	80	0
HIGH TEMP OP LIFE	1223	MAX7456EUI+	135°C	1000	HRS	48	1
HIGH TEMP OP LIFE	1223	MAX7456EUI+	135°C	500	HRS	48	1
HIGH TEMP OP LIFE	1228	MAX1454AUE/V+	135°C	1000	HRS	80	0
HIGH TEMP OP LIFE	1252	MAX16936RATE/V+	135°C	500	HRS	80	0
						Total:	2

STORAGE LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
STORAGE LIFE	1022	MAX13325GUI/V+	150°C	500	HRS	45	0
STORAGE LIFE	1216	MAX16814AUP/V+	150°C	1000	HRS	80	0
STORAGE LIFE	1223	MAX7456EUI+	150°C	1000	HRS	78	0
STORAGE LIFE	1223	MAX7456EUI+	150°C	1000	HRS	80	0
STORAGE LIFE	1223	MAX7456EUI+	150°C	1000	HRS	80	0
STORAGE LIFE	1228	MAX1454AUE/V+	150°C	1000	HRS	50	0
						Total:	0

TEMPERATURE CYCLE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
TEMP CYCLE, 5' RAMP, 10' DWELL	1022	MAX13325GUI/V+	-65C TO 150C	500	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1028	MAX13325GUI/V+	-65C TO 150C	500	CYS	80	0

TEMP CYCLE, 5' RAMP, 10' DWELL	1206	MAX13325GUI/V+	-65C TO 150C	500	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1216	MAX16814AUP/V+	-65C TO 150C	500	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1216	MAX16814AUP/V+	-65C TO 150C	500	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1222	MAX16823AUE/V+	-65C TO 150C	500	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1223	MAX7456EUI+	-65C TO 150C	1000	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1223	MAX7456EUI+	-65C TO 150C	1000	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1223	MAX7456EUI+	-65C TO 150C	1000	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1228	MAX1454AUE/V+	-65C TO 150C	500	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1252	MAX16936RATE/V+	-65C TO 150C	500	CYS	80	0
Total:							0

TEMPERATURE HUMIDITY BIAS

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
BIASED MOISTURE	1022	MAX13325GUI/V+	130C, 85% R.H.	96	HRS	31	0
BIASED MOISTURE	1028	MAX13325GUI/V+	130C, 85% R.H.	96	HRS	45	0
BIASED MOISTURE	1105	MAX16903SAUE50/V+	130C, 85% R.H.	100	HRS	46	0
BIASED MOISTURE	1105	MAX16903SAUE50/V+	130C, 85% R.H.	100	HRS	46	0
BIASED MOISTURE	1206	MAX13325GUI/V+	130C, 85% R.H.	96	HRS	31	0
BIASED MOISTURE	1222	MAX16823AUE/V+	130C, 85% R.H.	100	HRS	48	0
BIASED MOISTURE	1252	MAX16936RATE/V+	130C, 85% R.H.	100	HRS	77	0
Total:							0

UNBIASED MOISTURE RESISTANCE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
MOISTURE SOAK	1022	MAX13325GUI/V+	130C, 85% R.H.	96	HRS	80	0
MOISTURE SOAK	1028	MAX13325GUI/V+	130C, 85% R.H.	96	HRS	80	1
MOISTURE SOAK	1206	MAX13325GUI/V+	130C, 85% R.H.	96	HRS	80	0
MOISTURE SOAK	1222	MAX16823AUE/V+	130C, 85% R.H.	100	HRS	80	0
MOISTURE SOAK	1223	MAX7456EUI+	130C, 85% R.H.	100	HRS	80	0
MOISTURE SOAK	1223	MAX7456EUI+	130C, 85% R.H.	100	HRS	80	0
MOISTURE SOAK	1223	MAX7456EUI+	130C, 85% R.H.	100	HRS	80	0
MOISTURE SOAK	1252	MAX16936RATE/V+	130C, 85% R.H.	100	HRS	80	0
Total:							1

FAILURE RATE: MTTF (YRS): 58030 FITS: 2.0