

4/23/2015



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		
ATP (Amkor, PI)	6	SOT23 (Pb-Free)	ATP (Amkor, PI)	8 SOT23 (Pb-Free)
ATP (Amkor, PI)	6	SOT23-FC (Pb-Free)	Carsem-M	5 SOT23 (Pb-Free)
Carsem-M	6	SOT23 (Pb-Free)	TERAPROBE/ATP	6 SOT23-FC (Pb-Free)
UTL (NSEB) UTAC	6	SOT23	UTL (NSEB) UTAC	5 SOT23 (Pb-Free)
UTL (NSEB) UTAC	6	SOT23 (Pb-Free)	UTL (NSEB) UTAC	6 SOT23-FC
UTL (NSEB) UTAC	6	SOT23-FC (Pb-Free)	UTL (NSEB) UTAC	5 TSOT (Pb-Free)

The calculated failure rate for this assembly is:

**FAILURE RATE: MTTF (YRS): 44038 FITS: 2.6**

The parameters used to calculate this failure rate are as follows:

**Cf: 60% Ea: 0.7 Tu: 25 °C**

The reliability data follows. A 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.

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### Assembly Information:

Package Type: SOT23  
Date Code Range: 1405 to 1421

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### TEMPERATURE CYCLE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
TEMP CYCLE, 5' RAMP, 10' DWELL	1405	MAX16945TGUT#TG16	-65C TO +150C (Condition C)	1000 CYS	79	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1406	MAX1697TEUT+T	-65C TO +150C (Condition C)	1000 CYS	74	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1421	MAX16945TGUT#TG16	-65C TO +150C (Condition C)	700 CYS	79	0	
<b>Total:</b>						<b>0</b>	

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### Assembly Information:

Package Type: SOT23 (Pb-Free)  
Date Code Range: 1327 to 2014

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### OPERATING LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
HIGH TEMP OP LIFE	1327	MAX6070BAUT12+	135°C	192 HRS	20	0	
HIGH TEMP OP LIFE	1333	MAX8880EUT+T	135°C	1000 HRS	76	1	
HIGH TEMP OP LIFE	1342	MAX44284HAUT+	135°C	192 HRS	79	0	
HIGH TEMP OP LIFE	1415	MAX6070BAUT12+T	135°C	1000 HRS	80	0	
HIGH TEMP OP LIFE	1435	MAX9017AEKA+T	135°C	192 HRS	79	0	
HIGH TEMP OP LIFE	1435	MAX9017AEKA+T	135°C	192 HRS	80	0	

HIGH TEMP OP LIFE	1449	MAX9646EUK+	135°C	1000	HRS	80	0
HIGH TEMP OP LIFE	1450	MAX9646EBS+TCK0	135°C	192	HRS	80	0
HIGH TEMP OP LIFE	1452	MAX9646EUK+	135°C	192	HRS	80	0
<b>Total:</b>							<b>1</b>

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### STORAGE LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
STORAGE LIFE	1327	MAX6070BAUT12+	150°C	192	HRS	20	0
STORAGE LIFE	1333	MAX8880EUT+T	150°C	1000	HRS	80	0
STORAGE LIFE	1406	MAX1697TEUT+T	150°C	1000	HRS	80	0
STORAGE LIFE	1415	MAX6070BAUT12+	150°C	1000	HRS	50	0
STORAGE LIFE	1415	MAX6070BAUT12+	150°C	1000	HRS	50	0
STORAGE LIFE	1415	MAX6070BAUT12+ T	150°C	1000	HRS	50	0
STORAGE LIFE	1423	MAX44259AUK+	150°C	1000	HRS	80	0
STORAGE LIFE	1423	MAX44259AUK+	150°C	1000	HRS	80	0
STORAGE LIFE	1424	MAX44259AUK+	150°C	1000	HRS	80	0
STORAGE LIFE	1435	MAX9015AEKA+T	150°C	500	HRS	50	0
<b>Total:</b>							<b>0</b>

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### TEMPERATURE CYCLE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
TEMP CYCLE, 5' RAMP, 10' DWELL	1333	MAX8880EUT+T	-65C TO +150C (Condition C)	1000	CYS	45	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1406	MAX1697TEUT+T	-65C TO +150C (Condition C)	1000	CYS	79	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1415	MAX6070BAUT12+	-65C TO +150C (Condition C)	500	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1415	MAX6070BAUT12+	-65C TO +150C (Condition C)	500	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1415	MAX6070BAUT12+ T	-65C TO +150C (Condition C)	500	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1423	MAX44259AUK+	-65C TO +150C (Condition C)	1000	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1423	MAX44259AUK+	-65C TO +150C (Condition C)	1000	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1424	MAX44259AUK+	-65C TO +150C (Condition C)	1000	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1435	MAX9015AEKA+T	-65C TO +150C (Condition C)	500	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1435	MAX9015AEKA+T	-65C TO +150C (Condition C)	500	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1435	MAX9015AEKA+T	-65C TO +150C (Condition C)	500	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	2014	MAX4475AUT+T	-65C TO +150C (Condition C)	1000	CYS	77	0
TEMP CYCLE, 5' RAMP, 10' DWELL	2014	MAX4475AUT+T	-65C TO +150C (Condition C)	1000	CYS	77	0

TEMP CYCLE, 5' RAMP, 10' DWELL	2014	MAX4475AUT/V+T	-65C TO +150C (Condition C)	1000	CYS	77	0
<b>Total:</b>							<b>0</b>

### TEMPERATURE HUMIDITY BIAS

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
BIASED MOISTURE	1415	MAX6070BAUT12+	130C, 85% R.H.	96	HRS	80	0
BIASED MOISTURE	1415	MAX6070BAUT12+ T	130C, 85% R.H.	96	HRS	80	0
BIASED MOISTURE	1435	MAX9015AEKA+T	130C, 85% R.H.	96	HRS	79	0
BIASED MOISTURE	1435	MAX9015AEKA+T	130C, 85% R.H.	96	HRS	80	0
BIASED MOISTURE	1435	MAX9015AEKA+T	130C, 85% R.H.	96	HRS	80	0
<b>Total:</b>							<b>0</b>

### UNBIASED MOISTURE RESISTANCE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
MOISTURE SOAK	1327	MAX6070BAUT12+	130C, 85% R.H.	48	HRS	20	0
MOISTURE SOAK	1333	MAX8880EUT+T	85 C/85% R.H.	1000	HRS	45	0
MOISTURE SOAK	1415	MAX6070BAUT12+	130C, 85% R.H.	96	HRS	80	0
MOISTURE SOAK	1415	MAX6070BAUT12+	130C, 85% R.H.	96	HRS	80	0
MOISTURE SOAK	1415	MAX6070BAUT12+ T	130C, 85% R.H.	96	HRS	80	0
MOISTURE SOAK	1435	MAX9015AEKA+T	130C, 85% R.H.	96	HRS	80	0
MOISTURE SOAK	1435	MAX9015AEKA+T	130C, 85% R.H.	96	HRS	80	0
MOISTURE SOAK	1435	MAX9015AEKA+T	130C, 85% R.H.	96	HRS	80	0
<b>Total:</b>							<b>0</b>

#### Assembly Information:

Package Type: SOT23-FC  
Date Code Range: 1405 to 2014

### TEMPERATURE CYCLE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
TEMP CYCLE, 5' RAMP, 10' DWELL	1405	MAX16945TGUT#TG 16	-65C TO +150C (Condition C)	600	CYS	100	0
TEMP CYCLE, 5' RAMP, 10' DWELL	2014	MAX1818EUT25#TG 16	-65C TO +150C (Condition C)	1000	CYS	77	0
TEMP CYCLE, 5' RAMP, 10' DWELL	2014	MAX1818EUT25#TG 16	-65C TO +150C (Condition C)	1000	CYS	77	0
TEMP CYCLE, 5' RAMP, 10' DWELL	2014	MAX1818EUT25#TG 16	-65C TO +150C (Condition C)	1000	CYS	77	0
<b>Total:</b>							<b>0</b>

#### Assembly Information:

Package Type: SOT23-FC (Pb-Free)  
Date Code Range: 1416 to 2014

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**OPERATING LIFE**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
HIGH TEMP OP LIFE	1418	MAX5048BAUT+T	135°C	500 HRS	48	0	
HIGH TEMP OP LIFE	1418	MAX5048BAUT+T	135°C	1000 HRS	80	0	
HIGH TEMP OP LIFE	1418	MAX5048BAUT+T	135°C	1000 HRS	80	0	
HIGH TEMP OP LIFE	1418	MAX5048BAUT+T	135°C	500 HRS	48	0	
HIGH TEMP OP LIFE	1418	MAX5048BAUT+T	135°C	1000 HRS	48	0	
HIGH TEMP OP LIFE	1418	MAX5048BAUT+T	135°C	500 HRS	48	0	
					<b>Total:</b>	<b>0</b>	

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**STORAGE LIFE**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
STORAGE LIFE	1418	MAX5048BAUT+T	150°C	1000 HRS	80	0	
STORAGE LIFE	1418	MAX5048BAUT+T	150°C	1000 HRS	80	0	
STORAGE LIFE	1418	MAX5048BAUT+T	150°C	1000 HRS	80	0	
					<b>Total:</b>	<b>0</b>	

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**TEMPERATURE CYCLE**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
TEMP CYCLE, 5' RAMP, 10' DWELL	1416	MAX5048BAUT+T	-65C TO +150C (Condition C)	1000 CYS	80	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1418	MAX5048BAUT+T	-65C TO +150C (Condition C)	1000 CYS	80	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1418	MAX5048BAUT+T	-65C TO +150C (Condition C)	1000 CYS	80	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1418	MAX5048BAUT+T	-65C TO +150C (Condition C)	1000 CYS	80	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1418	MAX5048BAUT+T	-65C TO +150C (Condition C)	1000 CYS	80	1	
TEMP CYCLE, 5' RAMP, 10' DWELL	1418	MAX5048BAUT+T	-65C TO +150C (Condition C)	1000 CYS	80	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	2013	MAX5048AAUT#TG16	-65C TO +150C (Condition C)	1000 CYS	77	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	2013	MAX5048AAUT#TG16	-65C TO +150C (Condition C)	1000 CYS	77	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	2014	MAX5048BAUT+T	-65C TO +150C (Condition C)	1000 CYS	77	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	2014	MAX5048BAUT+T	-65C TO +150C (Condition C)	1000 CYS	77	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	2014	MAX5048BAUT+T	-65C TO +150C (Condition C)	1000 CYS	77	0	
					<b>Total:</b>	<b>1</b>	

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**TEMPERATURE HUMIDITY BIAS**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
BIASED MOISTURE	1418	MAX5048BAUT+T	130C, 85% R.H.	100 HRS	80	0	
BIASED MOISTURE	1418	MAX5048BAUT+T	130C, 85% R.H.	100 HRS	80	0	

BIASED MOISTURE	1418	MAX5048BAUT+T	130C, 85% R.H.	100	HRS	78	0
<b>Total:</b>						<b>0</b>	

**UNBIASED MOISTURE RESISTANCE**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
MOISTURE SOAK	1418	MAX5048BAUT+T	130C, 85% R.H.	300	HRS	76	0
MOISTURE SOAK	1418	MAX5048BAUT+T	130C, 85% R.H.	300	HRS	79	0
MOISTURE SOAK	1418	MAX5048BAUT+T	130C, 85% R.H.	300	HRS	79	0
<b>Total:</b>						<b>0</b>	

**Assembly Information:**

Package Type: TSOT (Pb-Free)

Date Code Range: 1110 to 1351

**OPERATING LIFE**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
HIGH TEMP OP LIFE	1110	MAX8888EZK18+	135°C	192	HRS	77	0
HIGH TEMP OP LIFE	1351	MAX8888EZK18+	135°C	192	HRS	79	0
HIGH TEMP OP LIFE	1351	MAX8888EZK18+	135°C	192	HRS	80	0
<b>Total:</b>						<b>0</b>	

**FAILURE RATE: MTTF (YRS): 44038 FITS: 2.6**