

4/16/2014



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	16	TSSOP (Pb-Free)	ATP	38 TSSOP (Pb-Free)
ATP	16	TSSOP-EP (Pb-Free)	ATP	48 TSSOP-EP (Pb-Free)
Carsem-M	20	TSSOP (Pb-Free)	Carsem-M	28 TSSOP (Pb-Free)
UTL	38	TSSOP (Pb-Free)	UTL	14 TSSOP-EP (Pb-Free)
UTL	16	TSSOP-EP (Pb-Free)		

The calculated failure rate for this assembly is:

**FAILURE RATE: MTTF (YRS): 65861 FITS: 1.7**

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 4/1/2013 and 3/31/2014.

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### Assembly Information:

Package Type: TSSOP (Pb-Free)

Date Code Range: 1126 to 1342

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### OPERATING LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
HIGH TEMP OP LIFE	1213	MAX5824AUP+	135°C	192 HRS	80	0	
HIGH TEMP OP LIFE	1221	MAX11040GUU+	135°C	500 HRS	29	0	
HIGH TEMP OP LIFE	1247	MAX17841	135C, 5.0V (PSA)	1000 HRS	80	0	
HIGH TEMP OP LIFE	1248	MAX17841	135C, 5.0V (PSA)	2500 HRS	80	0	
HIGH TEMP OP LIFE	1249	MAX17841	135C, 5.0V (PSA)	1000 HRS	80	0	
HIGH TEMP OP LIFE	1322	MAX17841B	135C, 5.0V (PSA)	2000 HRS	80	0	
HIGH TEMP OP LIFE	1331	MAX17841A	135C, 5.0V (PSA)	2000 HRS	80	0	
HIGH TEMP OP LIFE	1334	MAX17841A	135C, 5.0V (PSA)	1000 HRS	80	0	
HIGH TEMP OP LIFE	1334	MAX17806EUI+	135°C	1000 HRS	80	0	
HIGH TEMP OP LIFE	1335	MAX17806EUI+	135°C	1000 HRS	80	0	
HIGH TEMP OP LIFE	1336	MAX17806EUI+	135°C	1000 HRS	80	0	
HIGH TEMP OP LIFE	1340	MAX17880	125C, 3.3V (PSA) & 70V (PSD)	192 HRS	80	0	
HIGH TEMP OP LIFE	1342	MAX17841A	135C, 5.0V (PSA)	500 HRS	80	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	1247	MAX17841	150°C	500 HRS	80	0	

STORAGE LIFE	1248	MAX17841	150°C	2000	HRS	80	0
STORAGE LIFE	1249	MAX17841	150°C	500	HRS	80	0
STORAGE LIFE	1334	MAX17806EUI+	150°C	1000	HRS	80	0
STORAGE LIFE	1334	MAX17806EUI+	150°C	1000	HRS	80	0
STORAGE LIFE	1335	MAX17806EUI+	150°C	1000	HRS	80	0
STORAGE LIFE	1336	MAX17806EUI+	150°C	1000	HRS	80	0
STORAGE LIFE	1336	MAX17806EUI+	150°C	1000	HRS	80	0
<b>Total:</b>							<b>0</b>

#### TEMPERATURE CYCLE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
TEMP CYCLE, 5' RAMP, 10' DWELL	1247	MAX17841	-65C TO 150C	500	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1249	MAX17841	-65C TO 150C	500	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1334	MAX17806EUI+	-65C TO 150C	500	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1335	MAX17806EUI+	-65C TO 150C	500	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1336	MAX17806EUI+	-65C TO 150C	500	CYS	80	0
<b>Total:</b>							<b>0</b>

#### TEMPERATURE HUMIDITY BIAS

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
HAST	1247	MAX17841	130C, 85%R.H., 3.3V	96	HRS	80	0
HAST	1248	MAX17841	130C, 85%R.H., 3.3V	96	HRS	80	0
BIASED MOISTURE	1248	MAX17841	85 C/85% R.H., 3.3V	1000	HRS	22	0
HAST	1249	MAX17841	130C, 85%R.H., 3.3V	96	HRS	80	0
BIASED MOISTURE	1336	MAX17806EUI+	130C, 85% R.H.	100	HRS	79	0
<b>Total:</b>							<b>0</b>

#### UNBIASED MOISTURE RESISTANCE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
MOISTURE SOAK	1126	MAX11040KGUU+	130C, 85% R.H.	100	HRS	57	0
MOISTURE SOAK	1126	MAX11040KGUU+	130C, 85% R.H.	100	HRS	77	0
HAST, NO BIAS	1247	MAX17841	130C, 85% R.H.	96	HRS	80	0
HAST, NO BIAS	1248	MAX17841	130C, 85% R.H.	96	HRS	80	0
HAST, NO BIAS	1249	MAX17841	130C, 85% R.H.	96	HRS	80	0
HAST, NO BIAS	1322	MAX17841B	130C, 85% R.H.	96	HRS	80	0
HAST, NO BIAS	1334	MAX17841B	130C, 85% R.H.	96	HRS	80	0
HAST, NO BIAS	1338	MAX17841B	130C, 85% R.H.	96	HRS	80	0
<b>Total:</b>							<b>0</b>

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**Assembly Information:**

Package Type: TSSOP-EP (Pb-Free)

Date Code Range: 1243 to 1402

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**OPERATING LIFE**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
HIGH TEMP OP LIFE	1243	MAX14571EUD+	135°C	192 HRS	80	1	
HIGH TEMP OP LIFE	1252	MAX16936RATE/V+	135°C	1000 HRS	80	0	
HIGH TEMP OP LIFE	1303	MAX13301AUM/V+	135°C	500 HRS	78	0	
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	
<b>Total:</b>						<b>2</b>	

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**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	
<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	1330	MAX16833BAUE/V+	-65C TO 150C	1000 CYS	80	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1330	MAX16833BAUE/V+	-65C TO 150C	1000 CYS	80	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1330	MAX16833BAUE/V+	-65C TO 150C	1000 CYS	80	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1332	MAX16935RAUE/V+ G2Z	-65C TO 150C	1000 CYS	64	0	
<b>Total:</b>						<b>0</b>	

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**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	
<b>Total:</b>						<b>0</b>	

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**UNBIASED MOISTURE RESISTANCE**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
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MOISTURE SOAK	1332	MAX16935RAUE/V+ 130C, 85% R.H. G2Z	100	HRS	80	0
MOISTURE SOAK	1402	MAX16935RAUE/V+ 130C, 85% R.H. GE	96	HRS	80	0

**Total: 0**

**FAILURE RATE: MTTF (YRS): 65861 FITS: 1.7**