

10/23/2014



RELIABILITY MONITOR REPORT  
FOR

**QSOP 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	QSOP (Pb-Free)	UTL (NSEB) UTAC	16 QSOP (Pb-Free)
UTL (NSEB) UTAC	16	QSOP-CU (Pb-Free)		

The calculated failure rate for this assembly is:

**FAILURE RATE: MTTF (YRS): 10728 FITS: 10.6**

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: QSOP (Pb-Free)

Date Code Range: 1334 to 1403

**OPERATING LIFE**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
HIGH TEMP OP LIFE	1334	MAX16970GEEA/V+	135°C	192 HRS	80	0	
<b>Total:</b>						<b>0</b>	

**STORAGE LIFE**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
STORAGE LIFE	1347	MAX8505EEE+	150°C	1000 HRS	80	0	
STORAGE LIFE	1347	MAX8505EEE+	150°C	1000 HRS	80	0	
STORAGE LIFE	1347	MAX8505EEE+	150°C	1000 HRS	80	0	
STORAGE LIFE	1403	MAX4551CEE+	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	1347	MAX8505EEE+	-65C TO +150C (Condition C)	1000 CYS	80	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1347	MAX8505EEE+	-65C TO +150C (Condition C)	1000 CYS	80	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1347	MAX8505EEE+	-65C TO +150C (Condition C)	1000 CYS	80	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1403	MAX4551CEE+	-65C TO +150C (Condition C)	1000 CYS	79	0	
<b>Total:</b>						<b>0</b>	

**TEMPERATURE HUMIDITY BIAS**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
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BIASED MOISTURE	1403	MAX4551CEE+	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	1403	MAX4551CEE+	130C, 85% R.H.	100	HRS	80	0
<b>Total:</b>							<b>0</b>

**Assembly Information:**

Package Type:                    QSOP-CU (Pb-Free)  
Date Code Range:                1350    to 1411

**OPERATING LIFE**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
HIGH TEMP OP LIFE	1352	MAX16970GEEB/V+ GE	135°C	500	HRS	80	0
<b>Total:</b>							<b>0</b>

**STORAGE LIFE**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
STORAGE LIFE	1352	MAX16971GEEA/V+ GE	150°C	500	HRS	50	0
STORAGE LIFE	1352	MAX16970GEEB/V+ GE	150°C	1000	HRS	80	0
STORAGE LIFE	1411	MAX16971GEEA/V+ GE	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	1350	MAX16970GEEA/V+ GE	-65C TO +150C (Condition C)	1000	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1352	MAX16970GEEB/V+ GE	-65C TO +150C (Condition C)	500	CYS	90	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1411	MAX16971GEEA/V+ GE	-65C TO +150C (Condition C)	500	CYS	80	0
<b>Total:</b>							<b>0</b>

**TEMPERATURE HUMIDITY BIAS**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
BIASED MOISTURE	1411	MAX16971GEEA/V+ GE	130C, 85% R.H.	100	HRS	80	1
<b>Total:</b>							<b>1</b>

**UNBIASED MOISTURE RESISTANCE**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
MOISTURE SOAK	1352	MAX16970GEEB/V+ GE	130C, 85% R.H.	100	HRS	90	0
MOISTURE SOAK	1411	MAX16971GEEA/V+ GE	130C, 85% R.H.	100	HRS	80	0
<b>Total:</b>							<b>0</b>

**FAILURE RATE: MTTF (YRS): 10728 FITS: 10.6**