



7/19/2012

RELIABILITY MONITOR REPORT  
FOR

**QSOP Package**

**MAXIM Integrated Products**

120 San Gabriel Dr.  
Sunnyvale, CA 94086

This Report was prepared by  
Maxim 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	QSOP (Pb-Free)	Carsem-M	16 QSOP (Pb-Free)
Carsem-M	24	QSOP (Pb-Free)	UTL	16 QSOP (Pb-Free)
UTL	24	QSOP (Pb-Free)		

The calculated failure rate for this assembly is:

**FAILURE RATE: MTTF (YRS): 45432 FITS: 2.5**

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 7/1/2011 and 6/30/2012.

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### Assembly Information:

Package Type: QSOP (Pb-Free)

Date Code Range: 1102 to 1210

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### OPERATING LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
HIGH TEMP OP LIFE	1103	MAX4967EGEE/V+	135C	1000 HRS	90	0	
HIGH TEMP OP LIFE	1112	MAX1668MEE+	135C	1000 HRS	40	0	
HIGH TEMP OP LIFE	1112	MAX1668MEE+	135C	1000 HRS	48	0	
HIGH TEMP OP LIFE	1128	MAX13335EGEE/+	135C	192 HRS	80	0	
HIGH TEMP OP LIFE	1131	MAX16969DGEE/V+	135C	1000 HRS	80	0	
HIGH TEMP OP LIFE	1149	MAX16981GEE/V+	135C	192 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	1117	MAX11628EEEE/V+	150C	524 HRS	50	0	
STORAGE LIFE	1201	MAX11628EEEE+	150C	500 HRS	50	0	
STORAGE LIFE	1202	MAX7325AEG+	150C	500 HRS	45	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	1102	MAX11628EEEE+	-65C TO 150C	500 CYS	80	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1117	MAX11628EEEE/V+	-65C TO 150C	500 CYS	80	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1140	MAX16942EGEE/V+	-65C TO 150C	500 CYS	80	0	

TEMP CYCLE, 5' RAMP, 10' DWELL	1141	MAX7325AEG+	-65C TO 150C	500	CYS	77	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1201	MAX11628EEEE+	-65C TO 150C	500	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1201	MAX11628EEEE/V+	-65C TO 150C	500	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1202	MAX11628EEEE/V+	-65C TO 150C	500	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1202	MAX7325AEG+	-65C TO 150C	500	CYS	77	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1210	MAX16917BGEE/V+	-65C TO 150C	500	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1210	MAX16917BGEE/V+	-65C TO 150C	500	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1210	MAX16917BGEE/V+	-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
BIASED MOISTURE	1102	MAX11628EEEE+	130C, 85% R.H.	96	HRS	79	0
BIASED MOISTURE	1117	MAX11628EEEE/V+	130C, 85% R.H.	100	HRS	68	0
BIASED MOISTURE	1201	MAX11628EEEE/V+	130C, 85% R.H.	100	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	1102	MAX11628EEEE+	130C, 85% R.H.	96	HRS	80	0
MOISTURE SOAK	1117	MAX11628EEEE/V+	130C, 85% R.H.	100	HRS	80	0
MOISTURE SOAK	1131	MAX16969DGEE/V+	130C, 85% R.H.	100	HRS	80	0
MOISTURE SOAK	1201	MAX11628EEEE+	130C, 85% R.H.	100	HRS	80	0
MOISTURE SOAK	1201	MAX11628EEEE/V+	130C, 85% R.H.	100	HRS	80	0
<b>Total:</b>							<b>0</b>

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