

4/23/2015



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		
Carsem-M	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): 48058 FITS: 2.4

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 4/1/2014 and 3/31/2015.

Assembly Information:

Package Type: QSOP (Pb-Free)

Date Code Range: 1403 to 1420

OPERATING LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
HIGH TEMP OP LIFE	1420	MAX6959AAEE+	135°C	1000 HRS	48	0	
Total:						0	

STORAGE LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
STORAGE LIFE	1403	MAX4551CEE+	150°C	1000 HRS	80	0	
STORAGE LIFE	1420	MAX6959AAEE+	150°C	1000 HRS	80	0	
Total:						0	

TEMPERATURE CYCLE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
TEMP CYCLE, 5' RAMP, 10' DWELL	1403	MAX4551CEE+	-65C TO +150C (Condition C)	1000 CYS	79	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1420	MAX6959AAEE+	-65C TO +150C (Condition C)	500 CYS	65	0	
Total:						0	

TEMPERATURE HUMIDITY BIAS

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
BIASED MOISTURE	1403	MAX4551CEE+	130C, 85% R.H.	100 HRS	78	0	
Total:						0	

Assembly Information:

Package Type: QSOP-CU (Pb-Free)

Date Code Range: 1350 to 1439

OPERATING LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
HIGH TEMP OP LIFE	1352	MAX16971GEEA+GE	135°C	1000 HRS	80	0	
HIGH TEMP OP LIFE	1352	MAX16970GEEB+GE	135°C	1000 HRS	80	0	
HIGH TEMP OP LIFE	1352	MAX16970GEEB+GE	135°C	500 HRS	80	0	
HIGH TEMP OP LIFE	1439	MAX16971GEEA+GE	135°C	1000 HRS	80	0	
					Total:	0	

STORAGE LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
STORAGE LIFE	1352	MAX16971GEEA+GE	150°C	500 HRS	50	0	
STORAGE LIFE	1352	MAX16970GEEB+GE	150°C	1000 HRS	80	0	
STORAGE LIFE	1352	MAX16971GEEB+GE	150°C	1000 HRS	77	0	
STORAGE LIFE	1411	MAX16971GEEA+GE	150°C	1000 HRS	80	0	
STORAGE LIFE	1439	MAX16971GEEA+GE	150°C	500 HRS	50	0	
STORAGE LIFE	1439	MAX16971GEEA+GE	150°C	1000 HRS	80	0	
					Total:	0	

TEMPERATURE CYCLE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
TEMP CYCLE, 5' RAMP, 10' DWELL	1350	MAX16970GEEA+GE	-65C TO +150C (Condition C)	1000 CYS	80	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1352	MAX16970GEEB+GE	-65C TO +150C (Condition C)	500 CYS	90	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1352	MAX16971GEEB+GE	-65C TO +150C (Condition C)	500 CYS	80	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1352	MAX16971GEEB+GE	-65C TO +150C (Condition C)	1000 CYS	75	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1411	MAX16971GEEA+GE	-65C TO +150C (Condition C)	500 CYS	80	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1439	MAX16971GEEA+GE	-65C TO +150C (Condition C)	500 CYS	80	0	
					Total:	0	

TEMPERATURE HUMIDITY BIAS

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
BIASED MOISTURE	1352	MAX16970GEEB+GE	130C, 85% R.H.	100 HRS	89	0	
BIASED MOISTURE	1352	MAX16971GEEB+GE	130C, 85% R.H.	100 HRS	80	0	
BIASED MOISTURE	1411	MAX16971GEEA+GE	130C, 85% R.H.	100 HRS	80	1	
BIASED MOISTURE	1439	MAX16971GEEA+GE	130C, 85% R.H.	96 HRS	80	0	
					Total:	1	

UNBIASED MOISTURE RESISTANCE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
MOISTURE SOAK	1352	MAX16970GEEB+ GE	130C, 85% R.H.	200	HRS	90	0
MOISTURE SOAK	1352	MAX16971GEEB+	130C, 85% R.H.	100	HRS	80	0
MOISTURE SOAK	1352	MAX16971GEEB+	130C, 85% R.H.	500	HRS	80	0
MOISTURE SOAK	1411	MAX16971GEEA+ GE	130C, 85% R.H.	100	HRS	80	0
MOISTURE SOAK	1411	MAX16971GEEA+ GE	130C, 85% R.H.	200	HRS	80	0
MOISTURE SOAK	1439	MAX16971GEEA+	130C, 85% R.H.	96	HRS	80	0
					Total:		0

FAILURE RATE: MTTF (YRS): 48058 FITS: 2.4