

10/23/2014



**RELIABILITY MONITOR REPORT
FOR**

SOIC 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		
ASE Chung-Li	16	SOIC-HYB (Pb-Free)	ATP (Amkor, PI)	8 SOIC (Pb-Free)
ATP (Amkor, PI)	14	SOIC (Pb-Free)	ATP (Amkor, PI)	8 SOIC-EP (Pb-Free)
Carsem-M	8	SOIC (Pb-Free)	Carsem-M	20 SOIC (Pb-Free)
UTL (NSEB) UTAC	8	SOIC (Pb-Free)	UTL (NSEB) UTAC	8 SOIC-EP (Pb-Free)

The calculated failure rate for this assembly is:

FAILURE RATE: MTTF (YRS): 228311 FITS: 0.5

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 10/1/2013 and 9/30/2014

Assembly Information:

Package Type: SOIC (Pb-Free)

Date Code Range: 1211 to 1409

OPERATING LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
HIGH TEMP OP LIFE	1211	MAX913CSA+	135°C	500 HRS	80	0	
HIGH TEMP OP LIFE	1211	MAX913CSA+	135°C	1000 HRS	80	0	
HIGH TEMP OP LIFE	1212	MAX604ESA+	135°C	500 HRS	80	0	
HIGH TEMP OP LIFE	1213	MAX843ISA+	135°C	500 HRS	80	0	
HIGH TEMP OP LIFE	1330	MAX6175BASA/V+	135°C	284 HRS	80	0	
HIGH TEMP OP LIFE	1335	MAX6175BASA/V+	135°C	716 HRS	78	0	
HIGH TEMP OP LIFE	1337	MAX6174BASA/V+	135°C	1000 HRS	79	0	
HIGH TEMP OP LIFE	1338	MAX14781EESA+	135°C	192 HRS	80	0	
HIGH TEMP OP LIFE	1341	DS1629	125C, 5.5 VOLTS	192 HRS	80	0	
HIGH TEMP OP LIFE	1344	MAX6166AESA+	135°C	1000 HRS	26	0	
HIGH TEMP OP LIFE	1344	MAX6166AESA+	135°C	1000 HRS	26	0	
HIGH TEMP OP LIFE	1344	MAX6166AESA+	135°C	500 HRS	26	0	
HIGH TEMP OP LIFE	1344	MAX6166AESA+	135°C	1000 HRS	26	0	
HIGH TEMP OP LIFE	1345	MAX14784EASD+	135°C	192 HRS	48	0	
HIGH TEMP OP LIFE	1345	MAX14784EASD+	135°C	192 HRS	32	0	
HIGH TEMP OP LIFE	1403	MAX6166AESA+	135°C	500 HRS	26	0	
HIGH TEMP OP LIFE	1403	MAX6166AESA+	135°C	1000 HRS	26	0	
HIGH TEMP OP LIFE	1403	MAX6166AESA+	135°C	1000 HRS	26	0	
HIGH TEMP OP LIFE	1403	MAX6175BASA/V+	135°C	1000 HRS	77	0	

HIGH TEMP OP LIFE	1403	MAX6175BASA/V+	135°C	1000	HRS	68	0
HIGH TEMP OP LIFE	1405	MAX6175BASA/V+	135°C	1000	HRS	79	0
HIGH TEMP OP LIFE	1409	MAX6166AESA+	135°C	1000	HRS	26	0
Total:						0	0

STORAGE LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
STORAGE LIFE	1328	MAX6175BASA/V+	150°C	500	HRS	80	0
STORAGE LIFE	1337	MAX6174BASA/V+	150°C	1000	HRS	80	0
STORAGE LIFE	1340	MAX4364ESA+CGL	150°C	1000	HRS	50	0
STORAGE LIFE	1341	MAX4364ESA+CGL	150°C	1000	HRS	50	0
STORAGE LIFE	1341	MAX4364ESA+CGL	150°C	1000	HRS	50	0
STORAGE LIFE	1344	MAX6166AESA+	150°C	1000	HRS	77	0
STORAGE LIFE	1344	MAX6166AESA+	150°C	1000	HRS	77	0
STORAGE LIFE	1344	MAX6166AESA+	150°C	1000	HRS	77	0
STORAGE LIFE	1344	MAX6166AESA+	150°C	1000	HRS	77	0
STORAGE LIFE	1344	MAX6166AESA+	150°C	1000	HRS	77	0
STORAGE LIFE	1344	MAX6166AESA+	150°C	1000	HRS	77	0
STORAGE LIFE	1344	MAX6166AESA+	150°C	1000	HRS	77	0
STORAGE LIFE	1402	MAX492CSA+	150°C	500	HRS	80	0
STORAGE LIFE	1402	MAX492CSA+	150°C	1000	HRS	80	0
STORAGE LIFE	1402	MAX492CSA+	150°C	1000	HRS	80	0
STORAGE LIFE	1402	MAX492CSA+	150°C	1000	HRS	80	0
STORAGE LIFE	1402	ICL7612BESA+	150°C	1000	HRS	80	0
STORAGE LIFE	1402	ICL7612BESA+	150°C	1000	HRS	80	0
STORAGE LIFE	1402	ICL7612BESA+	150°C	1000	HRS	80	0
STORAGE LIFE	1403	MAX6175BASA/V+	150°C	1000	HRS	80	0
STORAGE LIFE	1403	MAX6175BASA/V+	150°C	1000	HRS	78	0
STORAGE LIFE	1404	MAX186CCWP+	150°C	1000	HRS	80	0
STORAGE LIFE	1405	MAX6175BASA/V+	150°C	1000	HRS	80	0
STORAGE LIFE	1409	MAX6166AESA+	150°C	1000	HRS	77	0
Total:						0	0

TEMPERATURE CYCLE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
TEMP CYCLE, 5' RAMP, 10' DWELL	1330	MAX6175BASA/V+	-65C TO +150C (Condition C)	500	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1335	MAX6175BASA/V+	-65C TO +150C (Condition C)	500	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1337	MAX6174BASA/V+	-65C TO +150C (Condition C)	500	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1340	MAX4364ESA+CGL	-65C TO +150C (Condition C)	1000	CYS	79	0

TEMP CYCLE, 5' RAMP, 10' DWELL	1341	MAX4364ESA+CGL	-65C TO +150C (Condition C)	1000	CYS	84	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1341	MAX4364ESA+CGL	-65C TO +150C (Condition C)	1000	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1344	MAX6166AESA+	-65C TO +150C (Condition C)	1000	CYS	77	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1344	MAX6166AESA+	-65C TO +150C (Condition C)	1000	CYS	77	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1344	MAX6166AESA+	-65C TO +150C (Condition C)	1000	CYS	77	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1344	MAX6166AESA+	-65C TO +150C (Condition C)	525	CYS	77	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1402	MAX492CSA+	-65C TO +150C (Condition C)	1000	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1402	MAX492CSA+	-65C TO +150C (Condition C)	1000	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1402	MAX492CSA+	-65C TO +150C (Condition C)	500	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1402	MAX492CSA+	-65C TO +150C (Condition C)	1000	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1402	ICL7612BESA+	-65C TO +150C (Condition C)	1000	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1402	ICL7612BESA+	-65C TO +150C (Condition C)	1000	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1402	ICL7612BESA+	-65C TO +150C (Condition C)	1000	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1403	MAX6166AESA+	-65C TO +150C (Condition C)	1000	CYS	77	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1403	MAX6166AESA+	-65C TO +150C (Condition C)	1000	CYS	77	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1403	MAX6166AESA+	-65C TO +150C (Condition C)	1000	CYS	77	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1403	MAX6175BASA/V+	-65C TO +150C (Condition C)	1000	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1403	MAX6175BASA/V+	-65C TO +150C (Condition C)	1000	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1404	MAX186CCWP+	-65C TO +150C (Condition C)	1000	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1409	MAX6166AESA+	-65C TO +150C (Condition C)	1000	CYS	77	0
Total:						0	0

TEMPERATURE HUMIDITY BIAS

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
BIASED MOISTURE	1328	MAX6175BASA/V+	130C, 85% R.H.	100	HRS	30	0
BIASED MOISTURE	1330	MAX6175BASA/V+	130C, 85% R.H.	100	HRS	80	0
BIASED MOISTURE	1337	MAX6174BASA/V+	130C, 85% R.H.	96	HRS	80	0
BIASED MOISTURE	1340	MAX4364ESA+CGL	130C, 85% R.H.	100	HRS	80	0
BIASED MOISTURE	1341	MAX4364ESA+CGL	130C, 85% R.H.	100	HRS	80	0
BIASED MOISTURE	1341	MAX4364ESA+CGL	130C, 85% R.H.	100	HRS	80	0
BIASED MOISTURE	1344	MAX6166AESA+	130C, 85% R.H.	100	HRS	45	0

BIASED MOISTURE	1344	MAX6166AESA+	130C, 85% R.H.	100	HRS	45	0
BIASED MOISTURE	1344	MAX6166AESA+	130C, 85% R.H.	100	HRS	45	0
BIASED MOISTURE	1344	MAX6166AESA+	130C, 85% R.H.	100	HRS	45	0
BIASED MOISTURE	1344	MAX6166AESA+	130C, 85% R.H.	100	HRS	45	0
BIASED MOISTURE	1403	MAX6175BASA/V+	130C, 85% R.H.	96	HRS	80	0
BIASED MOISTURE	1403	MAX6175BASA/V+	130C, 85% R.H.	96	HRS	80	0
BIASED MOISTURE	1404	MAX186CCWP+	130C, 85% R.H.	100	HRS	26	0
BIASED MOISTURE	1405	MAX6175BASA/V+	130C, 85% R.H.	96	HRS	80	0
BIASED MOISTURE	1409	MAX6166AESA+	130C, 85% R.H.	100	HRS	45	0
Total:							0

UNBIASED MOISTURE RESISTANCE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
MOISTURE SOAK	1328	MAX6175BASA/V+	130C, 85% R.H.	100	HRS	30	0
MOISTURE SOAK	1330	MAX6175BASA/V+	130C, 85% R.H.	100	HRS	80	0
MOISTURE SOAK	1337	MAX6174BASA/V+	130C, 85% R.H.	96	HRS	80	0
MOISTURE SOAK	1340	MAX4364ESA+CGL	130C, 85% R.H.	100	HRS	80	0
MOISTURE SOAK	1341	MAX4364ESA+CGL	130C, 85% R.H.	100	HRS	80	0
MOISTURE SOAK	1341	MAX4364ESA+CGL	130C, 85% R.H.	100	HRS	80	0
MOISTURE SOAK	1344	MAX6166AESA+	130C, 85% R.H.	392	HRS	45	0
MOISTURE SOAK	1344	MAX6166AESA+	130C, 85% R.H.	392	HRS	45	0
MOISTURE SOAK	1344	MAX6166AESA+	130C, 85% R.H.	392	HRS	45	0
MOISTURE SOAK	1344	MAX6166AESA+	130C, 85% R.H.	400	HRS	77	0
MOISTURE SOAK	1344	MAX6166AESA+	130C, 85% R.H.	400	HRS	77	0
MOISTURE SOAK	1344	MAX6166AESA+	130C, 85% R.H.	400	HRS	77	0
MOISTURE SOAK	1403	MAX6175BASA/V+	130C, 85% R.H.	400	HRS	80	1
MOISTURE SOAK	1403	MAX6175BASA/V+	130C, 85% R.H.	400	HRS	80	0
MOISTURE SOAK	1404	MAX186CCWP+	130C, 85% R.H.	100	HRS	80	0
MOISTURE SOAK	1405	MAX6175BASA/V+	130C, 85% R.H.	400	HRS	76	0
MOISTURE SOAK	1409	MAX6166AESA+	130C, 85% R.H.	400	HRS	45	0
Total:							1

Assembly Information:

Package Type: SOIC-EP (Pb-Free)

Date Code Range: 1345 to 1409

OPERATING LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
HIGH TEMP OP LIFE	1345	MAX16910CASA9/V +	135°C	500	HRS	79	0

HIGH TEMP OP LIFE	1352	MAX16910CASA9/V	135°C	500	HRS	80	0
		+					
HIGH TEMP OP LIFE	1352	MAX16910CASA9/V	135°C	500	HRS	80	0
		+					
HIGH TEMP OP LIFE	1352	MAX16910CASA9/V	135°C	500	HRS	79	0
		+					
HIGH TEMP OP LIFE	1352	MAX16910CASA9/V	135°C	500	HRS	80	0
		+					
Total:							0

STORAGE LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
STORAGE LIFE	1345	MAX16910CASA9/V	150°C	1000	HRS	80	0
		+					
STORAGE LIFE	1403	MAX16910CASA8/V	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	1345	MAX16910CASA9/V	-65C TO +150C (Condition C)	500	CYS	45	0
		+					
TEMP CYCLE, 5' RAMP, 10' DWELL	1345	MAX16910CASA9/V	-65C TO +150C (Condition C)	1000	CYS	45	0
		+					
TEMP CYCLE, 5' RAMP, 10' DWELL	1352	MAX16910CASA9/V	-65C TO +150C (Condition C)	500	CYS	80	0
		+					
TEMP CYCLE, 5' RAMP, 10' DWELL	1403	MAX16910CASA8/V	-65C TO +150C (Condition C)	500	CYS	80	0
		+					
TEMP CYCLE, 5' RAMP, 10' DWELL	1406	MAX16910CASA8/V	-65C TO +150C (Condition C)	500	CYS	80	0
		+					
TEMP CYCLE, 5' RAMP, 10' DWELL	1409	MAX16910CASA9/V	-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	1345	MAX16910CASA9/V	130C, 85% R.H.	100	HRS	79	0
		+					
BIASED MOISTURE	1352	MAX16910CASA9/V	130C, 85% R.H.	100	HRS	80	0
		+					
BIASED MOISTURE	1352	MAX16910CASA9/V	130C, 85% R.H.	100	HRS	80	0
		+					
BIASED MOISTURE	1403	MAX16910CASA8/V	130C, 85% R.H.	100	HRS	80	0
		+					
BIASED MOISTURE	1406	MAX16910CASA8/V	130C, 85% R.H.	100	HRS	80	0
		+					
Total:							0

UNBIASED MOISTURE RESISTANCE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
MOISTURE SOAK	1345	MAX16910CASA9/V	130C, 85% R.H.	100	HRS	80	0
		+					
MOISTURE SOAK	1352	MAX16910CASA9/V	130C, 85% R.H.	100	HRS	80	0
		+					

MOISTURE SOAK	1352	MAX16910CASA9/V +	130C, 85% R.H.	100	HRS	80	0
MOISTURE SOAK	1403	MAX16910CASA8/V +	130C, 85% R.H.	100	HRS	80	0
MOISTURE SOAK	1406	MAX16910CASA8/V +	130C, 85% R.H.	100	HRS	80	0
MOISTURE SOAK	1409	MAX16910CASA9/V +	130C, 85% R.H.	100	HRS	80	0
Total:							0

Assembly Information:

Package Type: SOIC-HYB (Pb-Free)
Date Code Range: 1326 to N/A

OPERATING LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
HIGH TEMP OP LIFE	1419	MAX14936BAWE+	135°C	1000 HRS	80	0	
HIGH TEMP OP LIFE	1420	MAX14936EAW+	135°C	1000 HRS	80	0	
HIGH TEMP OP LIFE	1420	MAX14936BAWE+	135°C	1000 HRS	80	0	
HIGH TEMP OP LIFE	1420	MAX14932BASE+	135°C	500 HRS	79	0	
HIGH TEMP OP LIFE	1420	MAX14932BASE+	135°C	500 HRS	80	0	
HIGH TEMP OP LIFE	1420	MAX14932BASE+	135°C	500 HRS	80	0	
Total:							0

STORAGE LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
STORAGE LIFE	1351	MAX14858GWE+	150°C	500 HRS	80	0	
STORAGE LIFE	1351	MAX14857GWE+	150°C	500 HRS	80	0	
STORAGE LIFE	1419	MAX14936BAWE+	150°C	1000 HRS	80	0	
STORAGE LIFE	1420	MAX14936BAWE+	150°C	1000 HRS	80	0	
STORAGE LIFE	1420	MAX14936BAWE+	150°C	1000 HRS	80	0	
STORAGE LIFE	1420	MAX14932BASE+	150°C	1000 HRS	80	0	
STORAGE LIFE	1420	MAX14932BASE+	150°C	1000 HRS	80	0	
STORAGE LIFE	1420	MAX14932BASE+	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	1326	MAX14931EASE+	-65C TO +150C (Condition C)	1000 CYS	200	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1330	MAX14931EASE+	-65C TO +150C (Condition C)	1000 CYS	199	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1351	MAX14858GWE+	-65C TO +150C (Condition C)	1000 CYS	300	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1351	MAX14857GWE+	-65C TO +150C (Condition C)	1000 CYS	300	0	

TEMP CYCLE, 5' RAMP, 10' DWELL	1419	MAX14936BAWE+	-65C TO +150C (Condition C)	1000	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1420	MAX14936EAW+	-65C TO +150C (Condition C)	1000	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1420	MAX14936BAWE+	-65C TO +150C (Condition C)	500	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1420	MAX14936EAW+	-65C TO +150C (Condition C)	1000	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1420	MAX14932BASE+	-65C TO +150C (Condition C)	1000	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1420	MAX14932BASE+	-65C TO +150C (Condition C)	1000	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1420	MAX14932BASE+	-65C TO +150C (Condition C)	1000	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	N/A	MAX14934EAW+	-65C TO +150C (Condition C)	1000	CYS	493	0
Total:						0	0

TEMPERATURE HUMIDITY BIAS

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
BIASED MOISTURE	1419	MAX14936BAWE+	130C, 85% R.H.	100	HRS	26	0
BIASED MOISTURE	1420	MAX14936EAW+	130C, 85% R.H.	100	HRS	25	0
BIASED MOISTURE	1420	MAX14936BAWE+	130C, 85% R.H.	100	HRS	54	0
BIASED MOISTURE	1420	MAX14932BASE+	130C, 85% R.H.	100	HRS	80	0
BIASED MOISTURE	1420	MAX14932BASE+	130C, 85% R.H.	100	HRS	80	0
BIASED MOISTURE	1420	MAX14932BASE+	130C, 85% R.H.	100	HRS	80	0
Total:						0	0

UNBIASED MOISTURE RESISTANCE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
MOISTURE SOAK	1330	MAX14931EASE+	130C, 85% R.H.	100	HRS	200	0
MOISTURE SOAK	1419	MAX14936BAWE+	130C, 85% R.H.	100	HRS	80	0
MOISTURE SOAK	1420	MAX14936EAW+	130C, 85% R.H.	100	HRS	80	0
MOISTURE SOAK	1420	MAX14936EAW+	130C, 85% R.H.	100	HRS	80	0
Total:						0	0

FAILURE RATE: MTTF (YRS): 228311 FITS: 0.5