

10/23/2014



RELIABILITY MONITOR REPORT  
FOR

**TQFN-CU 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	ASSY SITE	PINS	PACKAGE
ASE Chung-Li	8	TQFN-CU (Pb-Free)	ASE Chung-Li	20	TQFN-CU (Pb-Free)
ASE Chung-Li	28	TQFN-CU (Pb-Free)	UTL (NSEB) UTAC	20	TQFN-CU (Pb-Free)

The calculated failure rate for this assembly is:

**FAILURE RATE: MTTF (YRS): 36533 FITS: 3.1**

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: TQFN-CU (Pb-Free)  
Date Code Range: 1334 to 1424

**OPERATING LIFE**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
HIGH TEMP OP LIFE	1406	MAX14662ETI+	135°C	192 HRS	80	0	
HIGH TEMP OP LIFE	1413	MAX20003ATPA/V+ GE	135°C	1000 HRS	78	0	
HIGH TEMP OP LIFE	1419	MAX14691ATP+	135°C	192 HRS	79	0	
HIGH TEMP OP LIFE	1424	MAX20003ATPA/V+	135°C	1000 HRS	80	0	
<b>Total:</b>						<b>0</b>	

**STORAGE LIFE**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
STORAGE LIFE	1412	MAX20003ATPA/V+T	150°C	1000 HRS	79	0	
STORAGE LIFE	1413	MAX20003ATPA/V+ GE	150°C	1000 HRS	80	0	
STORAGE LIFE	1424	MAX20003ATPA/V+	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	1411	MAX20003ATPA/V+ GE	-65C TO +150C (Condition C)	1000 CYS	80	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1411	MAX20003ATPA/V+ GE	-65C TO +150C (Condition C)	1000 CYS	80	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1411	MAX20003ATPA/V+ GE	-65C TO +150C (Condition C)	1000 CYS	80	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1412	MAX20003ATPA/V+T	-65C TO +150C (Condition C)	1000 CYS	80	0	

TEMP CYCLE, 5' RAMP, 10' DWELL	1413	MAX20003ATPA/V+ GE	-65C TO +150C (Condition C)	500	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1424	MAX20003ATPA/V+ GE	-65C TO +150C (Condition C)	1000	CYS	80	0
<b>Total:</b>						<b>0</b>	<b>0</b>

**TEMPERATURE HUMIDITY BIAS**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
BIASED MOISTURE	1334	MAX17491GTA+T	130C, 85% R.H.	192 HRS	45	0	
BIASED MOISTURE	1334	MAX17491GTA+T	130C, 85% R.H.	192 HRS	45	0	
BIASED MOISTURE	1334	MAX17491GTA+T	130C, 85% R.H.	192 HRS	45	0	
BIASED MOISTURE	1412	MAX20003ATPA/V+T	130C, 85% R.H.	200 HRS	80	0	
BIASED MOISTURE	1413	MAX20003ATPA/V+ GE	130C, 85% R.H.	96 HRS	80	0	
BIASED MOISTURE	1424	MAX20003ATPA/V+	130C, 85% R.H.	200 HRS	80	0	
<b>Total:</b>						<b>0</b>	<b>0</b>

**UNBIASED MOISTURE RESISTANCE**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
MOISTURE SOAK	1411	MAX20003ATPA/V+ GE	130C, 85% R.H.	100 HRS	80	0	
MOISTURE SOAK	1411	MAX20003ATPA/V+ GE	130C, 85% R.H.	100 HRS	80	0	
MOISTURE SOAK	1411	MAX20003ATPA/V+ GE	130C, 85% R.H.	100 HRS	80	0	
MOISTURE SOAK	1412	MAX20003ATPA/V+T	130C, 85% R.H.	500 HRS	80	0	
MOISTURE SOAK	1413	MAX20003ATPA/V+ GE	130C, 85% R.H.	96 HRS	80	0	
MOISTURE SOAK	1424	MAX20003ATPA/V+	130C, 85% R.H.	300 HRS	80	0	
<b>Total:</b>						<b>0</b>	<b>0</b>

**FAILURE RATE: MTTF (YRS): 36533 FITS: 3.1**