

**7/10/2017**



**RELIABILITY MONITOR REPORT  
FOR**

**QFP 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	64	LQFP (Pb-Free)	ASE Chung-Li	48 TQFP (Pb-Free)
ASE Chung-Li	64	TQFP (Pb-Free)	ASE KAOHSIUNG	48 TQFP (Pb-Free)
ASE Kaoshiung	80	LQFP (Pb-Free)	ASE Kaoshiung	48 TQFP (Pb-Free)
ASE Taiwan	64	LQFP (Pb-Free)	ASE Taiwan	64 TQFP (Pb-Free)
ATP (Amkor, PI)	128	LQFP (Pb-Free)	ATP (Amkor, PI)	32 TQFP (Pb-Free)
CARSEM-S	48	TQFP (Pb-Free)		

The calculated failure rate for this assembly is:

**FAILURE RATE: MTTF (YRS): 205990 FITS: 0.6**

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 4/1/2017 and 6/30/2017.

**Assembly Information:**

Package Type: LQFP (Pb-Free)

Date Code Range: 1602 to 1710

**OPERATING LIFE**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
HIGH TEMP OP LIFE	1602	MAX2982GCD/V+	135°C	500 HRS	80	0	
HIGH TEMP OP LIFE	1609	MAX17845ACB/V+CJ T	135°C	1000 HRS	90	0	
HIGH TEMP OP LIFE	1609	MAX17845ACB/V+CJ T	135°C	1000 HRS	80	0	
HIGH TEMP OP LIFE	1626	MAX9972ACCS+	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	1609	MAX17845ACB/V+CJ T	150°C	1000 HRS	80	0	
STORAGE LIFE	1609	MAX17845ACB/V+CJ T	150°C	1000 HRS	80	0	
STORAGE LIFE	1626	MAX9972ACCS+	150°C	1000 HRS	80	0	
STORAGE LIFE	1710	MAX17845ACB/V+CJ T	150°C	1000 HRS	79	0	
<b>Total:</b>						<b>0</b>	

**TEMPERATURE CYCLE**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
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TEMP CYCLE, 5' RAMP, 10' DWELL	1609	MAX17845ACB/V+CJ -65C TO +150C (Condition C) T	1000 CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1609	MAX17845ACB/V+CJ -65C TO +150C (Condition C) T	1000 CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1626	MAX9972ACCS+ -65C TO +150C (Condition C)	1000 CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1710	MAX17845ACB/V+CJ -65C TO +150C (Condition C) T	1000 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	1609	MAX17845ACB/V+CJ 130C, 85% R.H. T		100 HRS	80	0	
BIASED MOISTURE	1609	MAX17845ACB/V+CJ 130C, 85% R.H. T		100 HRS	80	0	
BIASED MOISTURE	1710	MAX17845ACB/V+CJ 130C, 85% R.H. T		96 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	1609	MAX17845ACB/V+CJ 130C, 85% R.H. T		100 HRS	80	0	
MOISTURE SOAK	1626	MAX9972ACCS+ 130C, 85% R.H.		1000 HRS	80	0	
MOISTURE SOAK	1710	MAX17845ACB/V+CJ 130C, 85% R.H. T		96 HRS	80	0	
				<b>Total:</b>	<b>0</b>		

### Assembly Information:

Package Type: TQFP (Pb-Free)  
Date Code Range: 1607 to 1705

### OPERATING LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
HIGH TEMP OP LIFE	1607	MAX1308ECM+:1	135°C	1000 HRS	80	0	
HIGH TEMP OP LIFE	1607	MAX1308ECM+:1	135°C	1000 HRS	77	0	
HIGH TEMP OP LIFE	1607	MAX1308ECM+:1	135°C	1000 HRS	77	0	
HIGH TEMP OP LIFE	1612	MAX3814CHJ+	135°C	1000 HRS	48	0	
HIGH TEMP OP LIFE	1616	MAX17823BGCB/V+	135°C	1000 HRS	80	0	
HIGH TEMP OP LIFE	1635	MAX17823BGCB/V+ CV	135°C	1000 HRS	80	0	
HIGH TEMP OP LIFE	1641	MAX3815CCM+	135°C	1000 HRS	48	0	
HIGH TEMP OP LIFE	1641	MAX3815CCM+	135°C	1000 HRS	32	0	
HIGH TEMP OP LIFE	1642	MAX14803CCM+	135°C	750 HRS	80	0	
HIGH TEMP OP LIFE	1702	MAX14803CCM+	135°C	1000 HRS	80	0	
HIGH TEMP OP LIFE	1702	MAX3815CCM+	135°C	1000 HRS	48	0	

HIGH TEMP OP LIFE	1702	MAX3815CCM+	135°C	1000 HRS	32	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	1607	MAX1308ECM+:1	150°C	1000 HRS	74	0	
STORAGE LIFE	1607	MAX1308ECM+:1	150°C	1000 HRS	79	0	
STORAGE LIFE	1607	MAX1308ECM+:1	150°C	1000 HRS	80	0	
STORAGE LIFE	1612	MAX3814CHJ+	150°C	1000 HRS	80	0	
STORAGE LIFE	1616	MAX17823BGCB/V+	150°C	1000 HRS	79	0	
STORAGE LIFE	1635	MAX17823BGCB/V+ CV	150°C	1000 HRS	80	0	
STORAGE LIFE	1641	MAX3815CCM+	150°C	1000 HRS	80	0	
STORAGE LIFE	1702	MAX14803CCM+	150°C	1000 HRS	80	0	
STORAGE LIFE	1702	MAX3815CCM+	150°C	1000 HRS	80	0	
STORAGE LIFE	1705	87-A6720+RB8	150°C	1000 HRS	80	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	1612	MAX3814CHJ+	-65C TO +150C (Condition C)	1000 CYS	79	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1616	MAX17823BGCB/V+	-65C TO +150C (Condition C)	1000 CYS	95	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1635	MAX17823BGCB/V+ CV	-65C TO +150C (Condition C)	1000 CYS	80	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1641	MAX3815CCM+	-65C TO +150C (Condition C)	1000 CYS	80	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1702	MAX14803CCM+	-65C TO +150C (Condition C)	1000 CYS	80	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1702	MAX3815CCM+	-65C TO +150C (Condition C)	1000 CYS	80	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1705	87-A6720+RB8	-65C TO +150C (Condition C)	1000 CYS	80	0	
<b>Total:</b>						<b>0</b>	

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**TEMPERATURE HUMIDITY BIAS**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
BIASED MOISTURE	1607	MAX1308ECM+:1	130C, 85% R.H.	100 HRS	34	0	
BIASED MOISTURE	1635	MAX17823BGCB/V+ CV	130C, 85% R.H.	96 HRS	80	0	
BIASED MOISTURE	1641	MAX3815CCM+	130C, 85% R.H.	96 HRS	40	0	
BIASED MOISTURE	1641	MAX3815CCM+	130C, 85% R.H.	96 HRS	40	0	
BIASED MOISTURE	1702	MAX3815CCM+	130C, 85% R.H.	96 HRS	40	0	
BIASED MOISTURE	1702	MAX3815CCM+	130C, 85% R.H.	96 HRS	40	0	
<b>Total:</b>						<b>0</b>	

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**UNBIASED MOISTURE RESISTANCE**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
MOISTURE SOAK	1702	MAX14803CCM+	130C, 85% R.H.	96	HRS	80	0
MOISTURE SOAK	1705	87-A6720+RB8	130C, 85% R.H.	96	HRS	80	0
					<b>Total:</b>	<b>0</b>	

**FAILURE RATE:**    **MTTF (YRS): 205990**    **FITS: 0.6**