

4/23/2015



RELIABILITY MONITOR REPORT  
FOR

**BGA 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		
A SEK-ASY	280	FCBGA (Pb-Free)	ATP (Amkor, PI)	192 SBGA
ATP (Amkor, PI)	256	SBGA (Pb-Free)	Carsem-S	48 BGA Module w/Battery & Crystal

The calculated failure rate for this assembly is:

**FAILURE RATE: MTTF (YRS): 17089 FITS: 6.7**

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: BGA Module w/Battery & Crystal  
Date Code Range: 1350 to 1350

**OPERATING LIFE**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
HIGH TEMP OP LIFE	1350	DS12R887	65 C, 3.3 VOLTS	1000 HRS	44	0	
<b>Total:</b>						<b>0</b>	

**Assembly Information:**

Package Type: FCBGA (Pb-Free)  
Date Code Range: 1420 to 1430

**STORAGE LIFE**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
STORAGE LIFE	1430	MAX5860FUXH+	150°C	1000 HRS	77	0	
<b>Total:</b>						<b>0</b>	

**UNBIASED MOISTURE RESISTANCE**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
MOISTURE SOAK	1420	MAX5860PUXH	85 C/85% R.H.	1000 HRS	19	0	
MOISTURE SOAK	1430	MAX5860FUXH+	85 C/85% R.H.	1000 HRS	18	0	
MOISTURE SOAK	1430	MAX5862BUXH+	85 C/85% R.H.	1000 HRS	18	0	
<b>Total:</b>						<b>0</b>	

**Assembly Information:**

Package Type: SBGA  
Date Code Range: 1439 to 1439

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**STORAGE LIFE**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
STORAGE LIFE	1439	MAX108CHC	150°C	1000 HRS	45	0	
STORAGE LIFE	1439	MAX108CHC	150°C	1000 HRS	45	0	
STORAGE LIFE	1439	MAX108CHC	150°C	500 HRS	45	0	
STORAGE LIFE	1439	MAX108CHC	150°C	1000 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	1439	MAX108CHC	-65C TO +150C (Condition C)	1000 CYS	45	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1439	MAX108CHC	-65C TO +150C (Condition C)	1000 CYS	45	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1439	MAX108CHC	-65C TO +150C (Condition C)	1000 CYS	45	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	1439	MAX108CHC	130C, 85% R.H.	264 HRS	45	0	
MOISTURE SOAK	1439	MAX108CHC	130C, 85% R.H.	264 HRS	45	0	
MOISTURE SOAK	1439	MAX108CHC	130C, 85% R.H.	264 HRS	45	0	
				<b>Total:</b>		<b>0</b>	

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**Assembly Information:**

Package Type: SBGA (Pb-Free)

Date Code Range: 1444 to 1444

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**OPERATING LIFE**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
HIGH TEMP OP LIFE	1444	MAX109EHF+	135°C	1000 HRS	44	0	
HIGH TEMP OP LIFE	1444	MAX109EHF+	135°C	464 HRS	45	0	
HIGH TEMP OP LIFE	1444	MAX109EHF+	135°C	524 HRS	45	0	
				<b>Total:</b>		<b>0</b>	

**FAILURE RATE: MTTF (YRS): 17089 FITS: 6.7**