

4/17/2013



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		
AMKOR CHINA	90	FCBGA (Pb-Free)	ASE Chung-Li	196 CSBGA (Pb-Free)
ASE Chung-Li	324	CSBGA (Pb-Free)	ASE KAOHSIUNG	90 FCBGA (Pb-Free)
ASE KAOHSIUNG	61	XBGA (Pb-Free)	DALLAS-MAXFIL	90 FCBGA (Pb-Free)

The calculated failure rate for this assembly is:

FAILURE RATE: MTTF (YRS): 68762 FITS: 1.7

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 4/1/2012 and 3/31/2013.

Assembly Information:

Package Type: CSBGA (Pb-Free)

Date Code Range: 1234 to 1235

OPERATING LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
HIGH TEMP OP LIFE	1235	MAX32590	105C, 1.1 V (PSB) & 3.6 V (PSA)	192 HRS	80	0	
Total:						0	

TEMPERATURE CYCLE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
TEMP CYCLE, 5' RAMP, 10' DWELL	1234	MAX9530CXV+	-65C TO 150C	500 CYS	80	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1234	MAX9530CXV+	-65C TO 150C	1000 CYS	80	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1234	MAX9530CXV+	-65C TO 150C	1000 CYS	80	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1234	MAX9530CXV+	-65C TO 150C	1000 CYS	80	0	
Total:						0	

Assembly Information:

Package Type: FCBGA (Pb-Free)

Date Code Range: N/A to NA

OPERATING LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
HIGH TEMP OP LIFE		MAX77612AEXJ+	135°C	1000 HRS	45	0	
HIGH TEMP OP LIFE	1227	MAX77612AEXJ+	135°C	1000 HRS	45	0	
HIGH TEMP OP LIFE	1231	MAX77612AEXJ+	135°C	1000 HRS	45	0	

HIGH TEMP OP LIFE	N/A	MAX77612AEXJ+	135°C	500	HRS	45	0
HIGH TEMP OP LIFE	N/A	MAX77612AEXJ+	135°C	168	HRS	45	0
Total:						0	0

STORAGE LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
STORAGE LIFE		MAX77612AEXJ+	150°C	1000	HRS	77	0
STORAGE LIFE	N/A	MAX77612AEXJ+	150°C	1000	HRS	77	0
STORAGE LIFE	N/A	MAX77612AEXJ+	150°C	1000	HRS	77	0
STORAGE LIFE	N/A	MAX77612AEXJ+	150°C	1000	HRS	77	0
STORAGE LIFE	N/A	MAX77612AEXJ+	150°C	1000	HRS	77	0
STORAGE LIFE	N/A	MAX77612AEXJ+	150°C	1000	HRS	77	0
STORAGE LIFE	NA	MAX77612BEXJ+	150°C	1000	HRS	77	0
Total:						0	0

TEMPERATURE CYCLE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
TEMP CYCLE, 15' RAMP, 15' DWELL		MAX77612AEXJ+	-40C TO +125C	1000	CYS	80	1
TEMP CYCLE, 15' RAMP, 15' DWELL		MAX77612AEXJ+	-40C TO +125C	1000	CYS	80	0
TEMP CYCLE, 15' RAMP, 15' DWELL		MAX77612AEXJ+	-40C TO +125C	1000	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	N/A	MAX77612AEXJ+	-65C TO 150C	500	CYS	77	0
TEMP CYCLE, 5' RAMP, 10' DWELL	N/A	MAX77612AEXJ+	-65C TO 150C	1000	CYS	77	0
TEMP CYCLE, 5' RAMP, 10' DWELL	N/A	MAX77612AEXJ+	-65C TO 150C	1000	CYS	77	0
TEMP CYCLE, 5' RAMP, 10' DWELL	N/A	MAX77612AEXJ+	-65C TO 150C	1000	CYS	77	0
TEMP CYCLE, 5' RAMP, 10' DWELL	N/A	MAX77612AEXJ+	-65C TO 150C	1000	CYS	77	0
TEMP CYCLE, 5' RAMP, 10' DWELL	N/A	MAX77612AEXJ+	-65C TO 150C	1000	CYS	77	0
TEMP CYCLE, 5' RAMP, 10' DWELL	N/A	MAX77612AEXJ+	-65C TO 150C	1000	CYS	77	0
TEMP CYCLE, 15' RAMP, 15' DWELL	N/A	MAX77612AEXJ+	-40C TO +125C	750	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	NA	MAX77612AEXJ+	-65C TO 150C	1000	CYS	77	1
Total:						2	2

UNBIASED MOISTURE RESISTANCE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
MOISTURE SOAK		MAX77612AEXJ+	85 C/85% R.H.	1000	HRS	45	1
MOISTURE SOAK	N/A	MAX77612AEXJ+	85 C/85% R.H.	1000	HRS	45	1
Total:						2	2

Assembly Information:

Package Type: XBGA (Pb-Free)
Date Code Range: 1235 to 1235

OPERATING LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
HIGH TEMP OP LIFE	1235	MAX11871EET+	135°C	1000 HRS	80	0	
HIGH TEMP OP LIFE	1235	MAX11871EET+	135°C	1000 HRS	80	0	
HIGH TEMP OP LIFE	1235	MAX11871EET+	135°C	1000 HRS	79	0	
					Total:	0	

STORAGE LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
STORAGE LIFE	1235	MAX11871EET+	150°C	1000 HRS	80	0	
STORAGE LIFE	1235	MAX11871EET+	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	1235	MAX11871EET+	-65C TO 150C	1000 CYS	80	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1235	MAX11871EET+	-65C TO 150C	1000 CYS	80	0	
					Total:	0	

UNBIASED MOISTURE RESISTANCE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
MOISTURE SOAK	1235	MAX11871EET+	85 C/85% R.H.	1000 HRS	44	0	
MOISTURE SOAK	1235	MAX11871EET+	85 C/85% R.H.	1000 HRS	45	0	
MOISTURE SOAK	1235	MAX11871EET+	85 C/85% R.H.	1000 HRS	45	0	
					Total:	0	

FAILURE RATE: MTTF (YRS): 68762 FITS: 1.7