



7/19/2012

RELIABILITY MONITOR REPORT  
FOR

**CSBGA Package**

**MAXIM Integrated Products**

120 San Gabriel Dr.  
Sunnyvale, CA 94086

This Report was prepared by  
Maxim 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	81	CSBGA (Pb-Free)	ASE Chung-Li	100	CSBGA (Pb-Free)
ASE Chung-Li	256	CSBGA (Pb-Free)	ASE Taiwan	196	CSBGA-FC (RoHS)
ASE Tawain	256	CSBGA (Pb-Free)	ATP	256	CSBGA (Pb-Free)

The calculated failure rate for this assembly is:

**FAILURE RATE: MTTF (YRS): 31620 FITS: 3.6**

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 7/1/2011 and 6/30/2012.

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### Assembly Information:

Package Type: CSBGA (Pb-Free)

Date Code Range: 1107 to 1145

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### OPERATING LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
HIGH TEMP OP LIFE	1120	CD15	135C, 3.5V (PSA) & 1.9V (PSB)	240 HRS	24	0	
HIGH TEMP OP LIFE	1120	CD15	135C, 3.5V (PSA) & 1.9V (PSB)	192 HRS	24	0	
HIGH TEMP OP LIFE	1133	MAX5880ZUXF+	135C	1000 HRS	45	0	
HIGH TEMP OP LIFE	1133	MAX5880ZUXF+	135C	1000 HRS	45	0	
HIGH TEMP OP LIFE	1133	MAX5880ZUXF+	135C	1000 HRS	45	0	
HIGH TEMP OP LIFE	1145	MAX24310	125C, 3.6V (PSA) & 1.9V (PSB)	192 HRS	77	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	1107	806-0636-20+	150C	1000 HRS	77	0	
STORAGE LIFE	1107	806-0636-20+	150C	500 HRS	77	0	
STORAGE LIFE	1107	806-0636-20+	150C	1000 HRS	77	0	
STORAGE LIFE	1114	806-0636-20+	150C	1000 HRS	77	0	
STORAGE LIFE	1133	MAX5880ZUXF+	150C	1000 HRS	77	0	
STORAGE LIFE	1133	MAX5880ZUXF+	150C	1000 HRS	77	0	
STORAGE LIFE	1133	MAX5880ZUXF+	150C	1000 HRS	77	0	
<b>Total:</b>						<b>0</b>	

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### TEMPERATURE CYCLE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
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TEMP CYCLE, 5' RAMP, 10' DWELL	1107	806-0637-20+	-65C TO 150C	1000 CYS	77	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1107	806-0636-20+	-65C TO 150C	1000 CYS	77	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1114	806-0636-20+	-65C TO 150C	1000 CYS	77	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1133	CD16	-55C TO 125C	1000 CYS	77	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1133	CD16	-55C TO 125C	1000 CYS	77	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1133	CD16	-55C TO 125C	1000 CYS	77	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1133	MAX5880ZUXF+	-65C TO 150C	1000 CYS	77	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1133	MAX5880ZUXF+	-65C TO 150C	1000 CYS	77	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1133	MAX5880ZUXF+	-65C TO 150C	1000 CYS	77	0

**Total: 0**

### TEMPERATURE HUMIDITY BIAS

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
BIASED MOISTURE CYCLING	1133	CD16	85/85, 0.9 VOLTS	1000 HRS	44	0	
BIASED MOISTURE CYCLING	1133	CD16	85/85, 0.9 VOLTS	1000 HRS	45	0	
BIASED MOISTURE CYCLING	1133	CD16	85/85, 0.9 VOLTS	1000 HRS	44	0	

**Total: 0**

### UNBIASED MOISTURE RESISTANCE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
MOISTURE SOAK	1113	MAX5880ZUXF+	85 C/85% R.H.	1000 HRS	44	0	
MOISTURE SOAK	1133	MAX5880ZUXF+	85 C/85% R.H.	1000 HRS	43	0	
MOISTURE SOAK	1133	MAX5880ZUXF+	85 C/85% R.H.	1000 HRS	44	0	

**Total: 0**

### Assembly Information:

Package Type: CSBGA-FC (RoHS)

Date Code Range: 1132 to 1132

### OPERATING LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
HIGH TEMP OP LIFE	1132	MAX72463	095C, 1.8V (PS1) & 3.3V (PS2)	1000 HRS	77	0	

**Total: 0**

### STORAGE LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
STORAGE LIFE	1132	MAX72463	150C	1000 HRS	77	0	

**Total: 0**

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**TEMPERATURE CYCLE**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
TEMP CYCLE, 5' RAMP, 10' DWELL	1132	MAX72463	-55C TO 125C	1000 CYS	77	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	1132	MAX72463	85 C/85% R.H., 3.3V	1000 HRS	77	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
HAST, NO BIAS	1132	MAX72463	110C, 85% R.H.	264 HRS	77	0	
				<b>Total:</b>		<b>0</b>	

**FAILURE RATE: MTTF (YRS): 31620 FITS: 3.6**