



4/13/2009

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		
	144	CSBGA (Pb-Free)	ASAT-DongGuan (C	25 CSBGA
ASAT-DongGuan (C	16	CSBGA (Pb-Free)	ATP (Amkor, PI)	256 CSBGA (Pb-Free)
SCS (StatsChipPac)	144	CSBGA (Pb-Free)	USG (NSEB) UTAC	256 CSBGA (Pb-Free)

The calculated failure rate for this assembly is:

**FAILURE RATE: MTTF (YRS): 80250 FITS: 1.4**

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 10/1/2007 and 9/30/2008.

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**Assembly Information:**

Package Type: CSBGA  
Date Code Range: 0810 to 0810

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**OPERATING LIFE**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
HIGH TEMP OP LIFE	0810	DS1852	125C, 5.5 VOLTS	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
TEMP CYCLE, 5' RAMP, 10' DWELL	0810	DS1852	-55C TO 125C	1000 CYS	76	0	
<b>Total:</b>						<b>0</b>	

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**W/E ENDURANCE AND DATA RET'N**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
STORAGE LIFE	0810	DS1852	150C	1000 HRS	77	0	
WRITE CYCLE STRESS (KCYS)	0810	DS1852	85 C, 5.5 VOLTS	25 KCYS	77	0	
<b>Total:</b>						<b>0</b>	

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**Assembly Information:**

Package Type: CSBGA (Pb-Free)  
Date Code Range: 0731 to 0810

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**DATA RETENTION**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
STORAGE LIFE	0747	DS3655	150C	1000 HRS	77	0	
<b>Total:</b>						<b>0</b>	

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**OPERATING LIFE**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
HIGH TEMP OP LIFE	0732	806-068302-	135C	500 HRS	77	0	
HIGH TEMP OP LIFE	0732	806-068302-	135C	500 HRS	77	0	
HIGH TEMP OP LIFE	0732	806-0683-20	135C	1000 HRS	77	0	
HIGH TEMP OP LIFE	0732	806-0683-20	135C	1000 HRS	77	0	
HIGH TEMP OP LIFE	0744	DS33X162	125C, 2.0V (PSB) & 3.5V (PSA)	1000 HRS	45	0	
HIGH TEMP OP LIFE	0747	DS3655	125C, 3.6V (PSA) & 3.0V (PSB)	1000 HRS	45	0	
HIGH TEMP OP LIFE	0810	DS26518	125C, 2.0V (PSB) & 3.5V (PSA)	1000 HRS	45	0	
HIGH TEMP OP LIFE	0810	DS26518	125C, 2.0V (PSB) & 3.5V (PSA)	1000 HRS	45	0	
HIGH TEMP OP LIFE	0810	DS26518	125C, 2.0V (PSB) & 3.5V (PSA)	1000 HRS	45	0	
<b>Total:</b>						<b>0</b>	

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**PRECONDITIONING LEVEL 1**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
CONVECTION REFLOW	0731	806-0683-23+	260C +/-5C	3 PASS	150	0	
CONVECTION REFLOW	0731	806-0683-23+	260C +/-5C	3 PASS	150	0	
CONVECTION REFLOW	0732	806-0683-23+	260C +/-5C	3 PASS	150	0	
CONVECTION REFLOW	0732	806-0683-23+	260C +/-5C	3 PASS	150	0	
CONVECTION REFLOW	0732	806-0683-23+	260C +/-5C	3 PASS	150	0	
CONVECTION REFLOW	0732	806-0683-23+	260C +/-5C	3 PASS	150	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	0810	DS26518	150C	1000 HRS	77	0	
STORAGE LIFE	0810	DS26518	150C	1000 HRS	77	0	
STORAGE LIFE	0810	DS26518	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
TEMP CYCLE, 5' RAMP, 10' DWELL	0732	806-0683-23+	-65C TO 150C	1000 CYS	77	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	0732	806-0683-23+	-65C TO 150C	1000 CYS	77	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	0732	806-0682-23+	-65C TO 150C	500 CYS	77	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	0732	806-0683-23+	-65C TO 150C	1000 CYS	77	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	0732	806-0682-23+	-65C TO 150C	500 CYS	77	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	0732	806-0683-23+	-65C TO 150C	1000 CYS	77	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	0732	806-0683-23+	-65C TO 150C	1000 CYS	77	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	0732	806-0683-23+	-65C TO 150C	1000 CYS	77	0	

TEMP CYCLE, 5' RAMP, 10' DWELL	0810	DS26518	-55C TO 125C	1000 CYS	77	0
TEMP CYCLE, 5' RAMP, 10' DWELL	0810	DS26518	-55C TO 125C	1000 CYS	77	0
TEMP CYCLE, 5' RAMP, 10' DWELL	0810	DS26518	-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	0810	DS26518	85/85, 2.0 VOLTS	1000 HRS	44	0	
BIASED MOISTURE	0810	DS26518	85/85, 2.0 VOLTS	1000 HRS	44	0	
BIASED MOISTURE	0810	DS26518	85/85, 2.0 VOLTS	1000 HRS	44	0	
<b>Total:</b>						<b>0</b>	

**FAILURE RATE: MTTF (YRS): 80250 FITS: 1.4**