



4/20/2008

RELIABILITY MONITOR REPORT  
FOR

**PBGA 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		
ATP (Amkor, PI)	256	PBGA (Pb-Free)	ATP (Amkor, PI)	484 PBGA-TE
ATP (Amkor, PI)	144	PBGA-TE (Pb-Free)	ATP (Amkor, PI)	400 PBGA-TE (Pb-Free)
ATP (Amkor, PI)	484	PBGA-TE (Pb-Free)		

The calculated failure rate for this assembly is:

**FAILURE RATE: MTTF (YRS): 24911 FITS: 4.6**

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 4/1/2007 and 3/31/2008.

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**Assembly Information:**

Package Type: PBGA (Pb-Free)  
Flammability: UL 94-V0  
Date Code Range: 0712 to 0712

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**OPERATING LIFE**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
HIGH TEMP OP LIFE	0712	DS3112	125C, 3.5 VOLTS	1000 HRS	77	0	
<b>Total:</b>						<b>0</b>	

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**Assembly Information:**

Package Type: PBGA-TE  
Flammability: UL 94-V0  
Date Code Range: 0708 to 0708

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**OPERATING LIFE**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
HIGH TEMP OP LIFE	0708	DS32512	125C, 2.0V (PSA) & 3.5V (PSB)	1000 HRS	45	0	
<b>Total:</b>						<b>0</b>	

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**Assembly Information:**

Package Type: PBGA-TE (Pb-Free)  
Flammability: UL 94-V0  
Date Code Range: 0645 to 0743

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**OPERATING LIFE**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
HIGH TEMP OP LIFE	0645	DS21448	125C, 3.3 VOLTS	1000 HRS	45	0	
HIGH TEMP OP LIFE	0743	DS32506	125C, 2.0V (PSA) & 3.5V (PSB)	1000 HRS	45	0	

**Total: 0**

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**STORAGE LIFE**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
STORAGE LIFE	0645	DS21448	150C	1000 HRS	77	0	
STORAGE LIFE	0743	DS32506	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	0645	DS21448	-55C TO 125C	1000 CYS	77	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	0708	DS33R41	-40C TO +125C	1000 CYS	77	0	
			-40C TO +125C	1000 CYS	77	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	0743	DS32506	-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	0743	DS32506	85/85, 2.0 VOLTS	1000 HRS	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
HAST, NO BIAS	0645	DS21448	130C, 85% R.H.	200 HRS	77	0	
HAST, NO BIAS	0743	DS32506	110C, 85% R.H.	264 HRS	74	0	
<b>Total:</b>						<b>0</b>	

**FAILURE RATE: MTTF (YRS): 24911 FITS: 4.6**