



5/9/2009

RELIABILITY MONITOR REPORT  
FOR

**LQFP 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		
ASAT-DongGuan (C	128	LQFP (Pb-Free)	ATK (Amkor, K)	48 LQFP (Pb-Free)
ATK (Amkor, K)	144	LQFP (Pb-Free)		

The calculated failure rate for this assembly is:

**FAILURE RATE: MTTF (YRS): 57342 FITS: 2.0**

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 1/1/2008 and 12/31/2008

---

**Assembly Information:**

Package Type: LQFP (Pb-Free)

Date Code Range: 0740 to 0819

---

**OPERATING LIFE**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
HIGH TEMP OP LIFE	0740	DS8007	125C, 6.0 VOLTS	1000 HRS	77	0	
HIGH TEMP OP LIFE	0740	DS8007	125C, 6.0 VOLTS	1000 HRS	77	0	
HIGH TEMP OP LIFE	0740	DS8007	125C, 6.0 VOLTS	1000 HRS	77	0	
HIGH TEMP OP LIFE	0740	DS8007	125C, 6.0 VOLTS	1000 HRS	77	0	
HIGH TEMP OP LIFE	0811	DS26303	125C, 3.5 VOLTS	1000 HRS	45	0	
HIGH TEMP OP LIFE	0819	DS21448	125C, 3.5 VOLTS	1000 HRS	45	0	
HIGH TEMP OP LIFE	0819	DS21448	125C, 3.5 VOLTS	1000 HRS	45	0	
HIGH TEMP OP LIFE	0819	DS21448	125C, 3.5 VOLTS	1000 HRS	45	0	
<b>Total:</b>						<b>0</b>	

---

**STORAGE LIFE**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
STORAGE LIFE	0740	DS8007	150C	1000 HRS	77	0	
STORAGE LIFE	0740	DS8007	150C	1000 HRS	77	0	
STORAGE LIFE	0740	DS8007	150C	1000 HRS	77	0	
STORAGE LIFE	0740	DS8007	150C	1000 HRS	77	0	
STORAGE LIFE	0819	DS21448	150C	1000 HRS	74	0	
STORAGE LIFE	0819	DS21448	150C	1000 HRS	77	0	
STORAGE LIFE	0819	DS21448	150C	1000 HRS	77	0	
<b>Total:</b>						<b>0</b>	

---

**TEMPERATURE CYCLE**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
-------------	-----------	--------------	-----------	-----------	----------	-------	-------

TEMP CYCLE, 5' RAMP, 10' DWELL	0740	DS8007	-65C TO 150C	1000	CYS	77	0
TEMP CYCLE, 5' RAMP, 10' DWELL	0740	DS8007	-65C TO 150C	1000	CYS	77	0
BOND STRENGTH	0740	DS8007	MIL-STD-883-2011 : COND D	40	WIRES	5	0
BOND STRENGTH	0740	DS8007	MIL-STD-883-2011 : COND D	40	WIRES	5	0
BOND STRENGTH	0740	DS8007	MIL-STD-883-2011 : COND D	40	WIRES	5	0
BOND STRENGTH	0740	DS8007	MIL-STD-883-2011 : COND D	40	WIRES	5	0
TEMP CYCLE, 5' RAMP, 10' DWELL	0740	DS8007	-65C TO 150C	1000	CYS	77	0
TEMP CYCLE, 5' RAMP, 10' DWELL	0740	DS8007	-65C TO 150C	1000	CYS	77	0
TEMP CYCLE, 5' RAMP, 10' DWELL	0819	DS21448	-55C TO 125C	1000	CYS	77	0
TEMP CYCLE, 5' RAMP, 10' DWELL	0819	DS21448	-55C TO 125C	1000	CYS	77	0
TEMP CYCLE, 5' RAMP, 10' DWELL	0819	DS21448	-55C TO 125C	1000	CYS	77	0
<b>Total:</b>						<b>0</b>	<b>0</b>

#### TEMPERATURE HUMIDITY BIAS

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
HAST	0740	DS8007	130C, 85%R.H.,5.5V	96	HRS	77	0
HAST	0740	DS8007	130C, 85%R.H.,5.5V	96	HRS	77	0
HAST	0740	DS8007	130C, 85%R.H.,5.5V	96	HRS	77	0
HAST	0740	DS8007	130C, 85%R.H.,5.5V	96	HRS	77	0
BIASED MOISTURE	0819	DS21448	85/85, 3.5 VOLTS	1000	HRS	45	0
BIASED MOISTURE	0819	DS21448	85/85, 3.5 VOLTS	1000	HRS	45	0
BIASED MOISTURE	0819	DS21448	85/85, 3.5 VOLTS	1000	HRS	45	0
<b>Total:</b>						<b>0</b>	<b>0</b>

#### UNBIASED MOISTURE RESISTANCE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
AUTOCLAVE	0740	DS8007	121C, 2 ATM STEAM, UNBIASED	168	HRS	76	0
AUTOCLAVE	0740	DS8007	121C, 2 ATM STEAM, UNBIASED	168	HRS	76	0
AUTOCLAVE	0740	DS8007	121C, 2 ATM STEAM, UNBIASED	168	HRS	76	0
AUTOCLAVE	0740	DS8007	121C, 2 ATM STEAM, UNBIASED	168	HRS	76	0
<b>Total:</b>						<b>0</b>	<b>0</b>

**FAILURE RATE: MTTF (YRS): 57342 FITS: 2.0**