



4/13/2009

RELIABILITY MONITOR REPORT  
FOR

**PDIP 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)	20	PDIP (Pb-Free)	ATP (Amkor, PI)	40 PDIP (Pb-Free)
Cirtek	40	PDIP (Pb-Free)	Hana AYUTHAYA	8 PDIP
Hana AYUTHAYA	20	PDIP (Pb-Free)	ISPL (ATEC, PI)	28 PDIP (Pb-Free)
UTL (NSEB) UTAC	8	PDIP (Pb-Free)		

The calculated failure rate for this assembly is:

**FAILURE RATE: MTTF (YRS): 322219 FITS: 0.4**

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.

**Assembly Information:**

Package Type: PDIP  
Date Code Range: 0727 to 0727

**OPERATING LIFE**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
HIGH TEMP OP LIFE	0727	ICL7665AEPA+	135C	408 HRS	250	0	
<b>Total:</b>						<b>0</b>	

**Assembly Information:**

Package Type: PDIP (Pb-Free)  
Date Code Range: 0726 to 0817

**OPERATING LIFE**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
HIGH TEMP OP LIFE	0726	DS80C320	125C, 5.5 VOLTS	1000 HRS	77	0	
HIGH TEMP OP LIFE	0726	DS80C320	125C, 5.5 VOLTS	1000 HRS	77	0	
HIGH TEMP OP LIFE	0726	DS80C320	125C, 5.5 VOLTS	1000 HRS	77	0	
HIGH TEMP OP LIFE	0726	DS80C320	125C, 5.5 VOLTS	1000 HRS	77	0	
HIGH TEMP OP LIFE	0727	DS80C320	125C, 5.5 VOLTS	1000 HRS	77	0	
HIGH TEMP OP LIFE	0727	DS80C320	125C, 5.5 VOLTS	1000 HRS	77	0	
HIGH TEMP OP LIFE	0734	MAX1204BCPP+	135C	1000 HRS	56	0	
HIGH TEMP OP LIFE	0734	MAX1204BCPP+	135C	1000 HRS	56	0	
HIGH TEMP OP LIFE	0734	MAX1204BCPP+	135C	1000 HRS	45	0	
HIGH TEMP OP LIFE	0736	MAX3223EPP+	135C	500 HRS	240	0	
HIGH TEMP OP LIFE	0736	MAX3223EPP+	135C	1000 HRS	240	0	
HIGH TEMP OP LIFE	0741	MAX525BCPP+	135C	1000 HRS	50	0	

HIGH TEMP OP LIFE	0741	MAX525BCPP+	135C	1000 HRS	50	0
HIGH TEMP OP LIFE	0741	MAX525BCPP+	135C	1000 HRS	50	0
HIGH TEMP OP LIFE	0750	DS1302	125C, 5.5 VOLTS	1000 HRS	80	0
HIGH TEMP OP LIFE	0808	DS1844	125C, 5.5 VOLTS	1000 HRS	54	0
HIGH TEMP OP LIFE	0808	DS1844	125C, 5.5 VOLTS	1000 HRS	54	0
HIGH TEMP OP LIFE	0808	DS1844	125C, 5.5 VOLTS	1000 HRS	54	0
HIGH TEMP OP LIFE	0808	DS80C320	125C, 5.5 VOLTS	1000 HRS	77	0
HIGH TEMP OP LIFE	0808	DS80C320	125C, 5.5 VOLTS	1000 HRS	77	0
HIGH TEMP OP LIFE	0808	DS80C320	125C, 5.5 VOLTS	1000 HRS	77	0
HIGH TEMP OP LIFE	0808	DS80C320	125C, 5.5 VOLTS	1000 HRS	77	0
HIGH TEMP OP LIFE	0810	DS1284	125C, 7.0 VOLTS	1000 HRS	77	0
HIGH TEMP OP LIFE	0810	DS1284	125C, 7.0 VOLTS	1000 HRS	77	0
HIGH TEMP OP LIFE	0810	DS1284	125C, 7.0 VOLTS	1000 HRS	77	0
HIGH TEMP OP LIFE	0810	DS80C320	125C, 5.5 VOLTS	1000 HRS	77	0
HIGH TEMP OP LIFE	0810	DS80C320	125C, 5.5 VOLTS	1000 HRS	77	0
HIGH TEMP OP LIFE	0817	DS2432	125C, 5.25 VOLTS	1000 HRS	77	0
<b>Total:</b>						<b>0</b>

#### PACKAGE TESTS

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
LEAD FINISH ADHESION	0734	MAX1204BCPP+	MIL-STD-883-2025		10	0	
PHYSICAL DIMENSIONS	0734	MAX1204BCPP+	JESD22-B100		15	0	
SOLDERABILITY (Pb-Free)	0734	MAX1204BCPP+	JESD22-B102, COND C (245C)		15	0	
LEAD FINISH ADHESION	0734	MAX1204BCPP+	MIL-STD-883-2025		10	0	
PHYSICAL DIMENSIONS	0734	MAX1204BCPP+	JESD22-B100		15	0	
SOLDERABILITY (Pb-Free)	0734	MAX1204BCPP+	JESD22-B102, COND C (245C)		15	0	
LEAD FINISH ADHESION	0734	MAX1204BCPP+	MIL-STD-883-2025		10	0	
PHYSICAL DIMENSIONS	0734	MAX1204BCPP+	JESD22-B100		15	0	
SOLDERABILITY (Pb-Free)	0734	MAX1204BCPP+	JESD22-B102, COND C (245C)		15	0	
<b>Total:</b>						<b>0</b>	

#### SOLDER HEAT

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
SOLDER HEAT	0734	MAX1204BCPP+	260 C, 10SEC	1 PASS	15	0	
SOLDER HEAT	0734	MAX1204BCPP+	260 C, 10SEC	1 PASS	15	0	
SOLDER HEAT	0734	MAX1204BCPP+	260 C, 10SEC	1 PASS	15	0	
SOLDER HEAT	0741	MAX525BCPP+	260 C, 10SEC	1 PASS	15	0	
SOLDER HEAT	0741	MAX525BCPP+	260 C, 10SEC	1 PASS	15	0	
SOLDER HEAT	0741	MAX525BCPP+	260 C, 10SEC	1 PASS	15	0	
<b>Total:</b>						<b>0</b>	

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**SOLDER SHOCK**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
SOLDER SHOCK	0734	MAX1204BCPP+	300C	1 PASS	15	0	
SOLDER SHOCK	0734	MAX1204BCPP+	300C	1 PASS	15	0	
SOLDER SHOCK	0734	MAX1204BCPP+	300C	1 PASS	15	0	
SOLDER SHOCK	0741	MAX525BCPP+	300C	1 PASS	15	0	
SOLDER SHOCK	0741	MAX525BCPP+	300C	1 PASS	15	0	
SOLDER SHOCK	0741	MAX525BCPP+	300C	1 PASS	15	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	0726	DS80C320	150C	1000 HRS	77	0	
STORAGE LIFE	0726	DS80C320	150C	1000 HRS	77	0	
STORAGE LIFE	0726	DS80C320	150C	1000 HRS	77	0	
STORAGE LIFE	0726	DS80C320	150C	1000 HRS	77	0	
STORAGE LIFE	0727	DS80C320	150C	1000 HRS	77	0	
STORAGE LIFE	0727	DS80C320	150C	1000 HRS	77	0	
STORAGE LIFE	0741	MAX525BCPP+	150C	1000 HRS	77	0	
STORAGE LIFE	0741	MAX525BCPP+	150C	1000 HRS	77	0	
STORAGE LIFE	0741	MAX525BCPP+	150C	1000 HRS	77	0	
STORAGE LIFE	0750	DS1302	150C	1000 HRS	77	0	
STORAGE LIFE	0808	DS1844	150C	1000 HRS	77	0	
STORAGE LIFE	0808	DS1844	150C	1000 HRS	77	0	
STORAGE LIFE	0808	DS1844	150C	1000 HRS	77	0	
STORAGE LIFE	0808	DS80C320	150C	1000 HRS	77	0	
STORAGE LIFE	0808	DS80C320	150C	1000 HRS	77	0	
STORAGE LIFE	0808	DS80C320	150C	1000 HRS	77	0	
STORAGE LIFE	0808	DS80C320	150C	1000 HRS	77	0	
STORAGE LIFE	0810	DS1284	150C	1000 HRS	77	0	
STORAGE LIFE	0810	DS1284	150C	1000 HRS	77	0	
STORAGE LIFE	0810	DS1284	150C	1000 HRS	77	0	
STORAGE LIFE	0810	DS80C320	150C	1000 HRS	77	0	
STORAGE LIFE	0810	DS80C320	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	0726	DS80C320	-55C TO 125C	1000 CYS	77	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	0726	DS80C320	-55C TO 125C	1000 CYS	77	0	

TEMP CYCLE, 5' RAMP, 10' DWELL	0726	DS80C320	-55C TO 125C	1000 CYS	77	0
TEMP CYCLE, 5' RAMP, 10' DWELL	0726	DS80C320	-55C TO 125C	1000 CYS	77	0
TEMP CYCLE, 5' RAMP, 10' DWELL	0727	DS80C320	-55C TO 125C	1000 CYS	77	0
TEMP CYCLE, 5' RAMP, 10' DWELL	0727	DS80C320	-55C TO 125C	1000 CYS	77	0
TEMP CYCLE, 5' RAMP, 10' DWELL	0734	MAX1204BCPP+	-65C TO 150C	500 CYS	77	0
TEMP CYCLE, 5' RAMP, 10' DWELL	0734	MAX1204BCPP+	-65C TO 150C	1000 CYS	77	0
TEMP CYCLE, 5' RAMP, 10' DWELL	0734	MAX1204BCPP+	-65C TO 150C	1000 CYS	77	0
TEMP CYCLE, 5' RAMP, 10' DWELL	0741	MAX525BCPP+	-65C TO 150C	1000 CYS	77	0
TEMP CYCLE, 5' RAMP, 10' DWELL	0741	MAX525BCPP+	-65C TO 150C	1000 CYS	76	0
TEMP CYCLE, 5' RAMP, 10' DWELL	0741	MAX525BCPP+	-65C TO 150C	1000 CYS	75	0
TEMP CYCLE, 5' RAMP, 10' DWELL	0750	DS1302	-55C TO 125C	1000 CYS	77	0
TEMP CYCLE, 5' RAMP, 10' DWELL	0808	DS1844	-55C TO 125C	1000 CYS	77	0
TEMP CYCLE, 5' RAMP, 10' DWELL	0808	DS1844	-55C TO 125C	1000 CYS	77	0
TEMP CYCLE, 5' RAMP, 10' DWELL	0808	DS1844	-55C TO 125C	1000 CYS	77	0
TEMP CYCLE, 5' RAMP, 10' DWELL	0808	DS80C320	-55C TO 125C	1000 CYS	77	0
TEMP CYCLE, 5' RAMP, 10' DWELL	0808	DS80C320	-55C TO 125C	1000 CYS	77	0
TEMP CYCLE, 5' RAMP, 10' DWELL	0808	DS80C320	-55C TO 125C	1000 CYS	77	0
TEMP CYCLE, 5' RAMP, 10' DWELL	0808	DS80C320	-55C TO 125C	1000 CYS	77	0
TEMP CYCLE, 5' RAMP, 10' DWELL	0810	DS1284	-55C TO 125C	1000 CYS	77	0
TEMP CYCLE, 5' RAMP, 10' DWELL	0810	DS1284	-55C TO 125C	1000 CYS	77	0
TEMP CYCLE, 5' RAMP, 10' DWELL	0810	DS1284	-55C TO 125C	1000 CYS	77	0
TEMP CYCLE, 5' RAMP, 10' DWELL	0810	DS80C320	-55C TO 125C	1000 CYS	77	0
TEMP CYCLE, 5' RAMP, 10' DWELL	0810	DS80C320	-55C TO 125C	1000 CYS	77	0
TEMP CYCLE, 5' RAMP, 10' DWELL	0817	DS2432	-55C TO 125C	1000 CYS	77	0
<b>Total:</b>						<b>0</b>

#### TEMPERATURE HUMIDITY BIAS

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
BIASED MOISTURE	0726	DS80C320	85/85, 5.5 VOLTS	1000 HRS	77	0	
BIASED MOISTURE	0726	DS80C320	85/85, 5.5 VOLTS	1000 HRS	77	0	
BIASED MOISTURE	0726	DS80C320	85/85, 5.5 VOLTS	1000 HRS	77	0	

BIASED MOISTURE	0726	DS80C320	85/85, 5.5 VOLTS	1000	HRS	77	0
BIASED MOISTURE	0727	DS80C320	85/85, 5.5 VOLTS	1000	HRS	77	0
BIASED MOISTURE	0727	DS80C320	85/85, 5.5 VOLTS	1000	HRS	77	0
BIASED MOISTURE	0734	MAX1204BCPP+	130C, 85% R.H.	96	HRS	50	0
BIASED MOISTURE	0734	MAX1204BCPP+	130C, 85% R.H.	96	HRS	50	0
BIASED MOISTURE	0734	MAX1204BCPP+	130C, 85% R.H.	96	HRS	50	0
BIASED MOISTURE	0741	MAX525BCPP+	130C, 85% R.H.	96	HRS	50	0
BIASED MOISTURE	0741	MAX525BCPP+	130C, 85% R.H.	96	HRS	50	0
BIASED MOISTURE	0741	MAX525BCPP+	130C, 85% R.H.	96	HRS	45	0
BIASED MOISTURE	0750	DS1302	85/85, 5.5 VOLTS	1000	HRS	77	0
BIASED MOISTURE	0808	DS1844	85/85, 5.5 VOLTS	1000	HRS	77	0
BIASED MOISTURE	0808	DS1844	85/85, 5.5 VOLTS	1000	HRS	77	0
BIASED MOISTURE	0808	DS1844	85/85, 5.5 VOLTS	1000	HRS	77	0
BIASED MOISTURE	0808	DS80C320	85/85, 5.5 VOLTS	1000	HRS	77	0
BIASED MOISTURE	0808	DS80C320	85/85, 5.5 VOLTS	1000	HRS	77	0
BIASED MOISTURE	0808	DS80C320	85/85, 5.5 VOLTS	1000	HRS	77	0
BIASED MOISTURE	0808	DS80C320	85/85, 5.5 VOLTS	1000	HRS	77	0
BIASED MOISTURE	0810	DS1284	85/85, 5.5 VOLTS	1000	HRS	77	0
BIASED MOISTURE	0810	DS1284	85/85, 5.5 VOLTS	1000	HRS	77	0
BIASED MOISTURE	0810	DS1284	85/85, 5.5 VOLTS	1000	HRS	77	0
BIASED MOISTURE	0810	DS80C320	85/85, 5.5 VOLTS	1000	HRS	77	0
BIASED MOISTURE	0810	DS80C320	85/85, 5.5 VOLTS	1000	HRS	77	0
<b>Total:</b>						<b>0</b>	<b>0</b>

#### UNBIASED MOISTURE RESISTANCE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
HAST, NO BIAS	0750	DS1302	130C, 85% R.H.	96	HRS	77	0
HAST, NO BIAS	0808	DS80C320	130C, 85% R.H.	96	HRS	77	0
HAST, NO BIAS	0808	DS80C320	130C, 85% R.H.	96	HRS	77	0
HAST, NO BIAS	0808	DS80C320	130C, 85% R.H.	96	HRS	77	0
HAST, NO BIAS	0808	DS80C320	130C, 85% R.H.	96	HRS	77	0
HAST, NO BIAS	0810	DS80C320	130C, 85% R.H.	96	HRS	77	0
HAST, NO BIAS	0810	DS80C320	130C, 85% R.H.	96	HRS	77	0
<b>Total:</b>						<b>0</b>	<b>0</b>

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

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
STORAGE LIFE	0817	DS2432	150C	1000	HRS	77	0
WRITE CYCLE STRESS (KCYS)	0817	DS2432	25 C, 5.0 VOLTS	50	KCYS	77	0
<b>Total:</b>						<b>0</b>	<b>0</b>

**FAILURE RATE: MTTF (YRS): 322219 FITS: 0.4**