



4/8/2009

RELIABILITY MONITOR REPORT
FOR

SOIC 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		
	8	SOIC (Pb-Free)	ATP (Amkor, PI)	8 SOIC (Pb-Free)
ATP (Amkor, PI)	28	SOIC (Pb-Free)	Carsem-S	28 SOIC (Pb-Free)
Cirtek	20	SOIC Welded Crystal (RoHS)	Hana AYUTHAYA	28 SOIC
Hana AYUTHAYA	8	SOIC (Pb-Free)	OSEP	28 SOIC (Pb-Free)
Unisem Malaysia	8	SOIC	Unisem Malaysia	8 SOIC (Pb-Free)
Unisem Malaysia	16	SOIC (Pb-Free)	UTL (NSEB) UTAC	8 SOIC
UTL (NSEB) UTAC	14	SOIC	UTL (NSEB) UTAC	8 SOIC (Pb-Free)
UTL (NSEB) UTAC	16	SOIC (Pb-Free)		

The calculated failure rate for this assembly is:

FAILURE RATE: MTTF (YRS): 253334 FITS: 0.5

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 7/1/2007 and 6/30/2008.

Assembly Information:

Package Type: SOIC
Date Code Range: 0646 to 0751

OPERATING LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
HIGH TEMP OP LIFE	0646	DS75	125C, 5.5 VOLTS	1000 HRS	77	0	
HIGH TEMP OP LIFE	0751	MAX4394ESD+	135C	500 HRS	99	0	
Total:						0	

PACKAGE TESTS

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
ULTRASOUND	0741	ICL7665AESA+	J-STD-020		22	0	
LEAD FINISH ADHESION	0741	ICL7665AESA+	MIL-STD-883-2025		5	0	
SOLDERABILITY (Pb-Free)	0741	ICL7665AESA+	JESD22-B102, COND C (245C)		15	0	
Total:						0	

PRECONDITIONING LEVEL 1

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
CONVECTION REFLOW	0739	MAX3212CWI+	260C +/-5C	3 PASS	150	0	
CONVECTION REFLOW	0739	MAX3212CWI+	260C +/-5C	3 PASS	150	0	
CONVECTION REFLOW	0739	MAX3212CWI+	260C +/-5C	3 PASS	150	0	
CONVECTION REFLOW	0741	ICL7665AESA+	260C +/-5C	3 PASS	370	0	

Total: 0

STORAGE LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
STORAGE LIFE	0741	ICL7665AESA+	150C	1000 HRS	160	0	
Total:						0	

TEMPERATURE CYCLE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
TEMP CYCLE, 5' RAMP, 10' DWELL	0741	ICL7665AESA+	-65C TO 150C	1000 CYS	80	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	0741	ICL665AESA+	-65C TO 150C	500 CYS	80	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	0749	MAX4364ESA+	-65C TO 150C	1000 CYS	80	0	
Total:						0	

TEMPERATURE HUMIDITY BIAS

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
BIASED MOISTURE	0741	ICL665AESA+	130C, 85% R.H.	96 HRS	106	0	
BIASED MOISTURE	0741	ICL7665AESA+	130C, 85% R.H.	96 HRS	104	0	
BIASED MOISTURE	0749	MAX4364ESA+	130C, 85% R.H.	96 HRS	104	0	
Total:						0	

UNBIASED MOISTURE RESISTANCE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
MOISTURE SOAK	0741	ICL7665AESA+	130C, 85% R.H.	96 HRS	80	0	
MOISTURE SOAK	0749	MAX4364ESA+	130C, 85% R.H.	96 HRS	160	0	
Total:						0	

Assembly Information:

Package Type: SOIC (Pb-Free)
Date Code Range: 0628 to 0821

OPERATING LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
HIGH TEMP OP LIFE	0628	DS1232	125C, 5.5 VOLTS	1000 HRS	77	0	
HIGH TEMP OP LIFE	0647	DS2433	125C, 6.0 VOLTS	1000 HRS	77	0	
VISUAL INSPECTION	0716	DS1283	WHISKERS < 50uM		45	0	
HIGH TEMP OP LIFE	0716	DS1283	125C, 5.0 VOLTS	1000 HRS	45	0	
HIGH TEMP OP LIFE	0717	MAX312ESE+	135C	1000 HRS	50	0	
HIGH TEMP OP LIFE	0717	MAX312ESE+	135C	500 HRS	50	0	
HIGH TEMP OP LIFE	0717	MAX312ESE+	135C	1000 HRS	50	0	
HIGH TEMP OP LIFE	0717	MAX312ESE+	135C	500 HRS	50	0	
HIGH TEMP OP LIFE	0720	MAX942CSA+	135C	1000 HRS	80	0	
HIGH TEMP OP LIFE	0720	MAX4167ESA+	135C	1000 HRS	80	0	

HIGH TEMP OP LIFE	0722	DS1311	125C, 5.5 VOLTS	1000 HRS	77	0
HIGH TEMP OP LIFE	0730	MAX2102CWI+	135C	1000 HRS	45	0
HIGH TEMP OP LIFE	0730	MAX2102CWI+	135C	1000 HRS	45	0
HIGH TEMP OP LIFE	0730	MAX2102CWI+	135C	1000 HRS	44	0
HIGH TEMP OP LIFE	0732	DS1100	125C, 5.5 VOLTS	1000 HRS	77	0
HIGH TEMP OP LIFE	0742	DS2433	125C, 6.0 VOLTS	1000 HRS	77	0
HIGH TEMP OP LIFE	0742	DS2433	125C, 6.0 VOLTS	1000 HRS	77	0
HIGH TEMP OP LIFE	0742	DS1834	125C, 5.5 VOLTS	1000 HRS	77	0
HIGH TEMP OP LIFE	0744	DS8113	125C, 6.0 VOLTS	1000 HRS	45	0
HIGH TEMP OP LIFE	0746	DS7505	125C, 3.7 VOLTS	1000 HRS	77	0
HIGH TEMP OP LIFE	0751	DS75	125C, 5.5 VOLTS	1000 HRS	77	0
HIGH TEMP OP LIFE	0802	MAX3085ECSA+	135C	1000 HRS	77	0
HIGH TEMP OP LIFE	0805	DS2433	125C, 6.0 VOLTS	1000 HRS	77	0
HIGH TEMP OP LIFE	0805	DS2433	125C, 6.0 VOLTS	1000 HRS	77	0
HIGH TEMP OP LIFE	0807	DS2433	125C, 6.0 VOLTS	1000 HRS	77	0
HIGH TEMP OP LIFE	0807	DS2433	125C, 6.0 VOLTS	1000 HRS	77	0
HIGH TEMP OP LIFE	0821	DS2413	125C, 5.25 VOLTS	1000 HRS	45	0
Total:						0

PACKAGE TESTS

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
ULTRASOUND	0643	MAX9113ESA+	J-STD-020		22	0	
LEAD FINISH ADHESION	0643	MAX9113ESA+	MIL-STD-883-2025		10	0	
SOLDERABILITY (Pb-Free)	0643	MAX9113ESA+	JESD22-B102, COND C (245C)		15	0	
BOND STRENGTH	0643	MAX9113ESA+	> 5 GMS	30 WIRES	5	0	
SOLDERABILITY (Pb-Free)	0717	MAX312ESE+	JESD22-B102, COND C (245C)		15	0	
SOLDERABILITY (Pb-Free)	0717	MAX312ESE+	JESD22-B102, COND C (245C)		15	0	
SOLDERABILITY (Pb-Free)	0717	MAX312ESE+	JESD22-B102, COND C (245C)		15	0	
PHYSICAL DIMENSIONS	0730	MAX2102CWI+	JESD22-B100		15	0	
SOLDERABILITY (Pb-Free)	0730	MAX2102CWI+	JESD22-B102, COND C (245C)		15	0	
PHYSICAL DIMENSIONS	0730	MAX2102CWI+	JESD22-B100		15	0	
SOLDERABILITY (Pb-Free)	0730	MAX2102CWI+	JESD22-B102, COND C (245C)		15	0	
PHYSICAL DIMENSIONS	0730	MAX2102CWI+	JESD22-B100		15	0	
SOLDERABILITY (Pb-Free)	0730	MAX2102CWI+	JESD22-B102, COND C (245C)		15	0	
SOLDERABILITY (Pb-Free)	0808	MAX6006BESA+	JESD22-B102, COND C (245C)		15	0	
SOLDERABILITY (Pb-Free)	0808	MAX6006BESA+	JESD22-B102, COND C (245C)		15	0	

SOLDERABILITY (Pb-Free)	0808	MAX6006BESA+	JESD22-B102, COND C (245C)	15	0
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Total: 0

PRECONDITIONING LEVEL 1

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
CONVECTION REFLOW	0643	MAX9113ESA+	260C +0/-5C	3	PASS	250	0
CONVECTION REFLOW	0720	MAX942CSA+	260C +0/-5C	3	PASS	140	0
CONVECTION REFLOW	0720	MAX4167ESA+	260C +0/-5C	3	PASS	140	0
CONVECTION REFLOW	0730	MAX2102CWI+	260C +0/-5C	3	PASS	150	0
CONVECTION REFLOW	0730	MAX2102CWI+	260C +0/-5C	3	PASS	150	0
CONVECTION REFLOW	0730	MAX2102CWI+	260C +0/-5C	3	PASS	150	0
CONVECTION REFLOW	0735	DG413DY+	260C +0/-5C	3	PASS	50	0
CONVECTION REFLOW	0737	MAX1232CSA+	260C +0/-5C	3	PASS	140	0
CONVECTION REFLOW	0739	MAX312ESE+	260C +0/-5C	3	PASS	150	0
CONVECTION REFLOW	0739	MAX312ESE+	260C +0/-5C	3	PASS	150	0
CONVECTION REFLOW	0739	MAX312ESE+	260C +0/-5C	3	PASS	150	0
CONVECTION REFLOW	0802	MAX3085ECSA+	260C +0/-5C	3	PASS	218	0
CONVECTION REFLOW	0808	MAX6006BESA+	260C +0/-5C	3	PASS	260	0
CONVECTION REFLOW	0808	MAX6006BESA+	260C +0/-5C	3	PASS	260	0
Total:						0	0

SOLDER HEAT

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
SOLDER HEAT	0717	MAX312ESE+	260 C, 10SEC	1	PASS	15	0
SOLDER HEAT	0717	MAX312ESE+	260 C, 10SEC	1	PASS	15	0
SOLDER HEAT	0717	MAX312ESE+	260 C, 10SEC	1	PASS	15	0
SOLDER HEAT	0730	MAX2102CWI+	260 C, 10SEC	1	PASS	15	0
SOLDER HEAT	0730	MAX2102CWI+	260 C, 10SEC	1	PASS	15	0
SOLDER HEAT	0730	MAX2102CWI+	260 C, 10SEC	1	PASS	15	0
SOLDER HEAT	0808	MAX6006BESA+	260 C, 10SEC	1	PASS	15	0
SOLDER HEAT	0808	MAX6006BESA+	260 C, 10SEC	1	PASS	15	0
SOLDER HEAT	0808	MAX6006BESA+	260 C, 10SEC	1	PASS	15	0
Total:						0	0

SOLDER SHOCK

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
SOLDER SHOCK	0730	MAX2102CWI+	300C	1	PASS	15	0
SOLDER SHOCK	0730	MAX2102CWI+	300C	1	PASS	15	0
SOLDER SHOCK	0730	MAX2102CWI+	300C	1	PASS	15	0
SOLDER SHOCK	0808	MAX6006BESA+	300C	1	PASS	15	0
SOLDER SHOCK	0808	MAX6006BESA+	300C	1	PASS	15	0

SOLDER SHOCK	0808	MAX6006BESA+	300C	1	PASS	15	0
Total:						0	0

STORAGE LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
STORAGE LIFE	0628	DS1232	150C	1000 HRS	75	0	
STORAGE LIFE	0647	DS2433	150C	1000 HRS	76	0	
STORAGE LIFE	0716	DS1283	150C	1000 HRS	77	0	
VISUAL INSPECTION	0716	DS1283	WHISKERS < 50uM		77	0	
STORAGE LIFE	0717	MAX312ESE+	150C	1000 HRS	77	0	
STORAGE LIFE	0717	MAX312ESE+	150C	1000 HRS	77	0	
STORAGE LIFE	0717	MAX312ESE+	150C	1000 HRS	77	0	
STORAGE LIFE	0720	MAX942CSA+	150C	1000 HRS	80	0	
STORAGE LIFE	0720	MAX4167ESA+	150C	1000 HRS	80	0	
STORAGE LIFE	0730	MAX2102CWI+	150C	1000 HRS	45	0	
STORAGE LIFE	0730	MAX2102CWI+	150C	1000 HRS	45	0	
STORAGE LIFE	0730	MAX2102CWI+	150C	1000 HRS	45	0	
STORAGE LIFE	0732	DS1100	150C	1000 HRS	77	0	
STORAGE LIFE	0737	MAX1232CSA+	150C	1000 HRS	80	0	
STORAGE LIFE	0742	DS1834	150C	1000 HRS	76	0	
STORAGE LIFE	0751	DS75	150C	1000 HRS	77	0	
STORAGE LIFE	0802	MAX3085ECSA+	150C	1000 HRS	80	0	
STORAGE LIFE	0808	MAX6006BESA+	150C	1000 HRS	80	0	
STORAGE LIFE	0808	MAX6006BESA+	150C	1000 HRS	80	0	
STORAGE LIFE	0808	MAX6006BESA+	150C	1000 HRS	80	0	
Total:						0	0

TEMPERATURE CYCLE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
TEMP CYCLE, 5' RAMP, 10' DWELL	0628	DS1232	-55C TO 125C	1000 CYS	77	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	0643	MAX9113ESA+	-65C TO 150C	1000 CYS	76	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	0647	DS2433	-55C TO 125C	1000 CYS	77	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	0716	DS1283	-55C TO 125C	1000 CYS	77	0	
VISUAL INSPECTION	0716	DS1283	WHISKERS < 50uM		77	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	0717	MAX312ESE+	-65C TO 150C	1000 CYS	77	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	0717	MAX312ESE+	-65C TO 150C	1000 CYS	77	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	0717	MAX312ESE+	-65C TO 150C	1000 CYS	75	0	

TEMP CYCLE, 5' RAMP, 10' DWELL	0720	MAX942CSA+	-65C TO 150C	1000	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	0720	MAX4167ESA+	-65C TO 150C	1000	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	0730	MAX2102CWI+	-65C TO 150C	500	CYS	77	0
TEMP CYCLE, 5' RAMP, 10' DWELL	0730	MAX2102CWI+	-65C TO 150C	500	CYS	77	0
TEMP CYCLE, 5' RAMP, 10' DWELL	0730	MAX2102CWI+	-65C TO 150C	500	CYS	77	0
TEMP CYCLE, 5' RAMP, 10' DWELL	0732	DS1100	-55C TO 125C	1000	CYS	77	0
TEMP CYCLE, 5' RAMP, 10' DWELL	0737	MAX1232CSA+	-65C TO 150C	1000	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	0737	MAX1232CSA	-65C TO 150C	500	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	0742	DS1834	-55C TO 125C	1000	CYS	77	0
TEMP CYCLE, 5' RAMP, 10' DWELL	0751	DS75	-55C TO 125C	1000	CYS	77	0
TEMP CYCLE, 5' RAMP, 10' DWELL	0802	MAX3085ECSA+	-65C TO 150C	1000	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	0808	MAX6006BESA+	-65C TO 150C	1000	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	0808	MAX6006BESA+	-65C TO 150C	1000	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	0808	MAX6006BESA+	-65C TO 150C	500	CYS	80	0
Total:						0	0

TEMPERATURE HUMIDITY BIAS

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
BIASED MOISTURE	0628	DS1232	85/85, 5.5 VOLTS	1000	HRS	77	0
BIASED MOISTURE	0643	MAX9113ESA+	130C, 85% R.H.	96	HRS	77	0
HAST	0647	DS2433	130C, 85%R.H.,5.5V	96	HRS	77	0
VISUAL INSPECTION	0716	DS1283	WHISKERS < 50uM			77	0
HAST	0716	DS1283	130C, 85%R.H.,3.5V	96	HRS	77	0
BIASED MOISTURE	0717	MAX312ESE+	130C, 85% R.H.	96	HRS		0
BIASED MOISTURE	0717	MAX312ESE+	130C, 85% R.H.	100	HRS	50	0
BIASED MOISTURE	0720	MAX942CSA+	130C, 85% R.H.	100	HRS	50	0
BIASED MOISTURE	0720	MAX4167ESA+	130C, 85% R.H.	100	HRS	50	0
BIASED MOISTURE	0732	DS1100	85/85, 5.5 VOLTS	1000	HRS	77	0
BIASED MOISTURE	0735	DG413DY+	130C, 85% R.H.	96	HRS	48	0
BIASED MOISTURE	0742	DS1834	85/85, 5.5 VOLTS	1000	HRS	77	0
HAST	0751	DS75	130C, 85%R.H.,5.5V	96	HRS	77	0
BIASED MOISTURE	0802	MAX3085ECSA+	130C, 85% R.H.	96	HRS	50	0
Total:						0	0

UNBIASED MOISTURE RESISTANCE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
MOISTURE SOAK	0643	MAX9113ESA+	130C, 85% R.H.	96 HRS	77	0	
MOISTURE SOAK	0730	MAX2102CWI+	85 C/85% R.H.	1000 HRS	42	0	
MOISTURE SOAK	0730	MAX2102CWI+	85 C/85% R.H.	1000 HRS	45	0	
MOISTURE SOAK	0730	MAX2102CWI+	85 C/85% R.H.	500 HRS	45	0	
MOISTURE SOAK	0730	MAX2102CWI+	85 C/85% R.H.	500 HRS	42	0	
MOISTURE SOAK	0808	MAX6006BESA+	85 C/85% R.H.	1000 HRS	45	0	
MOISTURE SOAK	0808	MAX6006BESA+	85 C/85% R.H.	1000 HRS	50	0	
MOISTURE SOAK	0808	MAX6006BESA+	85 C/85% R.H.	1000 HRS	45	0	
Total:						0	

W/E ENDURANCE AND DATA RET'N

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
WRITE CYCLE STRESS (KCYS)	0647	DS2433	25 C, 5.0 VOLTS	50 KCYS	77	0	
STORAGE LIFE	0647	DS2433	150C	1000 HRS	77	0	
STORAGE LIFE	0742	DS2433	150C	1000 HRS	150	0	
STORAGE LIFE	0742	DS2433	150C	1000 HRS	150	0	
WRITE CYCLE STRESS (KCYS)	0742	DS2433	25 C, 5.0 VOLTS	50 KCYS	150	0	
WRITE CYCLE STRESS (KCYS)	0742	DS2433	25 C, 5.0 VOLTS	50 KCYS	150	0	
WRITE CYCLE STRESS (KCYS)	0746	DS7505	25 C, 3.7 VOLTS	80 KCYS	77	0	
STORAGE LIFE	0746	DS7505	150C	1000 HRS	77	0	
WRITE CYCLE STRESS (KCYS)	0746	DS7505	85 C, 3.7 VOLTS	20 KCYS	77	0	
STORAGE LIFE	0746	DS7505	150C	1000 HRS	77	0	
STORAGE LIFE	0805	DS2433	150C	1000 HRS	231	0	
WRITE CYCLE STRESS (KCYS)	0805	DS2433	25 C, 5.0 VOLTS	50 KCYS	231	0	
STORAGE LIFE	0805	DS2433	150C	1000 HRS	231	0	
WRITE CYCLE STRESS (KCYS)	0805	DS2433	25 C, 5.0 VOLTS	50 KCYS	231	0	
WRITE CYCLE STRESS (KCYS)	0807	DS2433	25 C, 5.0 VOLTS	50 KCYS	231	0	
STORAGE LIFE	0807	DS2433	150C	1000 HRS	231	0	
STORAGE LIFE	0807	DS2433	150C	1000 HRS	231	0	
WRITE CYCLE STRESS (KCYS)	0807	DS2433	25 C, 5.0 VOLTS	50 KCYS	231	0	
Total:						0	

Assembly Information:

Package Type: SOIC w/Crystal
Date Code Range: 0720 to 0720

OPERATING LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
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HIGH TEMP OP LIFE	0720	DS3232	125C, 5.5 VOLTS	1000 HRS	45	0
				Total:		0

FAILURE RATE: MTTF (YRS): 253334 FITS: 0.5