



4/17/2012

**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		
ASE Chung-Li	8	SOIC Stacked Die and Crystal (Pb-Free)	ATP	8 SOIC (Pb-Free)
ATP	20	SOIC (Pb-Free)	Carsem-M	8 SOIC (Pb-Free)
Cypress	32	SOIC	HANA AYT	8 SOIC (Pb-Free)
Mitsubishi	28	SOIC	Renesas	32 SOIC (Pb-Free)
Unisem Malaysia	8	SOIC (Pb-Free)	UTL	8 SOIC (Pb-Free)
UTL	16	SOIC (Pb-Free)		

The calculated failure rate for this assembly is:

**FAILURE RATE: MTTF (YRS): 126839 FITS: 0.9**

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 4/1/2011 and 3/31/2012.

**Assembly Information:**

Package Type: SOIC  
Date Code Range: 1107 to 1132

**OPERATING LIFE**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
HIGH VOLTAGE LIFE	1107	CY62148ELL	125C, 5.5 VOLTS	168 HRS	98	0	
HIGH VOLTAGE LIFE	1107	CY62148ELL	125C, 5.5 VOLTS	168 HRS	100	0	
HIGH VOLTAGE LIFE	1107	CY62148ELL	125C, 5.5 VOLTS	168 HRS	100	0	
HIGH VOLTAGE LIFE	1132	R1LP5256ES	125C, 5.5 VOLTS	168 HRS	100	0	
HIGH VOLTAGE LIFE	1132	R1LP5256ES	125C, 5.5 VOLTS	168 HRS	100	0	
HIGH VOLTAGE LIFE	1132	R1LP5256ES	125C, 5.5 VOLTS	168 HRS	100	0	
HIGH VOLTAGE LIFE	1132	R1LV5256ES	125C, 4.0 VOLTS (PSA)	168 HRS	100	0	
HIGH VOLTAGE LIFE	1132	R1LV5256ES	125C, 4.0 VOLTS (PSA)	168 HRS	100	0	
HIGH VOLTAGE LIFE	1132	R1LV5256ES	125C, 4.0 VOLTS (PSA)	168 HRS	100	0	
<b>Total:</b>						<b>0</b>	

**Assembly Information:**

Package Type: SOIC (Pb-Free)  
Date Code Range: 1011 to 1152

**OPERATING LIFE**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
HIGH TEMP OP LIFE	1011	MAX9919NASA+	135C	1000 HRS	32	0	

HIGH TEMP OP LIFE	1018	MAX14574ESE+	135C	192	HRS	50	0
HIGH TEMP OP LIFE	1040	DS2433	60C, 7.8 VOLTS	17	HRS	80	0
HIGH TEMP OP LIFE	1047	DS24B33	125C, 5.25 VOLTS	192	HRS	77	0
HIGH VOLTAGE LIFE	1101	R1LV0108ES	125C, 4.0 VOLTS (PSA)	168	HRS	100	0
HIGH VOLTAGE LIFE	1102	R1LV0108ES	125C, 4.0 VOLTS (PSA)	168	HRS	99	0
HIGH VOLTAGE LIFE	1105	R1LV0108ES	125C, 4.0 VOLTS (PSA)	168	HRS	100	0
HIGH TEMP OP LIFE	1107	MAX913CSA+	135C	1000	HRS	80	0
HIGH TEMP OP LIFE	1107	MAX16822BASA+	135C	1000	HRS	80	0
HIGH TEMP OP LIFE	1109	MAX16841ASA+T	135C	192	HRS	78	0
HIGH TEMP OP LIFE	1134	MAX16841ASA+	135C	192	HRS	80	0
HIGH TEMP OP LIFE	1135	DS28EC20	125C, 5.25 VOLTS	192	HRS	77	0
HIGH TEMP OP LIFE	1136	MAX13085EESA+	135C	1000	HRS	45	0
HIGH TEMP OP LIFE	1136	MAX13085EESA+	135C	500	HRS	45	0
HIGH TEMP OP LIFE	1138	DS75	125C, 5.5 VOLTS	1000	HRS	80	0
HIGH TEMP OP LIFE	1138	DS18S20	125C, 5.5 VOLTS	1000	HRS	80	0
HIGH TEMP OP LIFE	1143	DS2483	125C, 5.25 VOLTS	192	HRS	45	0
HIGH TEMP OP LIFE	1144	MAX913CSA+	135C	500	HRS	78	0
HIGH TEMP OP LIFE	1144	MAX913CSA+	135C	500	HRS	80	0
HIGH TEMP OP LIFE	1144	MAX913CSA+	135C	192	HRS	80	0
HIGH TEMP OP LIFE	1152	MAX13021ASA+	135C	500	HRS	97	0
<b>Total:</b>						<b>0</b>	<b>0</b>

### STORAGE LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
STORAGE LIFE	1131	MAX4257ESA+	150C	500	HRS	80	0
STORAGE LIFE	1133	MAX5033DASA/V+	150C	1000	HRS	50	0
STORAGE LIFE	1136	MAX13085EESA+	150C	1000	HRS	77	0
STORAGE LIFE	1136	MAX13085EESA+	150C	1000	HRS	77	0
STORAGE LIFE	1136	MAX13485EESA+	150C	500	HRS	77	0
STORAGE LIFE	1136	MAX13485EESA+	150C	1000	HRS	77	0
STORAGE LIFE	1136	MAX13485EESA+	150C	500	HRS	77	0
STORAGE LIFE	1136	MAX13485EESA+	150C	1000	HRS	77	0
STORAGE LIFE	1136	MAX3232CSE+	150C	1000	HRS	77	0
STORAGE LIFE	1136	MAX3232CSE+	150C	1000	HRS	77	0
STORAGE LIFE	1138	DS75	150C	1000	HRS	79	0
STORAGE LIFE	1138	DS18S20	150C	1000	HRS	80	0
STORAGE LIFE	1139	MAX5033BASA+	150C	1000	HRS	50	0
STORAGE LIFE	1152	MAX13021ASA+	150C	500	HRS	50	0
<b>Total:</b>						<b>0</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	1102	MAX5062AASA+	-65C TO 150C	1000 CYS	80	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1114	MAX233ACWP+G36	-65C TO 150C	50 CYS	500	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1131	MAX4257ESA+	-65C TO 150C	500 CYS	80	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1133	MAX5033DASA/V+	-65C TO 150C	500 CYS	80	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1136	MAX13085EESA+	-65C TO 150C	1000 CYS	77	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1136	MAX13085EESA+	-65C TO 150C	1000 CYS	77	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1136	MAX13485EESA+	-65C TO 150C	1000 CYS	77	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1136	MAX13485EESA+	-65C TO 150C	500 CYS	77	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1136	MAX3232CSE+	-65C TO 150C	1000 CYS	77	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1136	MAX3232CSE+	-65C TO 150C	1000 CYS	77	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1137	MAX5033AASA/V+	-65C TO 150C	500 CYS	80	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1138	DS75	-55C TO 125C	1000 CYS	80	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1138	DS18S20	-55C TO 125C	1000 CYS	80	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1139	MAX5033BASA+	-65C TO 150C	500 CYS	80	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1152	MAX13021ASA+	-65C TO 150C	500 CYS	80	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1152	MAX13021ASA+	-65C TO 150C	500 CYS	80	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	1131	MAX4257ESA+	130C, 85% R.H.	100 HRS	80	0	
BIASED MOISTURE	1133	MAX5033DASA/V+	130C, 85% R.H.	100 HRS	80	0	
BIASED MOISTURE	1137	MAX5033AASA/V+	130C, 85% R.H.	100 HRS	80	0	
HAST	1138	DS75	130C, 85%R.H.,5.5V	96 HRS	80	0	
HAST	1138	DS18S20	130C, 85%R.H.,5.5V	96 HRS	80	0	
BIASED MOISTURE	1139	MAX5033BASA+	130C, 85% R.H.	100 HRS	80	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
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MOISTURE SOAK	1131	MAX4257ESA+	130C, 85% R.H.	100	HRS	80	0
MOISTURE SOAK	1133	MAX5033DASA/V+	130C, 85% R.H.	100	HRS	80	0
MOISTURE SOAK	1137	MAX5033AASA/V+	130C, 85% R.H.	100	HRS	80	0
MOISTURE SOAK	1152	MAX13021ASA+	130C, 85% R.H.	100	HRS	80	0
MOISTURE SOAK	1152	MAX13021ASA+	130C, 85% R.H.	100	HRS	80	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	1127	DS28E01	150C	1000 HRS	77	0	
WRITE CYCLE STRESS (KCYS)	1127	DS28E01	85 C, 5.25 VOLTS	50 KCYS	77	0	
STORAGE LIFE	1127	DS28E01	150C	1000 HRS	75	0	
WRITE CYCLE STRESS (KCYS)	1127	DS28E01	25 C, 5.25 VOLTS	200 KCYS	77	0	
STORAGE LIFE	1134	DS28EC20	150C	1000 HRS	77	0	
WRITE CYCLE STRESS (KCYS)	1134	DS28EC20	85 C, 5.25 VOLTS	50 KCYS	77	0	
WRITE CYCLE STRESS (KCYS)	1134	DS28EC20	25 C, 5.25 VOLTS	200 KCYS	77	0	
STORAGE LIFE	1134	DS28EC20	150C	1000 HRS	74	0	
WRITE CYCLE STRESS (KCYS)	1135	DS28EC20	85 C, 5.25 VOLTS	50 KCYS	77	1	40037104
STORAGE LIFE	1135	DS28EC20	150C	1000 HRS	76	0	
WRITE CYCLE STRESS (KCYS)	1135	DS28EC20	25 C, 5.25 VOLTS	200 KCYS	77	0	
STORAGE LIFE	1135	DS28EC20	150C	1000 HRS	77	0	
STORAGE LIFE	1135	DS28EC20	150C	1000 HRS	80	0	
WRITE CYCLE STRESS (KCYS)	1135	DS28EC20	85 C, 5.25 VOLTS	50 KCYS	80	0	
WRITE CYCLE STRESS (KCYS)	1137	DS28EC20	85 C, 5.25 VOLTS	50 KCYS	77	0	
STORAGE LIFE	1137	DS28EC20	150C	1000 HRS	77	0	
WRITE CYCLE STRESS (KCYS)	1137	DS28EC20	25 C, 5.25 VOLTS	200 KCYS	77	0	
STORAGE LIFE	1137	DS28EC20	150C	1000 HRS	76	0	
<b>Total:</b>							<b>1</b>

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#### Assembly Information:

Package Type: SOIC Stacked Die and Crystal (Pb-Free)

Date Code Range: 1118 to 1118

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#### STORAGE LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
STORAGE LIFE	1118	DS3231M	150C	1000 HRS	77	0	
STORAGE LIFE	1118	DS3231M	150C	1000 HRS	77	0	
STORAGE LIFE	1118	DS3231M	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	1118	DS3231M	-55C TO 125C	1000	CYS	77	0
BOND STRENGTH	1118	DS3231M	MIL-STD-883-2011 : COND D (IPC-TM-650_2.4.42.3)	40	WIRES	67	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1118	DS3231M	-55C TO 125C	1000	CYS	77	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1118	DS3231M	-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
HAST	1118	DS3231M	130C, 85%R.H.,5.5V	192	HRS	77	0
HAST	1118	DS3231M	130C, 85%R.H.,5.5V	192	HRS	77	0
HAST	1118	DS3231M	130C, 85%R.H.,5.5V	96	HRS	77	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	1118	DS3231M	130C, 85% R.H.	96	HRS	77	0
HAST, NO BIAS	1118	DS3231M	130C, 85% R.H.	96	HRS	77	0
HAST, NO BIAS	1118	DS3231M	130C, 85% R.H.	96	HRS	77	0
<b>Total:</b>						<b>0</b>	

**FAILURE RATE: MTTF (YRS): 126839 FITS: 0.9**