



10/8/10

**RELIABILITY MONITOR REPORT  
FOR**

**Epson 0.4 $\mu$ m Silicon Gate CMOS (S45)**

**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 Process Reliability Monitor. The specific products in this process monitor are:

MA8991EWG+T	MAX8697SEWQ	MAX8698CEMO	MAX8698CEWO	MAX8906EWA+
MAX8920EWI+T	MAX8998EWQ+			

The calculated failure rate for devices using this process is:

**FAILURE RATE:    MTTF (YRS): 30521    QUANTITY: 180    FAILS: 0    FITS: 3.7**

The parameters used to calculate this failure rate are as follows:

**Cf: 60%                    Ea: 0.7                    Tu: 25    °C**

The reliability data follows and in this section is the detailed reliability data by stress. The reliability data section includes the latest data available. This report covers data between 10/1/2009 and 9/30/2010 .

**Process Information:**

Process Description:            Epson 0.4µm Silicon Gate CMOS (S45)

**OPERATING LIFE**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	LOT NO.
HIGH TEMP OP LIFE	0838	MAX8920EWI+T	135C	1000 HRS	45	0	ETUZDQ002E
HIGH TEMP OP LIFE	1028	MAX8698CEMO+	135C	500 HRS	45	0	EQQXBA120CB
HIGH TEMP OP LIFE	N/A	MAX8920EWI+T	135C	1000 HRS	45	0	ETUYAA004C
HIGH TEMP OP LIFE	N/A	MAX8697SEWQ+T	135C	1000 HRS	45	0	EKQXBA148B
<b>Total:</b>						<b>0</b>	

**STORAGE LIFE**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	LOT NO.
STORAGE LIFE	0111	MAX8698CEWO+T	150C	500 HRS	77	0	EQQXBA120BJ
STORAGE LIFE	0111	MAX8698CEWO+T	150C	500 HRS	77	0	EQQXBA120BH
STORAGE LIFE	0111	MAX8698CEWO+T	150C	500 HRS	77	0	EQQXBA120BF
STORAGE LIFE	1028	MAX8698CEMO+	150C	500 HRS	77	0	EQQXBA120CB
STORAGE LIFE	1028	MAX8698CEMO+	150C	500 HRS	77	0	EQQXBA120DB
STORAGE LIFE	N/A	MAX8998EWQ+T	150C	1000 HRS	80	0	EZUZDA004BA
STORAGE LIFE	N/A	MAX8998EWQ+T	150C	1000 HRS	80	0	EZUZDA004BE
STORAGE LIFE	N/A	MAX8998EWQ+T	150C	1000 HRS	80	0	EZUZDA004BD
STORAGE LIFE	N/A	MAX8920EWI+T	150C	1000 HRS	77	0	ETUYAA004C
STORAGE LIFE	N/A	MAX8920EWI+T	150C	1000 HRS	77	0	ETUYAA004D
STORAGE LIFE	N/A	MAX8998EWQ+T	150C	500 HRS	80	0	EZUZEAA006C
STORAGE LIFE	N/A	MAX8998EWQ+T	150C	500 HRS	80	0	EZUZEAA006D
STORAGE LIFE	N/A	MAX8998EWQ+T	150C	500 HRS	80	0	EZUZEAA006E

STORAGE LIFE	N/A	MAX8697SEWQ+T	150C	1000	HRS	79	0	EKQXBA148BB
						<b>Total:</b>	<b>0</b>	

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**TEMPERATURE CYCLE**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	LOT NO.
TEMP CYCLE, 15' RAMP, 15' DWELL	N/A	MAX8906EWA+T	-40C TO +125C	400	CYS	30	ENNYEA140A
TEMP CYCLE, 15' RAMP, 15' DWELL	N/A	MAX8906EWA+T	-40C TO +125C	400	CYS	40	0 ENNYEA146A
TEMP CYCLE, 15' RAMP, 15' DWELL	N/A	MAX8906EWA+T	-40C TO +125C	400	CYS	40	ENNYEA038CZ
TEMP CYCLE, 15' RAMP, 15' DWELL	N/A	MAX8906EWA+T	-40C TO +125C	350	CYS	80	ENNYEA239BA
TEMP CYCLE, 15' RAMP, 15' DWELL	N/A	MAX8906EWA+T	-40C TO +125C	350	CYS	80	ENNYEA239BB
TEMP CYCLE, 15' RAMP, 15' DWELL	N/A	MAX8906EWA+T	-40C TO +125C	350	CYS	80	0 ENNYEA239BC
TEMP CYCLE, 15' RAMP, 15' DWELL	N/A	MAX8998EWQ+T	-40C TO +125C	350	CYS	200	EZUZDA005BH
TEMP CYCLE, 15' RAMP, 15' DWELL	N/A	MAX8920EWI+T	-40C TO +125C	750	CYS	75	ETUYAA004C
TEMP CYCLE, 15' RAMP, 15' DWELL	N/A	MAX8920EWI+T	-40C TO +125C	750	CYS	77	0 ETUYAA004D
TEMP CYCLE, 15' RAMP, 15' DWELL	N/A	MAX8920EWI+T	-40C TO +125C	750	CYS	75	ETUYAA004E
TEMP CYCLE, 15' RAMP, 15' DWELL	N/A	MAX8998EWQ+T	-40C TO +125C	1000	CYS	80	0 EZUZEAA006C
TEMP CYCLE, 5' RAMP, 10' DWELL	N/A	MAX8998EWQ+T	-65C TO 150C	500	CYS	77	0 EZUZEAA006C
TEMP CYCLE, 15' RAMP, 15' DWELL	N/A	MAX8998EWQ+T	-40C TO +125C	1000	CYS	80	0 EZUZEAA006D
TEMP CYCLE, 5' RAMP, 10' DWELL	N/A	MAX8998EWQ+T	-65C TO 150C	500	CYS	77	0 EZUZEAA006D
TEMP CYCLE, 15' RAMP, 15' DWELL	N/A	MAX8998EWQ+T	-40C TO +125C	1000	CYS	80	0 EZUZEAA006E
TEMP CYCLE, 5' RAMP, 10' DWELL	N/A	MAX8998EWQ+T	-65C TO 150C	500	CYS	77	0 EZUZEAA006E
TEMP CYCLE, 15' RAMP, 15' DWELL	N/A	MAX8697SEWQ+T	-40C TO +125C	750	CYS	78	EKQXBA148B
TEMP CYCLE, 15' RAMP, 15' DWELL	N/A	MAX8697SEWQ+T	-40C TO +125C	750	CYS	79	EKQXBA148BA
TEMP CYCLE, 15' RAMP, 15' DWELL	N/A	MAX8697SEWQ+T	-40C TO +125C	750	CYS	77	EKQXBA148BB
TEMP CYCLE, 15' RAMP, 15' DWELL	N/A	MA8991EWG+T	-40C TO +125C	500	CYS	80	0 EYGYCA029AD
TEMP CYCLE, 15' RAMP, 15' DWELL	N/A	MA8991EWG+T	-40C TO +125C	500	CYS	80	0 EYGYCA031AJ
TEMP CYCLE, 15' RAMP, 15' DWELL	N/A	MA8991EWG+T	-40C TO +125C	500	CYS	80	0 EYGYCA036AK
						<b>Total:</b>	<b>0</b>

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**UNBIASED MOISTURE RESISTANCE**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	LOT NO.
MOISTURE SOAK	1028	MAX8698CEMO+	85 C/85% R.H.	408 HRS	44	0	EQQXBA120CB
					<b>Total:</b>	<b>0</b>	
<b>FAILURE RATE:</b>	<b>MTTF (YRS):</b>	<b>30521</b>	<b>QUANTITY:</b>	<b>180</b>	<b>FAILS:</b>	<b>0</b>	<b>FITS:</b> 3.7