

4/17/2013



**RELIABILITY MONITOR REPORT
FOR**

Epson 0.18 μ m Silicon Gate CMOS (S18)

MAXIM INTEGRATED

**160 RIO ROBLES
SAN JOSE, CA 95134**

**This Report was prepared by
MAXIM INTEGRATED 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:

MAX14648ETI+	MAX14654EUB+	MAX15492GTA+	MAX44260AYT	MAX77611EWJ+
MAX77612AEXJ	MAX77612BEXJ	MAX77686EWE	MAX9606EWL+	MAX9688ETI+
MAX98090AEW	MAX98304CEW	MAX98355AEW		

The calculated failure rate for devices using this process is:

FAILURE RATE: MTTF (YRS): 24739 QUANTITY: 1009 FAILS: 2 FITS: 4.6

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 4/1/2012 and 3/31/2013 .

Process Information:

Process Description: Epson 0.18µm Silicon Gate CMOS (S18)

OPERATING LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	LOT NO.
HIGH TEMP OP LIFE		MAX77612AEXJ+	135°C	1000 HRS	45	0	EAFU4A126A#
HIGH TEMP OP LIFE	1215	MAX77686EWE+	135°C	1000 HRS	45	0	EAEU3A017A#
HIGH TEMP OP LIFE	1219	MAX44260AYT+	135°C	1000 HRS	77	0	EADW5A007Q1
HIGH TEMP OP LIFE	1219	MAX44260AYT+	135°C	1000 HRS	77	0	EADW5A007Q2
HIGH TEMP OP LIFE	1219	MAX44260AYT+	135°C	1000 HRS	75	0	EADW5A007Q3
HIGH TEMP OP LIFE	1221	MAX98355AEWL+T	135°C	192 HRS	48	0	EAFU8Q002AQ
HIGH TEMP OP LIFE	1226	MAX77611EWJ+T	135°C	192 HRS	47	0	EAGO2Q001AQ
HIGH TEMP OP LIFE	1227	MAX77612AEXJ+	135°C	1000 HRS	45	0	EAFU4A035AI
HIGH TEMP OP LIFE	1230	MAX15492GTA+	135°C	216 HRS	80	0	EAIM1Q001AQ
HIGH TEMP OP LIFE	1231	MAX77612AEXJ+	135°C	1000 HRS	45	0	EAFU4A060AB
HIGH TEMP OP LIFE	1237	MAX98090AEWJ+T	135°C	192 HRS	50	0	EAJC3Q003BQ
HIGH TEMP OP LIFE	1240	MAX14654EUB+	135°C	192 HRS	79	0	EAJA0Q001AQ
HIGH TEMP OP LIFE	1241	MAX14648ETI+	135°C	192 HRS	80	0	EAJA6Q001BQ
HIGH TEMP OP LIFE	1245	MAX9606EWL+T	135°C	192 HRS	48	1	EAJI3Q001BQ
HIGH TEMP OP LIFE	1250	MAX9688ETI+	135°C	500 HRS	78	1	EAJJ5A005A#
HIGH TEMP OP LIFE	N/A	MAX77612AEXJ+	135°C	500 HRS	45	0	EAFU4A020A#
HIGH TEMP OP LIFE	N/A	MAX77612AEXJ+	135°C	168 HRS	45	0	EAFU4A030B#
				Total:		2	

STORAGE LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	LOT NO.
STORAGE LIFE		MAX77612AEXJ+	150°C	1000 HRS	77	0	EAFU4A020AC
STORAGE LIFE	1219	MAX44260AYT+	150°C	1000 HRS	76	0	EADW5A007Q1
STORAGE LIFE	1219	MAX44260AYT+	150°C	1000 HRS	77	0	EADW5A007Q2
STORAGE LIFE	1219	MAX44260AYT+	150°C	1000 HRS	73	0	EADW5A007Q3
STORAGE LIFE	1248	MAX9688ETI+	150°C	1000 HRS	80	0	EAJJ5Q001A#
STORAGE LIFE	1249	MAX9688ETI+	150°C	1000 HRS	80	0	EAJJ5Q003B#
STORAGE LIFE	1250	MAX9688ETI+	150°C	1000 HRS	80	0	EAJJ5A005A#
STORAGE LIFE	N/A	MAX77686EWE+	150°C	1000 HRS	77	0	EAEU3A017A#
STORAGE LIFE	N/A	MAX77686EWE+	150°C	1000 HRS	77	0	EAEU3A017B#
STORAGE LIFE	N/A	MAX77686EWE+	150°C	500 HRS	77	0	EAEU3A017C
STORAGE LIFE	N/A	MAX77686EWE+	150°C	1000 HRS	77	0	EAEU3A017C#
STORAGE LIFE	N/A	MAX77612AEXJ+	150°C	1000 HRS	77	0	EAFU4A020A#
STORAGE LIFE	N/A	MAX77612AEXJ+	150°C	1000 HRS	77	0	EAFU4A027B1
STORAGE LIFE	N/A	MAX77612AEXJ+	150°C	1000 HRS	77	0	EAFU4A027B2
STORAGE LIFE	N/A	MAX77612AEXJ+	150°C	1000 HRS	77	0	EAFU4A027B3
STORAGE LIFE	N/A	MAX77612AEXJ+	150°C	1000 HRS	77	0	EAFU4A126A#
STORAGE LIFE	N/A	MAX77686EWE+	150°C	1000 HRS	77	0	EAEU3A184Q1
STORAGE LIFE	N/A	MAX77686EWE+	150°C	1000 HRS	77	0	EAEU3A184Q2
STORAGE LIFE	N/A	MAX77686EWE+	150°C	1000 HRS	77	0	EAEU3A484Q3
STORAGE LIFE	NA	MAX77612BEXJ+	150°C	1000 HRS	77	0	EAFU4A030C#
Total:						0	

TEMPERATURE CYCLE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	LOT NO.
TEMP CYCLE, 15' RAMP, 15' DWELL		MAX98304CEWL+	-40C TO +125C	500 CYS	100	0	EQ2ZDQ001A#
TEMP CYCLE, 15' RAMP, 15' DWELL		MAX98304CEWL+	-40C TO +125C	500 CYS	100	0	EQ2ZDQ003A#
TEMP CYCLE, 15' RAMP, 15' DWELL		MAX77612AEXJ+	-40C TO +125C	1000 CYS	80	1	EAFU4A041AN
TEMP CYCLE, 15' RAMP, 15' DWELL		MAX77612AEXJ+	-40C TO +125C	1000 CYS	80	0	EAFU4A047A#
TEMP CYCLE, 15' RAMP, 15' DWELL		MAX77612AEXJ+	-40C TO +125C	1000 CYS	80	0	EAFU4A061AC
TEMP CYCLE, 5' RAMP, 10' DWELL	1219	MAX44260AYT+	-65C TO 150C	1000 CYS	77	0	EADW5A007Q1
TEMP CYCLE, 5' RAMP, 10' DWELL	1219	MAX44260AYT+	-65C TO 150C	1000 CYS	77	0	EADW5A007Q2
TEMP CYCLE, 5' RAMP, 10' DWELL	1219	MAX44260AYT+	-65C TO 150C	1000 CYS	77	0	EADW5A007Q3

TEMP CYCLE, 15' RAMP, 15' DWELL	N/A	MAX77686EWE+	-40C TO +125C	250	CYS	77	0	EAEU3A017A#
TEMP CYCLE, 15' RAMP, 15' DWELL	N/A	MAX77686EWE+	-40C TO +125C	500	CYS	77	0	EAEU3A017A
TEMP CYCLE, 15' RAMP, 15' DWELL	N/A	MAX77686EWE+	-40C TO +125C	250	CYS	77	0	EAEU3A017B
TEMP CYCLE, 15' RAMP, 15' DWELL	N/A	MAX77686EWE+	-40C TO +125C	500	CYS	77	0	EAEU3A017B#
TEMP CYCLE, 15' RAMP, 15' DWELL	N/A	MAX77686EWE+	-40C TO +125C	500	CYS	77	0	EAEU3A017C
TEMP CYCLE, 5' RAMP, 10' DWELL	N/A	MAX77612AEXJ+	-65C TO 150C	500	CYS	77	0	EAFU4A020A#
TEMP CYCLE, 5' RAMP, 10' DWELL	N/A	MAX77612AEXJ+	-65C TO 150C	1000	CYS	77	0	EAFU4A020AC
TEMP CYCLE, 5' RAMP, 10' DWELL	N/A	MAX77612AEXJ+	-65C TO 150C	1000	CYS	77	0	EAFU4A030B#
TEMP CYCLE, 5' RAMP, 10' DWELL	N/A	MAX77612AEXJ+	-65C TO 150C	1000	CYS	77	0	EAFU4A027B1
TEMP CYCLE, 5' RAMP, 10' DWELL	N/A	MAX77612AEXJ+	-65C TO 150C	1000	CYS	77	0	EAFU4A027B2
TEMP CYCLE, 5' RAMP, 10' DWELL	N/A	MAX77612AEXJ+	-65C TO 150C	1000	CYS	77	0	EAFU4A027B3
TEMP CYCLE, 5' RAMP, 10' DWELL	N/A	MAX77612AEXJ+	-65C TO 150C	1000	CYS	77	0	EAFU4A126A#
TEMP CYCLE, 15' RAMP, 15' DWELL	N/A	MAX77612AEXJ+	-40C TO +125C	750	CYS	80	0	EAFU4A061A#
TEMP CYCLE, 15' RAMP, 15' DWELL	N/A	MAX77686EWE+	-40C TO +125C	500	CYS	77	0	EAEU3A184Q1
TEMP CYCLE, 15' RAMP, 15' DWELL	N/A	MAX77686EWE+	-40C TO +125C	500	CYS	77	0	EAEU3A184Q2
TEMP CYCLE, 15' RAMP, 15' DWELL	N/A	MAX77686EWE+	-40C TO +125C	500	CYS	77	0	EAEU3A184Q3
TEMP CYCLE, 5' RAMP, 10' DWELL	NA	MAX77612AEXJ+	-65C TO 150C	1000	CYS	77	1	EAFU4A030C#
Total:							2	

TEMPERATURE HUMIDITY BIAS

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	LOT NO.	
BIASED MOISTURE	1219	MAX44260AYT+	130C, 85% R.H.	100	HRS	45	0	EADW5A007Q2
Total:							0	

UNBIASED MOISTURE RESISTANCE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	LOT NO.	
MOISTURE SOAK		MAX77612AEXJ+	85 C/85% R.H.	1000	HRS	45	1	EAFU4A020AC
MOISTURE SOAK	1219	MAX44260AYT+	130C, 85% R.H.	100	HRS	77	0	EADW5A007Q1
MOISTURE SOAK	1219	MAX44260AYT+	130C, 85% R.H.	500	HRS	77	0	EADW5007Q1
MOISTURE SOAK	1219	MAX44260AYT+	130C, 85% R.H.	100	HRS	77	0	EADW5A007Q2
MOISTURE SOAK	1219	MAX44260AYT+	130C, 85% R.H.	500	HRS	75	0	EADW5007Q2

MOISTURE SOAK	1219	MAX44260AYT+	130C, 85% R.H.	100	HRS	77	0	EADW5A007Q3
MOISTURE SOAK	1219	MAX44260AYT+	130C, 85% R.H.	500	HRS	77	0	EADW5007Q3
MOISTURE SOAK	N/A	MAX77612AEXJ+	85 C/85% R.H.	1000	HRS	45	1	EAFU4A020A#
						Total:	2	
FAILURE RATE:	MTTF (YRS):	24739	QUANTITY:	1009	FAILS:	2	FITS:	4.6