

Aerospace Products Radiation Test

Result Summary

Table 1. Memories, ASIC and FPGA Products

Device Type	Format/Function/Speed	Part Number	Total Dose (TM1019.5)			Latch-up 25°C V _{CC} Max	SEU LET Threshold V _{CC} Min	Cross Section /Bit
			Functional	Parametric				
			(Krads)	(Krads)	Typical I _{CCSB} (mA)	(MeV/mg/c m ²)	(MeV/mg/c m ²)	(E.-6 cm ²)
CMOS SRAM	5V 128K x 8/30 ns	65608E	30	30	5	>80	2	0.2
CMOS SRAM	3.3V 128K x 8/40 ns	65609E	200	200	5	>80	3	0.17
CMOS SRAM	3.3V 512K x 8/15 ns to 17 ns	AT60142 F/FT	300	300	4	>80	1	0.07
CMOS FIFO	4K x 9/15 ns	67204H	30	30	5	>80	7	0.15
CMOS FIFO	16K x 9/15 ns	67206H	30	30	5	>80	7	0.15
CMOS FIFO	16K x 9 +prog. flag/15 ns	672061H	30	30	5	>80	7	0.15
CMOS DPR	8K x 16/35 ns	67025E	30	30	5	>80	7	0.15
CMOS EEPROM	3.3V 1Mx1 serial / 100 ns	AT17LV0 10-10DP	Biased:20 Unbiased: 60	Biased:20 Unbiased: 60	0.2	>80	(4)	(4)
CMOS Sea of Gates	5V at 350K gates	MG1RT	60	60	0.0001/gate	>80	30	0.9
CMOS Sea of Gates	5V at 500K gates	MG2RT	90	60	0.0001/gate	>80	15 ⁽²⁾	0.3
CMOS Sea of Gates	5V at 350K gates	MG2RTP	300	300	0.0001/gate	>80	15 ⁽²⁾	0.5
CMOS Sea of Gates	3.3V at 1600K gates	MH1RT	300	300	0.00001/gate	>80	15 ⁽²⁾	0.25
CMOS Cell- based ASIC	1.8V at 5.5.M gates	ATC18R HA	300	300	5 E-7 / gate	>80	30 ⁽²⁾	0.04
CMOS SRAM-based FPGA	3.3V : 40K gates	AT40KEL 040	300	300	5	>80	16 ⁽³⁾⁽⁴⁾	0.025 ⁽³⁾⁽⁴⁾

Table 2. Processor Products

Device Type	Format/Function/Speed	Part Number	Total Dose (TM1019.5)			Latch-up 25°C V _{CC} Max	SEU LET Threshold V _{CC} Min	Cross Section /Device
			Functional	Parametric				
			(Krads)	(Krads)	Typical I _{CCSB} (mA)	(MeV/mg/c m ²)	(MeV/mg/c m ²)	(E.-3 cm ²)
8-bit MCU	ROMLess/30 MHz	80C32E	30	30	15	>100	4	2
SPARC MPU	25 MHz/20 MIPS/5V ⁽¹⁾	TSC695F	300	300	50	>100	15	0.02
SPARC MPU	15 MHz/12 MIPS/3.3V ⁽¹⁾	TSC695FL	300	300	50	>100	7.5	0.022
DSP	32-bit Floating Point 20 MHz/5V	TSC21020F	100	100	50	>100	50	0.08

- Notes:
1. Fault tolerant designs (on-chip SEU induced error detection/correction).
 2. SEU free libraries available.
 3. Applicable to the configuration memory.
 4. Contact Atmel for more information.





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