

Radiation sensitivity data of electronic components

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PLEASE NOTE :

1. This data is provided only as an INDICATION of radiation sensitivity of components I used in some of my projects.
In most cases the data is based on ROUGH ESTIMATES.
2. A component from a different manufacturer or batch, operated in different conditions may tolerate radiation differently.
3. If not stated otherwise, the integrated doses indicated below did not have significant influence on part functionality.

project number	1	2	3	4
facility	CTF3	SPS	LHC	LHC
project	BPM head amplifier	BBQ front-end	BBQ front-end	BQK driver proto
position w.r.t. ground [m]	0.3	0.3	0.3	0.3
position w.r.t. beam pipe [m]	-1.0	-1.0	-1.0	-1.0
species	electrons	protons	protons	protons
energy	1 - 150 MeV	26 - 450 GeV	450 - 4000 GeV	450 - 4000 GeV
time of operation [years]	8	5	3	2
number of units	50	3	6	1
estimated dose per year [Gy]	1000	100	50	50
integrated dose [Gy]	8000	500	150	100

part	integrated dose [Gy]	project #	function, comments, observations
LM2940-05	8000	1	LDO, 1 A, 5 V
LM2990-05	8000	1	LDO, 1 A, -5 V
AD8009	8000	1	op-amp, current FB
AD8129	8000	1	differential amp
AD8170	8000	1	buffered analog mux
LM2941	500	2, 3	LDO adjustable, 1 A, operated at 15 V
LM2991	500	2, 3	LDO adjustable, 1 A, operated at 15 V
OPA627	500	2, 3	op-amp, J-FET, precision
OPA227	500	2, 3	op-amp, precision, low noise
AD825	500	2, 3	op-amp, J-FET, precision
THS3041	500	2, 3	op-amp
BSR17	500	2, 3	NPN RF transistor
BSR18	500	2, 3	PNP RF transistor
CD40244	500	2, 3	CMOS logic, operated at 15 V
CD4556	500	2, 3	CMOS logic, operated at 15 V
HSMS-280C	500	2, 3	RF Schottky diode
OPA827	150	3	op-amp, J-FET, low noise
TXL 025-3.3S	100	4	switching power supply, 3.3 V, 25 W, TracoPower
LT1764	100	4	LDO adjustable, 3 A, operated at 2.5 V
TXL 025-24S	100-1000	R&D	switching power supply, 24 V, 25 W, TracoPower 2 pieces broken down in the LHC tunnel at point 5 radiation damage to controller NCP1203