These are back of the envelope calculations, please correct me if I am wrong.

Dissipated power :
Leakage current at cutoff: 10 μA.

$P = I^2 R = (10^{-5})^2 * 2*10^3 = 2*10^{-7}$ W

Power Radiated per pulse:

$P_p = .5*V*C = .5*20*100*10^{-9} = 10^{-6}$ J /pulse

One may want to add the bias resistor dissipation, when triggered with a pulse 5 V , 100 ns.

$(5^2 \ 100*10^{-9})/100 = 0.25*10^{-11} = 2.5*10^{-12}$ J/pulse

I ommit the I_b dissipation, because its smaller than the above.