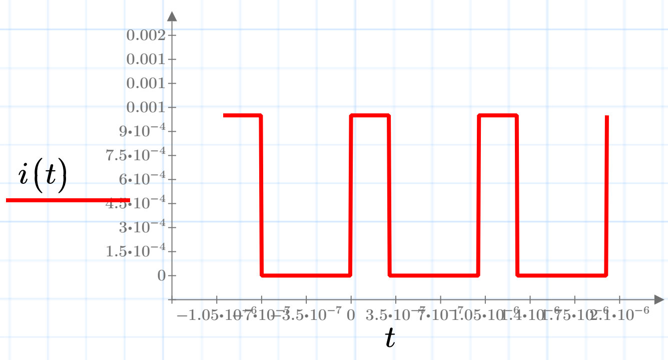
$T_s := 10^{-6}$ $\quad D := 0.3$ $\quad I_{peak} := 10^{-3}$

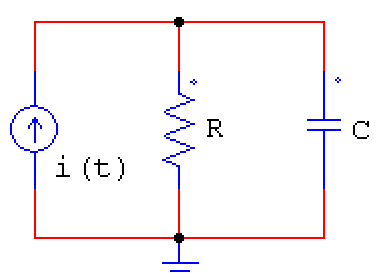
(0 < D < 1)

$$
i(t) := \left\| \begin{array}{l}
\tau \leftarrow \mathrm{mod}(t, T_s) \\
\text{if } \tau < 0 \\
\quad \| \ \tau \leftarrow \tau + T_s \\
\text{if } 0 \le \tau < D \cdot T_s \\
\quad \| \ i \leftarrow I_{peak} \\
\text{if } D \cdot T_s \le \tau < T_s \\
\quad \| \ i \leftarrow 0 \\
i
\end{array} \right.
$$

Recomend changing the definition of the repeating current waveform, the method that you used will work but the recursion can cause additional time overheads in complex sheets.



The current i(t) defined above is used as excitation source for the circuit below.



Vc $\qquad R1 := 1000$

$C1 := 10^{-8}$

Define a voltage for the unknown node Vc(t).
Current in the resistor can be calculated i.R(t)

$$i_{r1}(t) = \frac{V_c(t)}{R1}$$

Kirchoffs current law will give the charging current for the capacitor

$$i_{c1}(t) = i(t) - i_{r1}(t)$$

which then defines an ODE that mathcad can solve

$$\frac{d}{dt}V_c(t) = \frac{1}{C1} \cdot i_{c1}(t)$$

Note that mathcad struggles with units so may be easier to set up without them, but the final result is much easier to understand & modify with them
Also for presentation purposes it is 'neater'

$$t_{end} := 20 \cdot T_s$$

$$\frac{d}{dt}V_c(t) = \frac{1}{C1} \cdot \left(i(t) - \frac{V_c(t)}{R1}\right)$$

$V_c(0) = 0$ Assume capacitor initial voltage is 0V

$$V_c := \mathbf{Odesolve}\left(V_c(t), t_{end}\right)$$