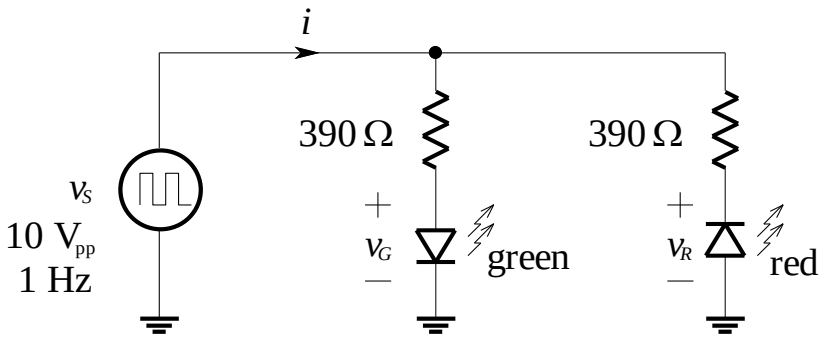
Diode Circuits

1.

The circuit below uses LEDs which can be modelled using the "constant voltage drop model" with $e_{fd} = 2.0\,\text{V}$. The source voltage is a square wave with a 10 V peak-to-peak amplitude, centred around 0 V.

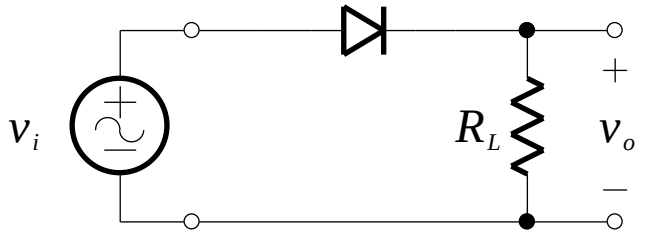


(a) Sketch the voltage waveforms (vs. time) for v_G and v_R.

(b) If you built the circuit, what would you see?

2.

Consider the circuit shown below:



Assume that the diode can be modelled using the "constant voltage drop model" with $e_{fd} = 0.7\,\text{V}$.

Given that $v_i(t) = 5\sin(500\pi t)\,\text{V}$ and load resistance $R_L = 1\,\text{k}\Omega$:

(a) Plot $v_i(t)$ and $v_o(t)$ on the same graph.

(b) What is the peak load current?