Pre-Lab 6: Diodes

ECEN 325 - 511

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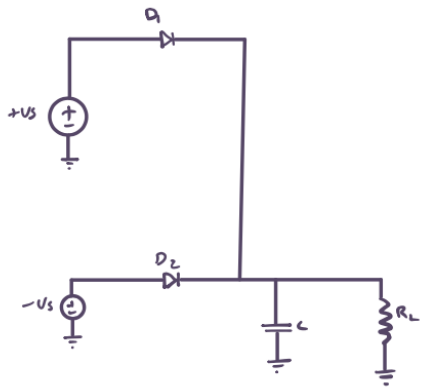
Due Date: October 19, 2021

Calculations



Output should be 3V (Vm)

Im = 3mA

10% of max ripple,

f = 250Hz

$V_d = 0.7V$

Load Resistance = $\frac{V_m}{I_m} = \frac{3V}{0.003A} =$ $R_L = 1k\Omega$

$V_r = 0.1 \times 3V = 0.3V$

$V_p = 3 + 0.3 = 3.3V$

$V_s = V_p + V_d = 3.3 + 0.7 = 4V$

$V_s = 4V$

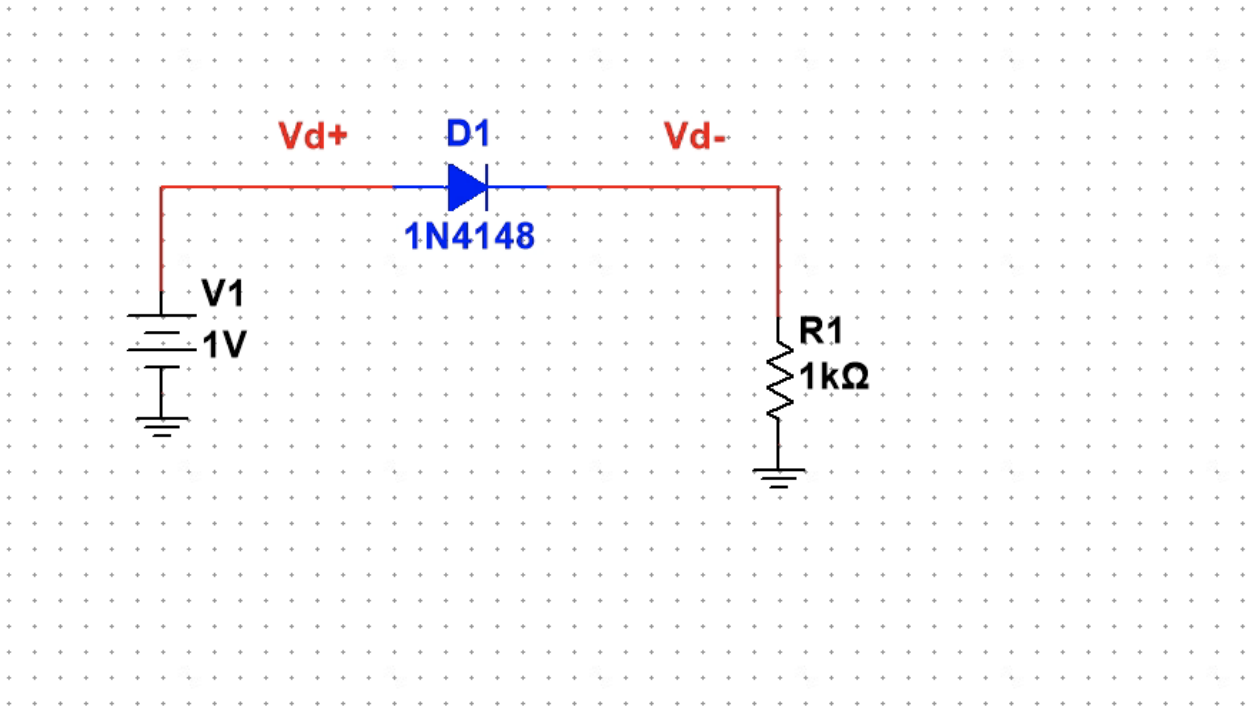
so $C = 1/2fR_Lk$ where $k = 0.1$

$C = \frac{1}{2 \times 0.1 \times 1000 \times 250}$

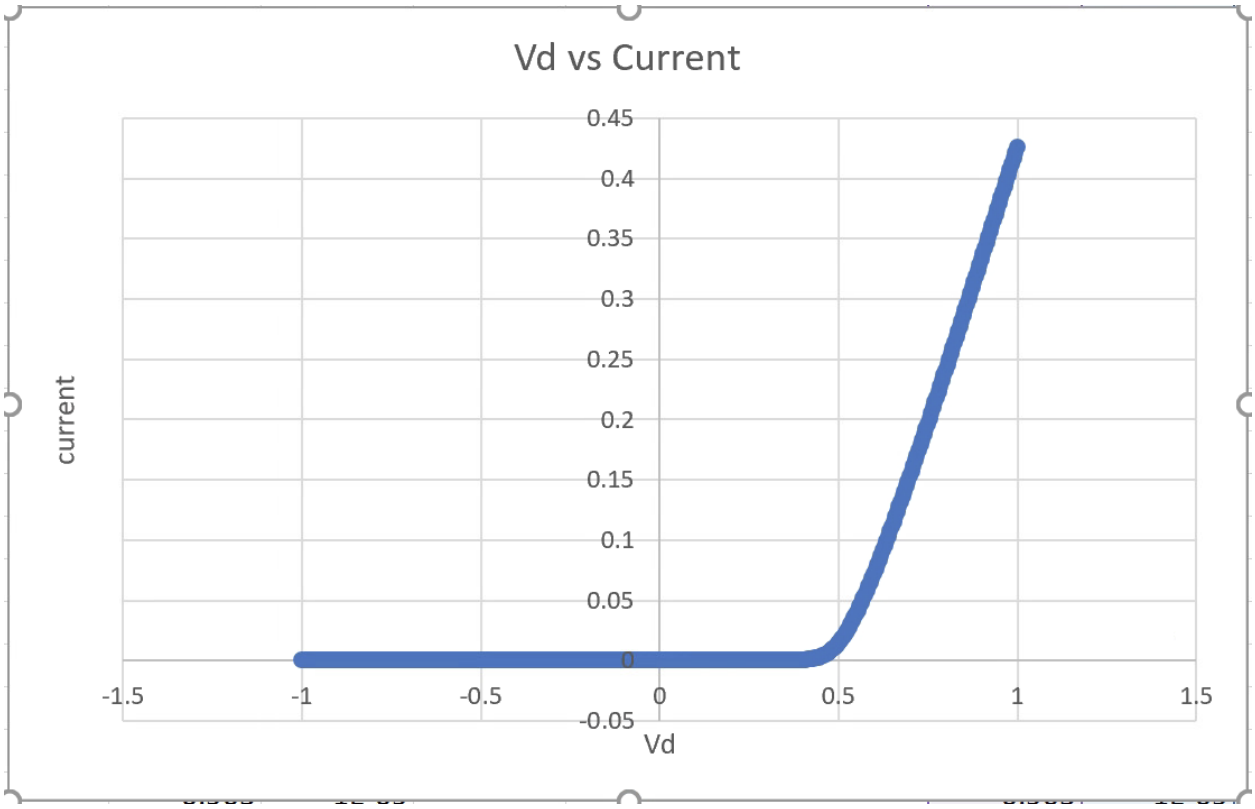
$C = 20\mu F$

Simulations (on Multisim)

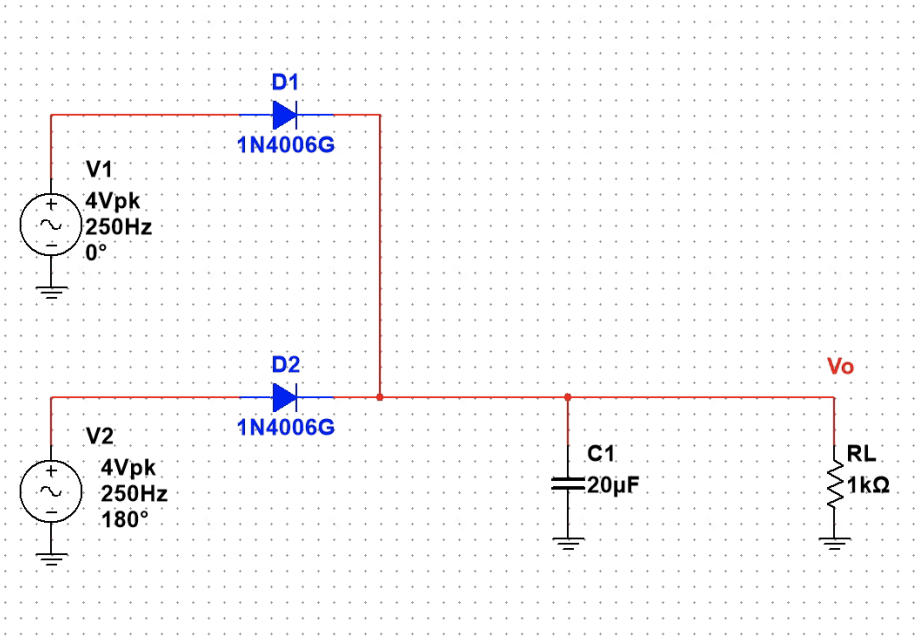
Schematic



Plot



Schematic



Transient