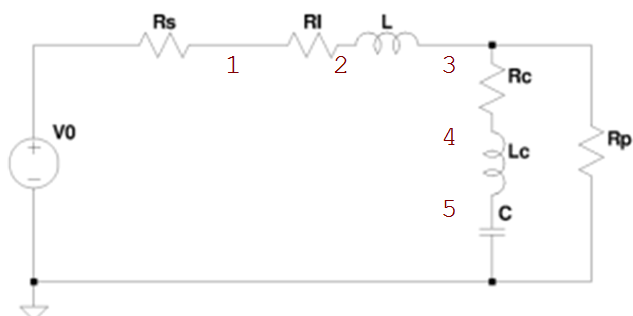


MNA Solver

☒ Numerical Inverse Laplace Transform

☒ MNA STAMPS

☒ Bode

☐ RLC


$$\chi := \begin{bmatrix} V_0 & [1 \ 0] & 350 \text{ V} \\ R_L & [1 \ 2] & 100 \text{ m}\Omega \\ R_C & [3 \ 4] & 300 \text{ m}\Omega \\ R_P & [3 \ 0] & 1 \text{ M}\Omega \\ L & [2 \ 3] & 100 \text{ }\mu\text{H} \\ L_C & [4 \ 5] & 0.1 \text{ }\mu\text{H} \\ C & [5 \ 0] & 440 \text{ }\mu\text{F} \end{bmatrix}$$

$$\begin{bmatrix} A & b & VI & V & I \end{bmatrix} := \text{MNA}(\chi, \text{MNA}_{AC})$$

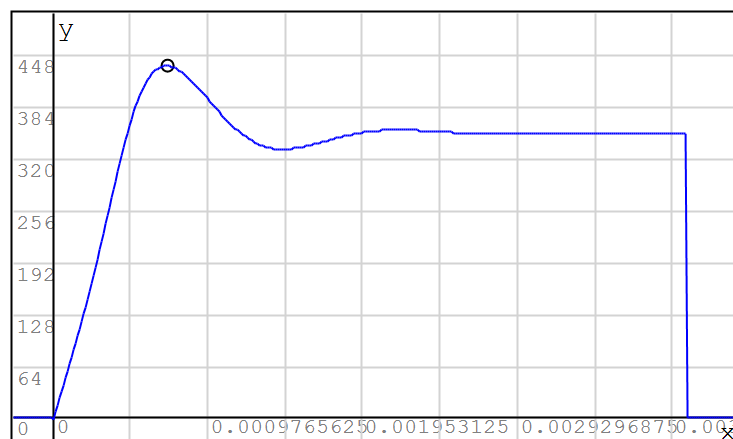
$$\begin{bmatrix} t_i & t_e \end{bmatrix} := \begin{bmatrix} 0 & 4 \text{ ms} \end{bmatrix}$$

$$L := \chi_{5 \ 3}$$

Capacitor Voltage

$$\begin{cases} V_C(s) := \frac{V_5}{s} \\ v_C(t) := \text{ILap}(V_C(s), t, t_i, t_e, 16) \\ M := \text{Peak}(v_C(t), t_i, t_e) \end{cases}$$

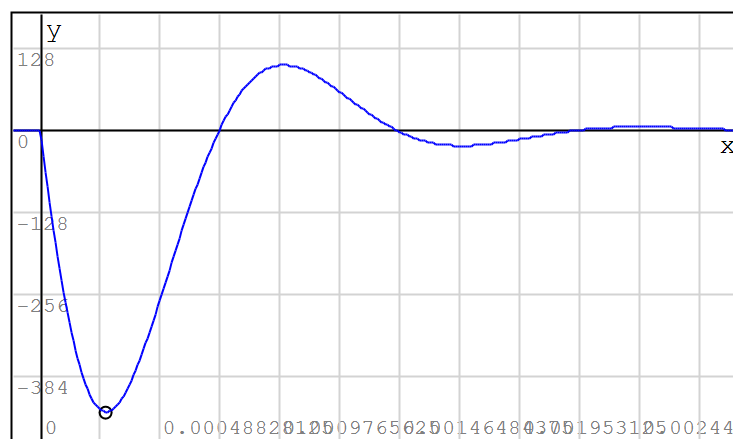
$$M_2 = 433.0934 \text{ V}$$



Source Current

$$\begin{cases} I_S(s) := \frac{I_1}{s} \\ i_S(t) := \text{ILap}(I_S(s), t, t_i, t_e, 20) \\ M := \text{Peak}(i_S(t), t_i, t_e) \end{cases}$$

$$M_2 = -436.9802 \text{ A}$$



Freq domanain plots:

BodeMag

Nyquist

ZP Plot

Bode Phase

Nichols

$$H(s) := \frac{V_3}{V_1}$$

$$\text{Bode}_1 := \text{logspace}(2, 8) \text{ Hz}$$

$$\Pi := \text{Bode}(H(s))$$

