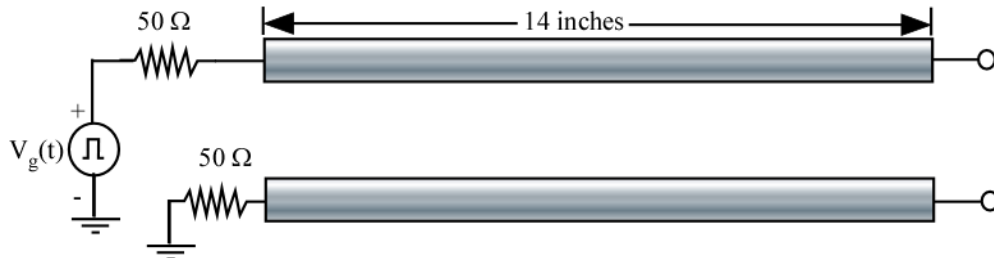


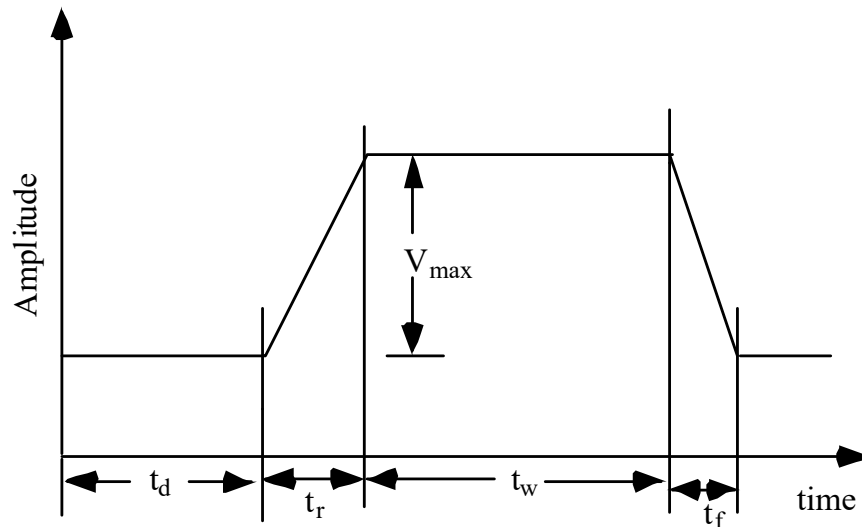
1. Write a program to simulate the response of a lossless coupled-line system with the following L and C matrices:

$$L = \begin{bmatrix} 418 & 150 \\ 150 & 418 \end{bmatrix} (nH / m) \quad C = \begin{bmatrix} 0.118 & -0.022 \\ -0.022 & 0.118 \end{bmatrix} (nF / m)$$

Test your program using the example shown below. Plot the waveforms at the near and far ends of the sense line.



The pulse characteristics for  $V_g(t)$  are as shown in the figure below, with time delay:  $t_d = 1$  ns, rise time:  $t_r = 1$  ns, fall time:  $t_f = 1$  ns, pulse width:  $t_w = 20$  ns, pulse amplitude:  $V_{\max} = 1$  volt



2. Using your knowledge of multiconductor transmission lines, determine the load network that will provide an exact match to a coupled line system in terms of the even and odd-mode impedances. Verify your results using your code from Problem 1.