

0.1 PECS Simulation Math

Calculations from Tasks 5 - 8:

$$\begin{aligned}c_{max} &= 5.93085V - 5V \\c_{max} &= 0.93085V\end{aligned}$$

$$\begin{aligned}c_{final} &= 5.5V - 5V \\c_{final} &= 0.5V\end{aligned}$$

$$\begin{aligned}\%OS &= \\ \%OS &= 86.17\%\end{aligned}$$

$$\zeta = \frac{-\ln(86.17/100)}{\sqrt{\pi^2 + \ln^2(86.17/100)}}$$

$$\zeta = 0.047327$$

$$0.5\text{ V} * 0.02 = 0.01\text{ V}$$

$$c_{final} \pm 2\% = 0.5\text{ V} \pm 0.01\text{ V}$$

$$c'_{final} \pm 2\% = 5.501\text{ V and } 5.499\text{ V}$$

$$T_s = 0.146\text{ 27 s}$$