

$$R := 25 \, \Omega$$

$$C := 1820 \, pF$$

$$I_m := \frac{12 \, V}{R} = 0.48 \, A$$

$$I_c(t) := I_m \cdot e^{\frac{-t}{R \cdot C}}$$

$$c := 100 \, nF$$

$$\Delta V := \frac{1}{c} \cdot \int_0^{\frac{1}{50 \, kHz}} I_c(t) \, dt = 0.218 \, V$$