تمرین سری چهارم درس عایق‌ها و فشار قوی

زهرا ایران‌پور مبارکه - ۹۸۱۹۸۹۳

محاسبات:

$$C_s = 500\,n \qquad C_b = 500\,p = 0.5\,n$$

$$C_s' = \frac{500n}{3} = 166.66\,n$$

$$R_d = \frac{T_1(C_s' + C_b)}{3C_s{}'C_b} = \frac{1.2\,u\,(166.66 + 0.5n)}{3 \times 166.66n \times 0.5\,n} = 802.432$$

$$R_e = \frac{T_2}{0.7 \times (C_s' + C_b)} = \frac{50u}{0.7(166.66 + 0.5)n} = 427.3066$$

$$K = R_d C_b = 0.5n \times 802.432 = 401.216\,n$$

$$a = \frac{1}{R_d C_s} + \frac{1}{R_d C_b} + \frac{1}{R_e C_b}$$
$$= \frac{1}{802.432 \times 166.66n} + \frac{1}{802.432 \times 0.5n} + \frac{1}{427.3066 \times 0.5n}$$
$$= 7.18 \times 10^{6}$$

$$b = \frac{1}{R_d C_s R_e C_b} = \frac{1}{802.432 \times 166.66n \times 427.3066 \times 0.5n} = 3.49986 \times 10^{10}$$

$$\alpha = \frac{a}{2} \pm \sqrt{(\frac{a}{2})^2 - b^2} = \frac{7.18 \times 10^{6}}{2} \pm \sqrt{(\frac{7.18 \times 10^{6}}{2})^2 - (3.49986 \times 10^{10})^2}$$
$$= 3.59 \times 10^{6} \pm \sqrt{1.28881 \times 10^{13} - 1.2249 \times 10^{21}}$$

$$V_{peak} = \frac{V_0}{K}\frac{1}{\alpha_2 - \alpha_1}$$

بخش شبیه‌سازی: