

Progetto Amplificatore FET

Dati punto di lavoro e segnale di uscita / Ingresso

$$I_{ds} := 2.54\text{mA}$$

$$v_s := 1\text{mV}$$

$$V_{ds} := 3.73\text{V}$$

$$V_u := 10\text{mV}$$

$$A_v := \frac{V_u}{v_s} \quad A_v = 10$$

$$g_m := 3.12 \frac{\text{mA}}{\text{V}}$$

$$r_d := 10\text{K}\Omega$$

$$f_{im} := 20\text{Hz}$$

$$R_c := \frac{A_v \cdot r_d}{g_m \cdot r_d + A_v}$$

$$r_g := 600\Omega$$

$$R_c = 2.427 \times 10^3 \Omega$$

$$R_c := 3\text{K}\Omega$$

$$V_{gs} := 2\text{V}$$

$$R_g := 10\text{M}\Omega$$

$$R_k := \frac{V_{gs}}{I_{ds}}$$

$$R_k = 787.402 \Omega$$

$$V_{cc} := R_c \cdot I_{ds} + V_{ds} + R_k \cdot I_{ds}$$

$$V_{cc} = 13.35\text{V}$$

Calcolo Capacità

$$C_a := \frac{1}{2 \cdot \pi \cdot f_{im} \cdot (R_g + r_g)}$$

$$C_a = 7.957 \times 10^{-10}\text{F}$$

$$C_{a1} := \frac{1}{2 \cdot \pi \cdot f_{im} \cdot \left(\frac{R_c \cdot r_d}{R_c + r_d} \right)}$$

$$C_{a1} = 3.448 \times 10^{-6}\text{F}$$