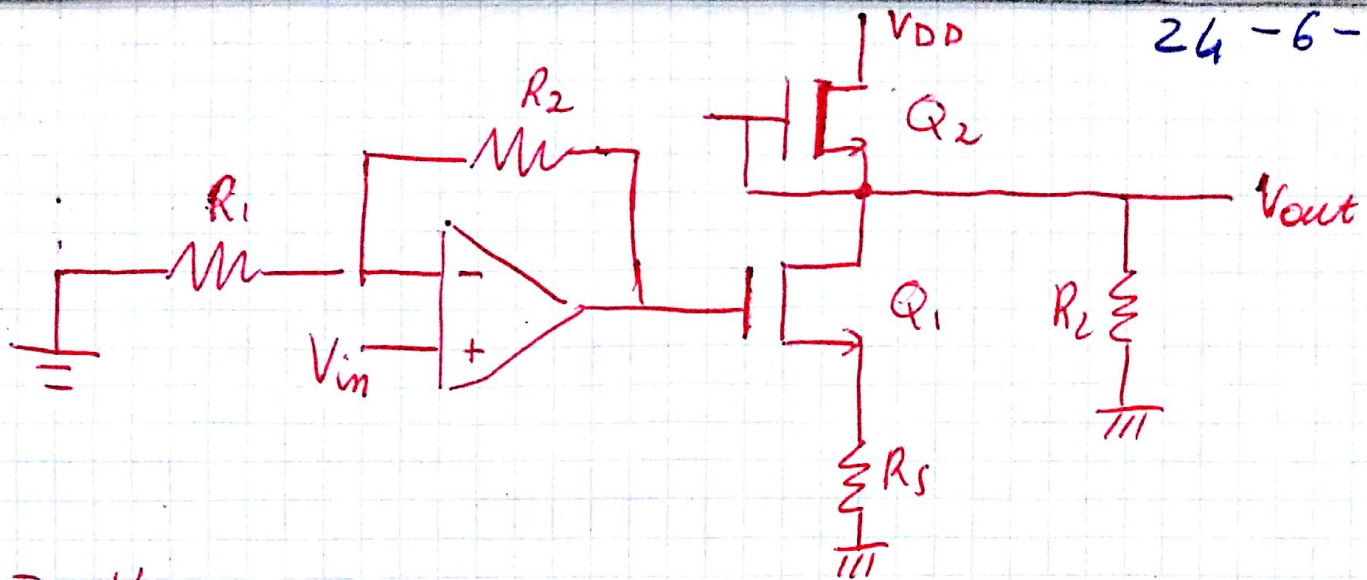


24-6-2011



$$\text{SE } V_{out} = 0$$

ALLORA NECESSARIAMENTE

$$I_{D1} = I_{D2}$$

$$I_{D2} = K_2 V_{T2}^2 = 4 \cdot \frac{1}{2} = 2 \text{ mA}$$

$$I_{D1} = K_1 (V_{GS1} - V_{T1})^2 = I_{D2} = 2$$

$$\frac{1}{2} (V_{GS1} - V_{T1})^2 = 2$$

$$(V_{GS1} - V_{T1})^2 = 4 \Rightarrow V_{GS1} - 1 = 4 \Rightarrow V_{GS1} = 3 \text{ V}$$

QUINDI

$$V_{GS1} = V_G - V_S = 0 - (R_S I_D + 5) \Rightarrow -2R_S + 5 = V_{GS} = 3$$

$$\boxed{R_S = 1 \text{ k}\Omega}$$

$$g_m = 2 \cdot \frac{1}{2} (V_{GS1} - V_{T1}) = \frac{2 \text{ mA}}{V}$$

alternativa

$$V_g = V_{in} \left(1 + \frac{R_2}{R_1}\right) = 6 V_{in} \quad V_g = i_d R_S = g_m V_{g1} R_S$$

$$V_{g1} = 6 V_{in} - g_m V_{g1} R_S \Rightarrow V_{g1} (1 + g_m R_S) = 6 V_{in}$$

$$V_{g1} = \frac{6 V_{in}}{3} = 2 V_{in}$$

$$V_{out} = -g_m V_{g1} R_L = -4 \cdot V_{g1} \cdot 15 = -60 V_{g1}$$

$$A = \frac{V_{out}}{V_{in}} = -60$$