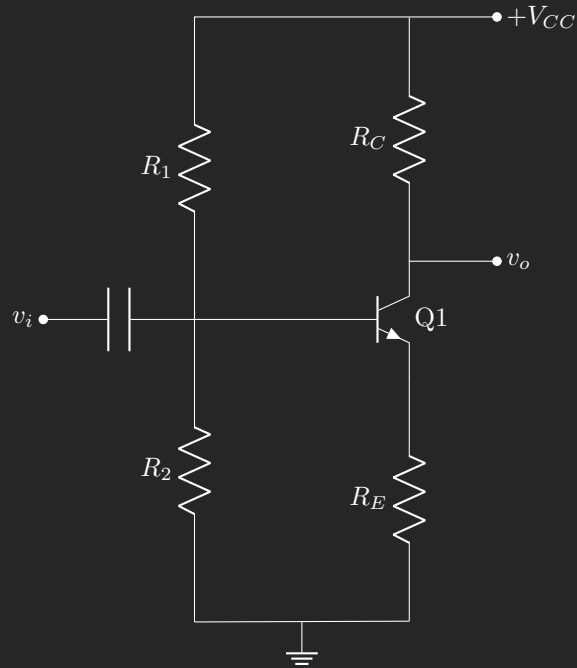


Tareas Previas P2

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Datos: $V_{CC} = 8V$, $R_1 = 8.2k\Omega$, $R_2 = 2.2k\Omega$, $R_E = 1k\Omega$, $R_C = 2.7k\Omega$, $\beta = 300$, $V_{BE} = 0.6V$

1 Cálculo de punto Q

Calculamos el punto Q del circuito

$$V_B = V_{CC} \cdot \frac{R_2}{R_1 + R_2} = 1.692 \text{ V}$$

$$V_E = V_B - V_{BE} = 1.092 \text{ V}$$

$$I_E = 1.092 \text{ mA} \approx I_C$$

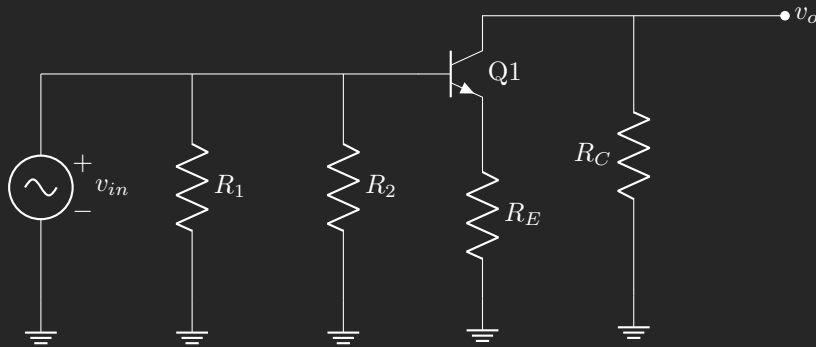
$$V_C = V_{CC} - I_C \cdot R_C = 5.05 \text{ V}$$

$$V_{CE} = 3.96 \text{ V}$$

2 Cálculo de la recta dinámica

Recta de carga dinámica: $i_C - I_{CQ} = m_d(v_{CE} - V_{CEQ})$

Pendiente de la carga dinámica: $m_d = -\frac{1}{R_{CA}}$

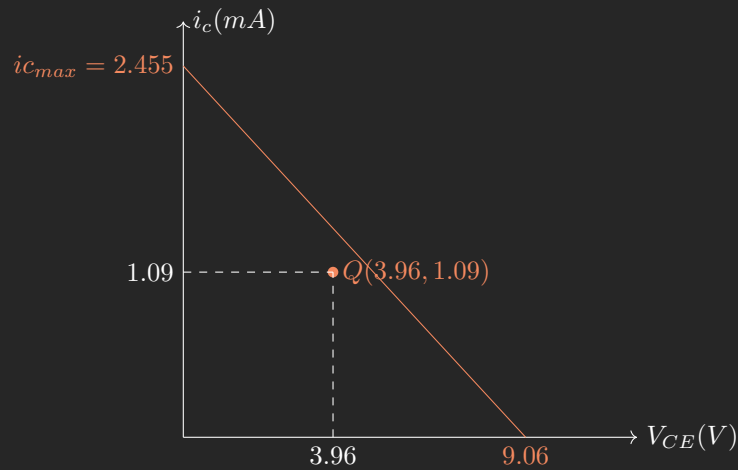


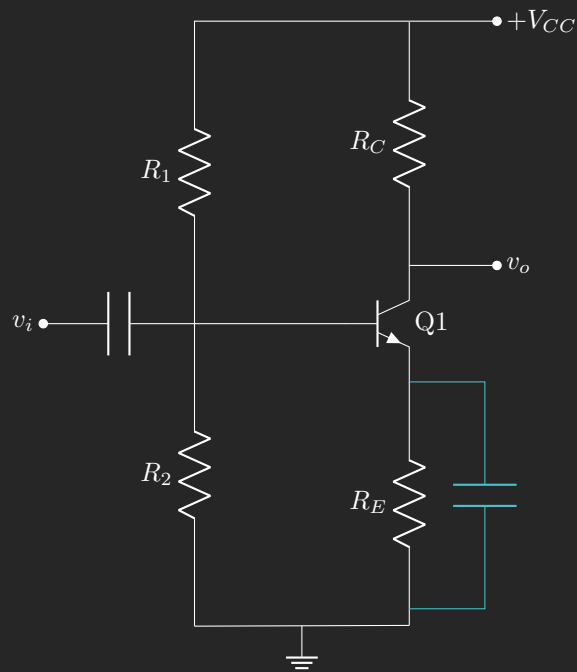
$$m_d = -\frac{1}{R_C + R_E} = -0.270 \text{ mA/V}$$

$$i_C - 1.092 = -0.27(v_{CE} - 5.05)$$

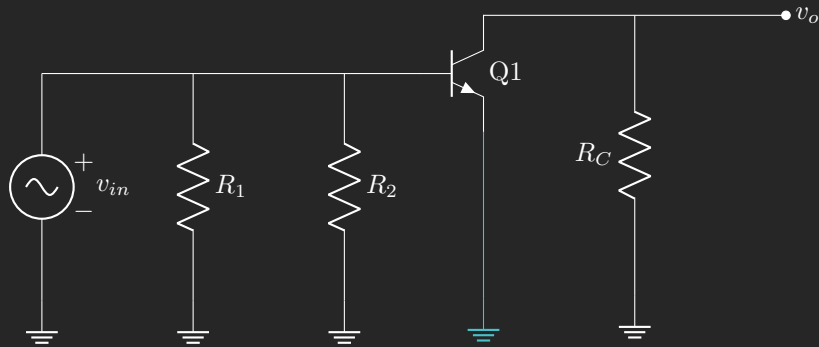
$$v_{CE_{max}} = 2.455 / 0.27 = 9.0555 \text{ V}$$

$$i_C = 2.455 - 0.27v_{CE}$$





Lo analizamos en CA:



$$m_d = -\frac{1}{R_C} = 0.370$$

$$i_C - 1.09 = -0.37(v_{CE} - 5.05)$$

$$v_{ce_{max}} = 2.468/0.37 = 6.6702 \text{ V}$$

$$i_C = 2.468 - 0.37v_{CE}$$

