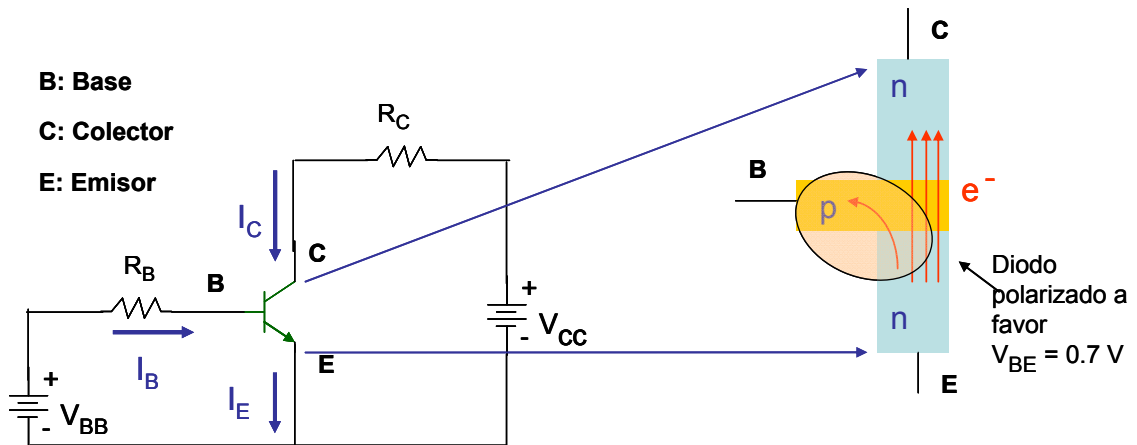


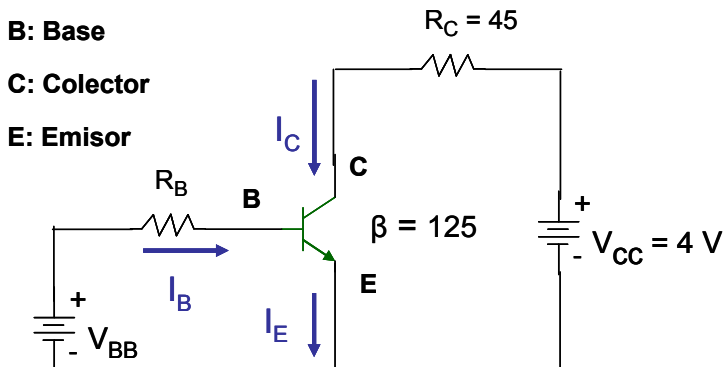
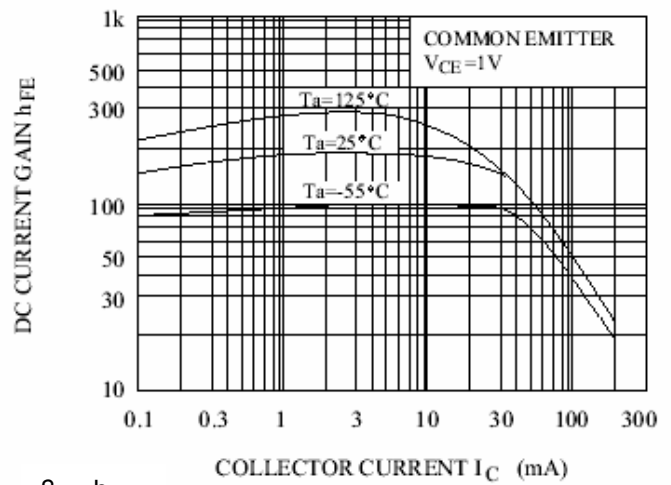
Transistor Bipolar BJT



$I_E = I_C + I_B$ con
 $I_E = \alpha I_C$ y $I_E = (1-\alpha) I_B \Rightarrow I_C = \beta I_B$

α depende del: $0.99 > \alpha > 0.9$

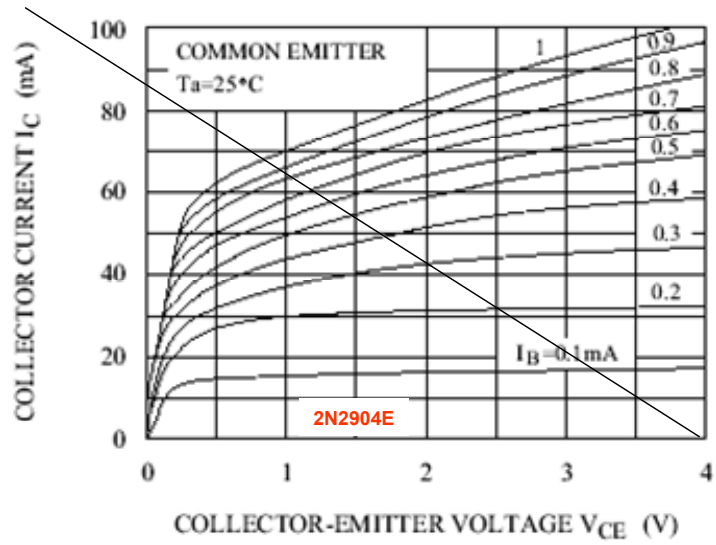
- Dopado
- Dimensiones físicas



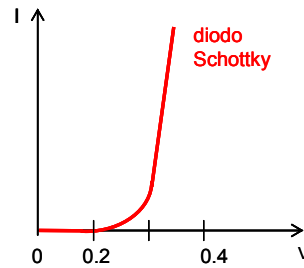
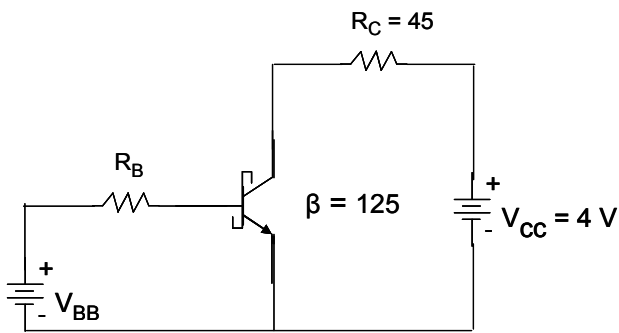
$R_B = 2.5\text{ K}$ $V_{BB} = 1.7\text{ V}$
 $I_C =$ $V_{CE} =$

$R_B = 2.5\text{ K}$ $V_{BB} = 3.7\text{ V}$
 $I_C =$ $V_{CE} =$

$$I_C = \frac{V_{CC} - V_{CE}}{R_C}$$

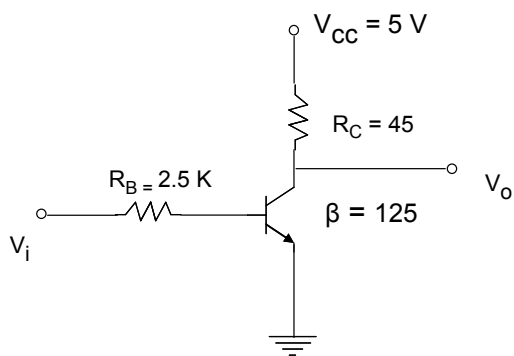


Transistor Schottky

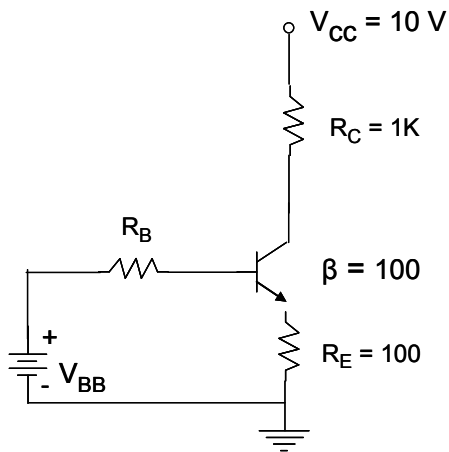


$R_B = 2.5 \text{ K}$ $V_{BB} = 3.7 \text{ V}$
 $I_C =$ $V_{CE} =$

Operación en Corte y Saturación



V_i	V_o
0	
5	



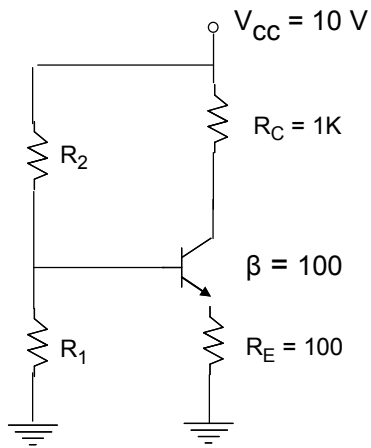
$$R_B = 1K \quad V_{BB} = 1V$$

$$I_C = \quad V_{CE} =$$

$$R_B = 10K \quad V_{BB} = 1V$$

$$I_C = \quad V_{CE} =$$

Circuito de polarización universal



$$R_{TH} = R_B = R_1 // R_2$$

$$V_{TH} = V_{BB} = \frac{R_1}{R_1 + R_2} V_{CC}$$

$$R_1 =$$

$$R_2 =$$

Encuentre el valor de R_1 y R_2 para lograr una corriente I_C de 3 mA

$$I_C = \frac{V_{TH} - V_{BE}}{R_E + R_{TH}/\beta}$$

Rechazo de β :

$$R_E \gg R_{TH}/\beta \Rightarrow R_E + R_{TH}/\beta \approx R_E$$

$$R_E = 10 R_{TH}/\beta$$

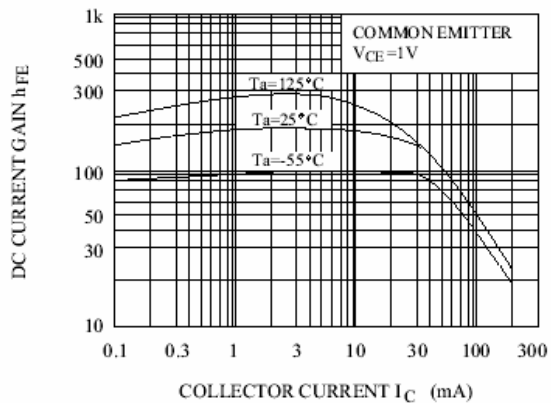
Si se tiene el dato se toma el β menor

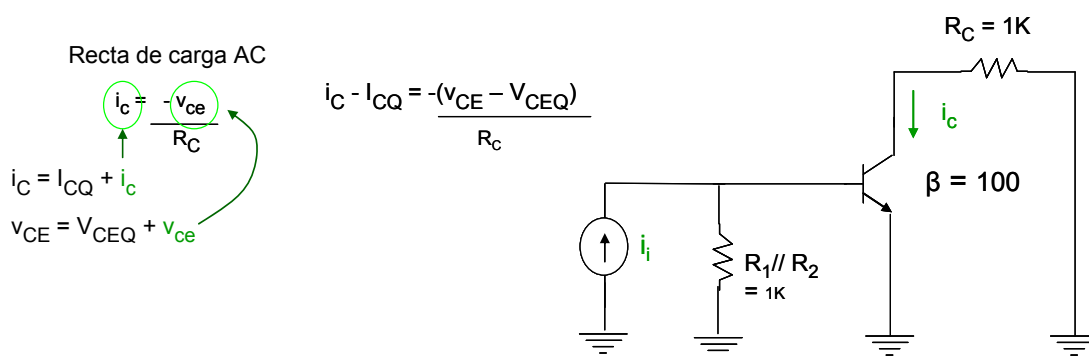
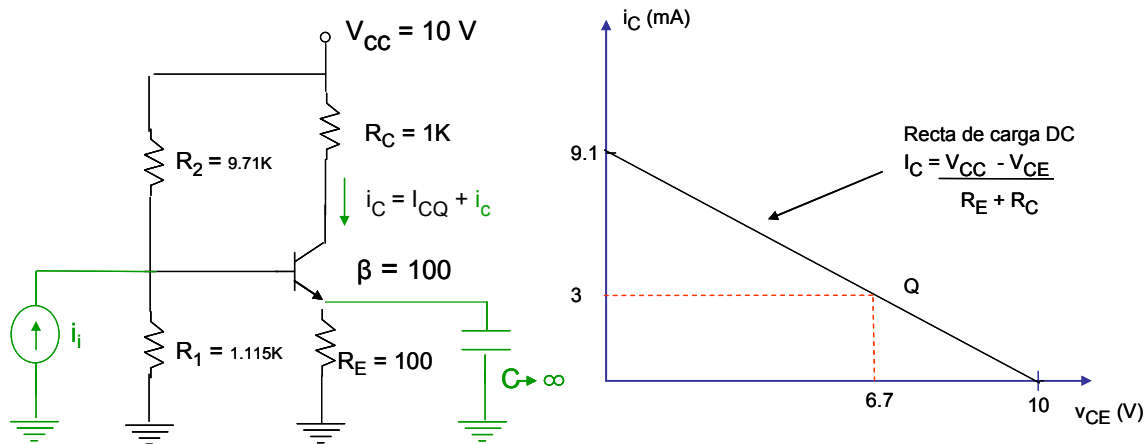
$$R_{TH} =$$

$$V_{TH} =$$

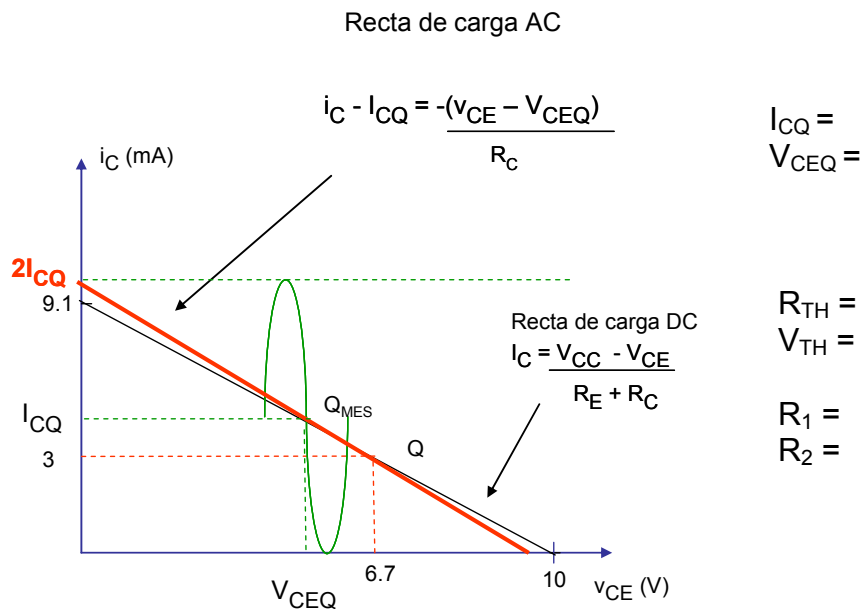
$$R_1 =$$

$$R_2 =$$



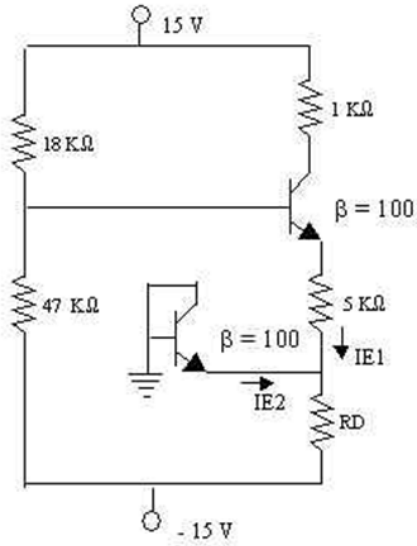


¿Cómo lograr una **Máxima Excursión Simétrica**?

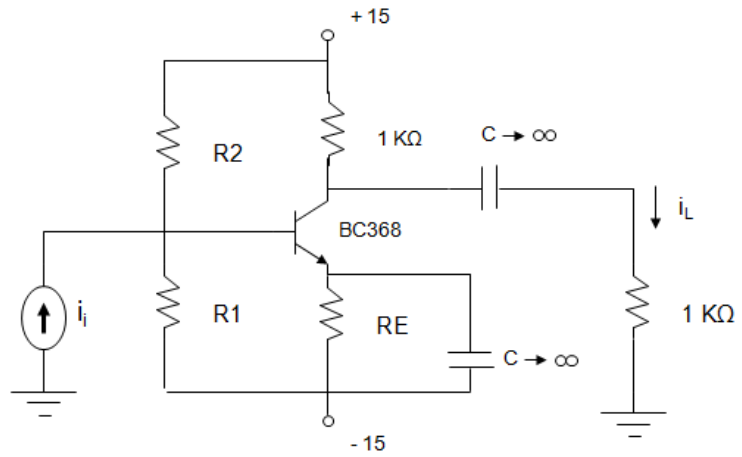


Tarea 6:

a. Encuentre el valor de R_D para que $I_{E1} = I_{E2}$.



b. Encuentre el valor de R_1 y R_2 para lograr una Máxima excursión simétrica



Type number	Package	hFE min	hFE max	fT min(MHz)	POLARITY	Ic max(mA)	VCEO max(V)	Ptot max(mW)
BC368	SOT54 (SPT, E-1)	85	375	40	NPN	1000	20	830