



$$I_b = \frac{8 - 0,7}{4,7k} = 1,55 \text{ mA} \quad I_c = \frac{(30 - 2 - 0,3)}{12k} = 2,3 \text{ mA}$$

$$I_{sat} = 0,1, I_c = 230 \mu\text{F} \quad I_b > I_{sat} \quad \text{transistor saturado}$$