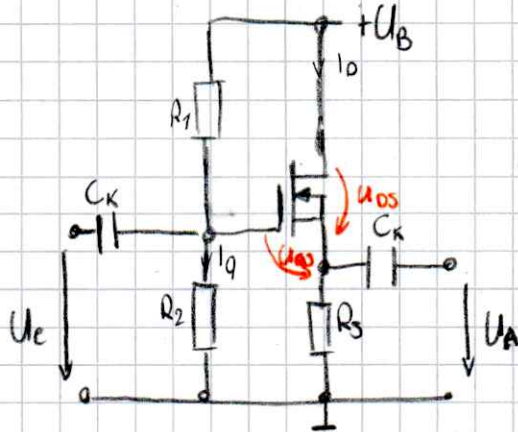


Halbleitertechnik



$$U_B = 12V$$

$$I_D = 3mA$$

$$U_{DS} = 5V$$

$$I_Q = 100nA$$

$$U_{GS} = -2V$$

$$U_{RS} = U_B - U_{DS} = 7V$$

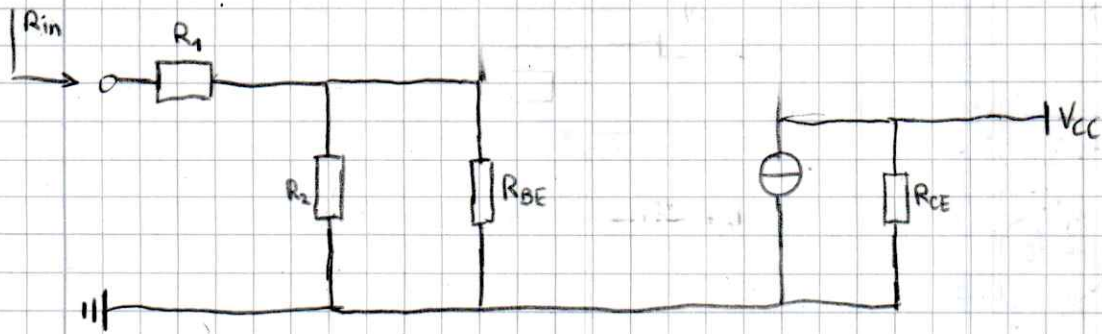
$$R_3 = \frac{U_{RS}}{I_D} = 2,33k\Omega$$

$$U_{R2} = U_{DS} + U_{GS} = 5V$$

$$R_2 = \frac{U_{R2}}{I_D} = 50M\Omega$$

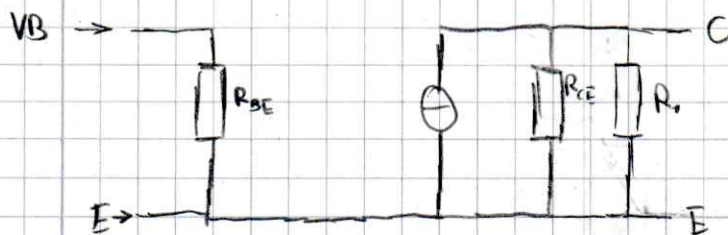
$$U_{R1} = U_B - U_{R2} = 7V$$

$$R_1 = \frac{U_{R1}}{I_D} = 70M\Omega$$

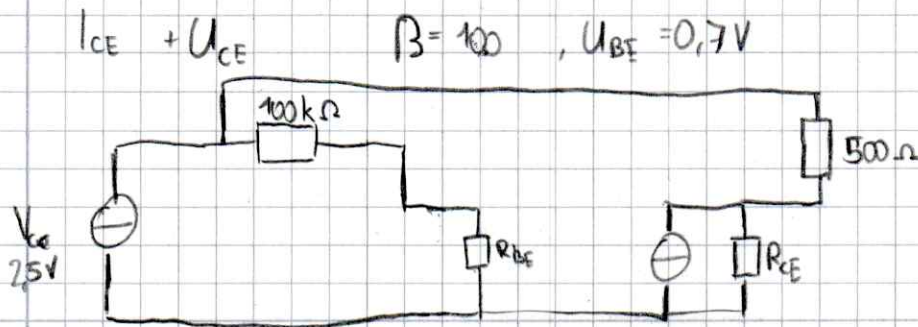


$$R_{2BE} = \frac{1}{\frac{1}{R_2} + \frac{1}{R_{BE}}}$$

$$\underline{\underline{R_{12BE} = R_1 + R_{2BE}}}$$



$$R_{out} = \frac{1}{\frac{1}{R_1} + \frac{1}{R_{CE}}}$$



$$U_{BE} = R_{BE} \cdot I_{BE}$$

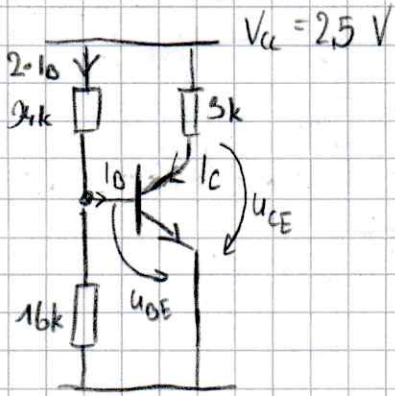
$$I_C = \beta \cdot I_B$$

$$I_B = \frac{V_{CC} - U_{BE}}{100k} = 184 \mu A \quad \sim \quad I_{CE} = 1,8 mA$$

$$U_{CE} = V_{CC} - I_C \cdot 500\Omega = 1,6V$$

I_C, U_{CE}

$\beta = 100, U_{BE} = 0,7$



$$I_C = \frac{U_{BE}}{16k \cdot 9} \cdot \beta = 0,00007$$

$$I_C = 50 \text{ mA}$$

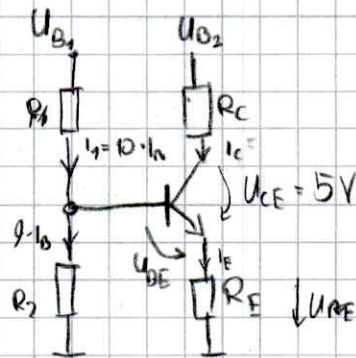
$$U_{CE} = 5 \text{ V}$$

$$U_{B1} = U_{B2} = 10 \text{ V}$$

$$\beta = 100$$

$$U_{BE} = 0,8 \text{ V}$$

g3. R_1, R_2, R_C, R_E



$$U_{RE} = 0,1 \cdot U_{CE2} = 1 \text{ V}$$