

$$i_E = i_C + i_B$$

$$U_{CE} = U_{CE} + U_{BE}$$

$$i_B = \frac{i_C}{\beta} \quad \beta = ct.$$

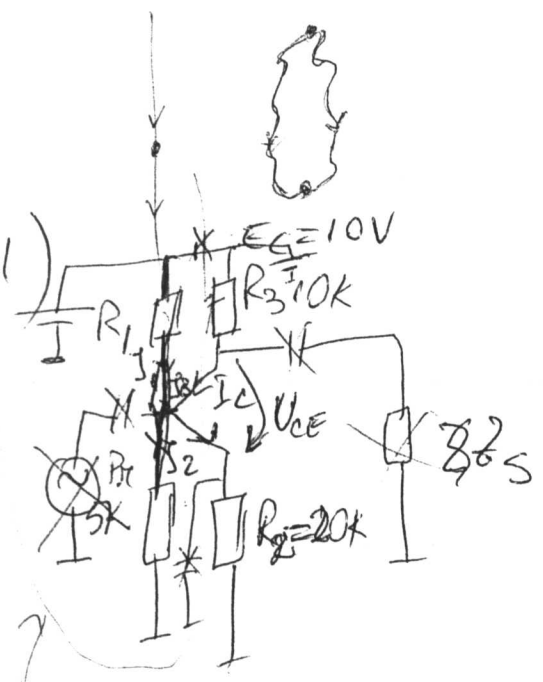
ex. $\beta = 100$

error: 10%

$$i_E = i_C + \frac{i_C}{\beta} = i_C \left(1 + \frac{1}{\beta}\right)$$

(se medij)

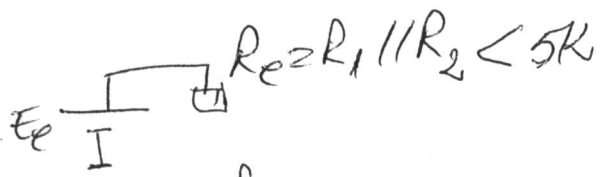
$$U_{BE} = ct \quad \text{ex. } U_{BE} = 0,6V$$



PSF(I, U_{CE})

$$\begin{cases} I_0 = I_2 + I_B \\ E_C = I_1 R_1 + I_2 R_2 \\ R_2 I_2 = U_{BE} + R_4 I_C \end{cases} \rightarrow I_C = \dots$$

$$E_C = R_3 I_C + U_{CE} + R_4 I_C \rightarrow U_{CE}$$

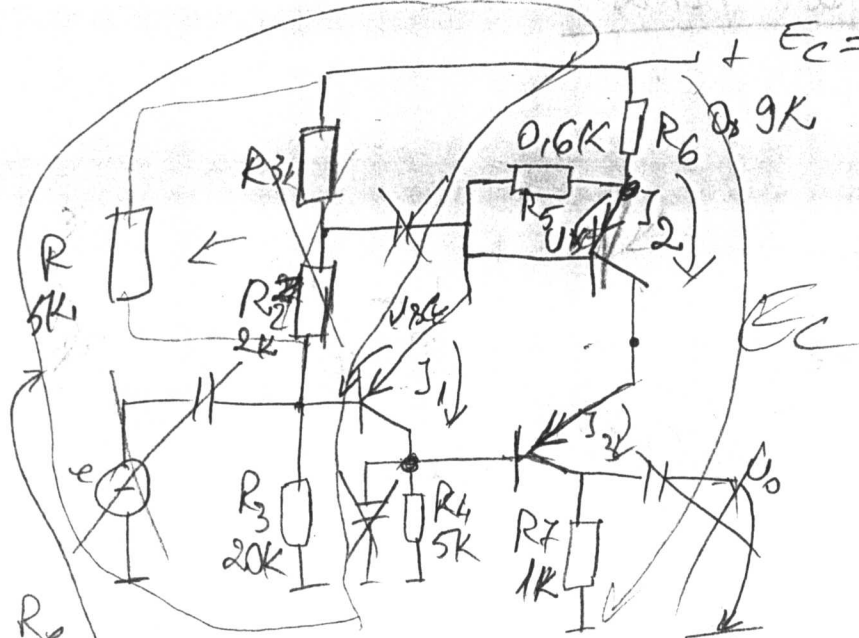


2k
! 1k8 = 1,8K

$$E_c = E_e \cdot \frac{R_2}{R_1 + R_2}$$

$$E_c = R_e \cdot \frac{I_C}{\beta} + U_{BE} + R_4 I_C$$

2)



$E_c = 15V$
 $U_{BE} = 0,6V$
 $\beta = 200$

 $\beta S F //$



$R_e = R // R_3 < 5K$
 $E_e = E_c \cdot \frac{R_3}{R + R_3} = 15 \cdot \frac{20}{25} = 12V$

$I_{C2} = I_{C3}$

$$\frac{E_c - (E_e + 2U_{BE})}{R_6} = I_{R6} = \frac{1,8}{0,9} = 2 \mu A$$

$$I_{R5} = \frac{U_{BE}}{R_5} = \frac{0,6}{0,6} = 1 \mu A$$

$$I_{C2} = I_{R6} - I_{R5} = 2 \mu A - 1 \mu A = 1 \mu A$$

$$I_{C1} = I_{R5} + \frac{I_{C2}}{\beta} = 1 \mu A$$

$$U_{BE} + U_{CE1} = U_{CE2} + U_{BE}$$

$$U_{CE3} + R_7 I_{C3} = U_{BE} + R_4 (I_{C1} + \frac{I_{C2}}{\beta})$$

$$E_c = R_6 I_{R6} + U_{CE2} + U_{CE3} + R_7 I_{C3}$$