

4.1)  $r_{CE} = \frac{\Delta U_{CE}}{\Delta I_C} \Bigg|_{\substack{I_B = \text{const} \\ I_D = 60 \mu A}} = \frac{4V}{1mA} = 4000 \Omega = \underline{\underline{4k\Omega}}$

$\beta = \frac{\Delta I_C}{\Delta I_B} = \frac{135mA}{40\mu A} = \underline{\underline{412,5}}$

$r_{BE} = \frac{\Delta U_{BE}}{\Delta I_B} = \frac{30mV}{100\mu A} = \underline{\underline{300\Omega}}$

$\beta_m = \frac{\beta}{r_{BE}} = \frac{400}{300\Omega} = 0,444 S$

$\beta = \frac{I_C}{I_B} = \frac{24mA}{60\mu A} = \underline{\underline{400}}$

4.2)  $U_{CE} = 4V$

$I_B / \mu A$	0	20	40	60	80	100				
$I_C / mA$	0	7	15	23	30,5	37,5				
$U_{BE} / mV$	0	100	200	300	400	500	550	600	650	700
$I_C / mA$	0	0	0	0	0	0	0,4	2	12	52

$I_C = I_B \cdot \beta$

- Graphen side separates Blatt!

4.3)  $\beta = \frac{I_C}{I_B}$        $\beta = \frac{\Delta I_C}{\Delta I_B} \Rightarrow \beta \approx \beta$

$I_B / \mu A$	0	20	40	60	80	100
$I_C / mA$	0	7	15	23	30,5	37,5
$\beta$	0	350	375	383	381	378

