

Försterkning β_D :

$$\beta_D = \frac{I_{CD}}{I_{BD}} \quad I_{BD} = I_{B1}$$

$$I_{CD} = I_{C1} + I_{C2}$$

$$I_{B2} = I_{E1} = (\beta + 1)I_{B1}$$

$$I_{C1} = I_{B1} \cdot \beta$$

$$I_{C2} = I_{B2} \cdot \beta = (\beta + 1) \cdot I_{B1} \cdot \beta$$

$$I_{CD} = I_{C1} + I_{C2} = I_{B1} \cdot \beta + I_{B1} \cdot \beta \cdot (\beta + 1)$$

$$= I_{B1} \cdot \beta$$

$$= I_{B1} \cdot \beta + I_{B1} \cdot \beta^2 + I_{B1} \cdot \beta$$

$$= I_{B1} (\beta^2 + 2\beta)$$

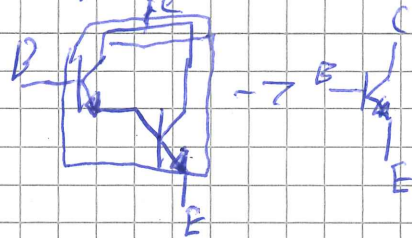
$$\beta_D = \frac{I_{CD}}{I_{BD}} = \frac{I_{B1} (\beta^2 + 2\beta)}{I_{B1}} = \beta^2 + 2\beta$$

$$\text{Siden } \beta^2 \gg 2\beta$$

$$\Rightarrow \underline{\underline{\beta_D = \beta^2}}$$

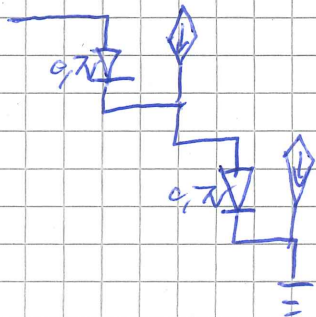
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Vi ønsker å forenkle et darlingtonpar til
modell med en transistor



Spenningsfall:

Vi starter med spenningsfall
over base emitter



Fra en (ster) forenkling ser

vi at spenningsfall er

ca. 1,4V gitt 0,7V spenningsfall

per hver av transistorene