Cálculo Roc DARLINGTON $r_\mu = \infty$ $R_{OC_D} = \frac{2}{3} r_{o2}$ (1)

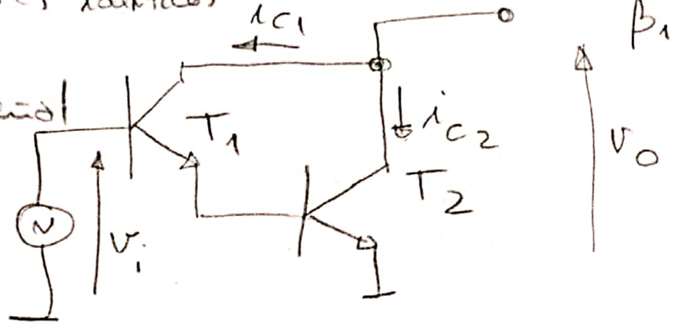
$r_x = 0$

Transistores idénticos

$\beta_1 = \beta_2$

MAD

pequeña señal



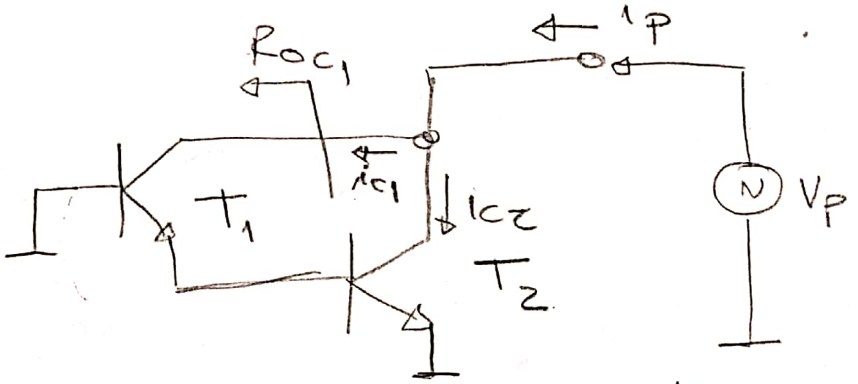
$i_{c1} = i_{c2}/\beta$

$I_{cq1} = \frac{I_{cq2}}{\beta}$

$r_{\pi 1} = \beta r_{\pi 2}$

$r_{o1} = \beta r_{o2}$

$g_{m1} = \frac{g_{m2}}{\beta}$

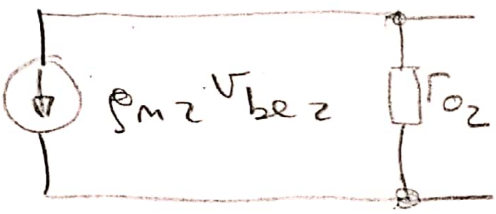


T_1 realimentado por emisor ($R_{E_1} = r_{\pi 2}$) aplico fórmula simplificada

$$R_{oc1} = r_{o1}(1 + g_{m1} r_{\pi 2}) = \beta r_{o2}\left(1 + \frac{g_{m2} r_{\pi 2}}{\beta}\right) =$$

$$= \beta r_{o2}\left(1 + \frac{\beta}{\beta}\right) = \boxed{2\beta r_{o2}}$$

2

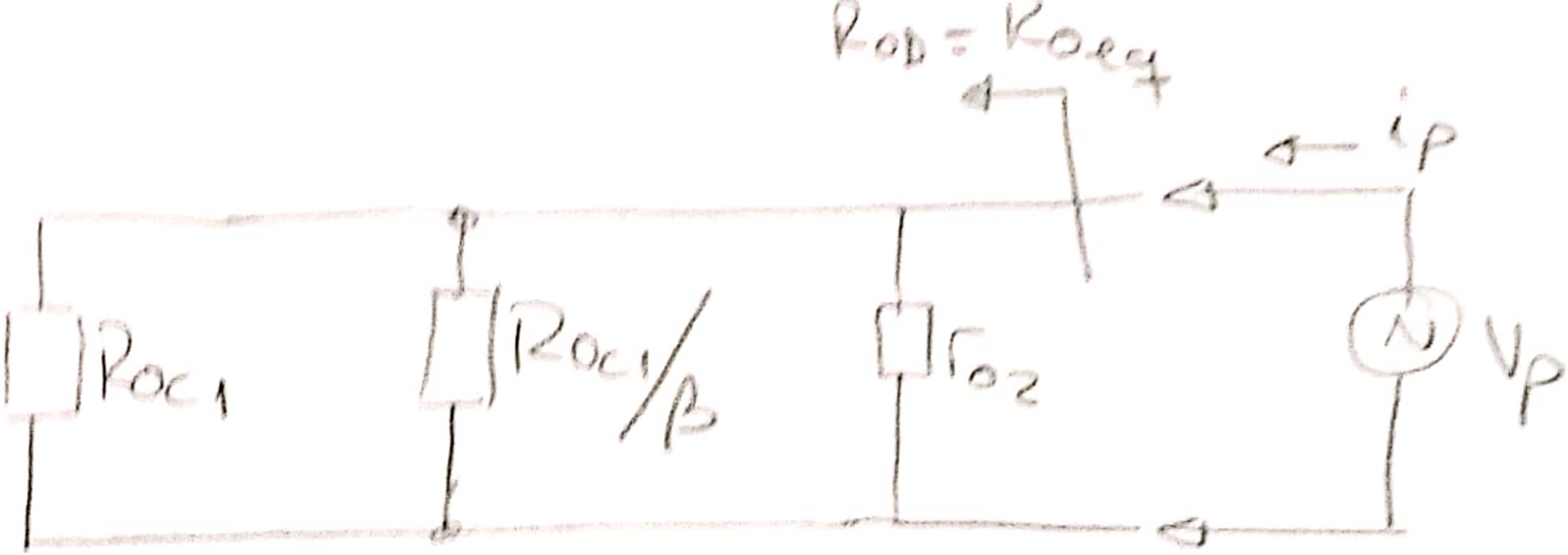


$$v_{be2} = \frac{V_p}{R_{oc1}} \cdot r_{\pi 2}$$

$$g_{m2} v_{be2} = \underbrace{g_{m2} \cdot \frac{V_p}{R_{oc1}} \cdot r_{\pi 2}}_{\beta} = \beta \cdot \frac{V_p}{R_{oc1}} = \frac{V_p}{\frac{R_{oc1}}{\beta}}$$

$$\boxed{\frac{V_p}{i_p}} = \frac{V_p}{V_p \cdot \frac{\beta}{R_{oc1}}} = \boxed{\frac{R_{oc1}}{\beta}} = \frac{2\beta r_{o2}}{\beta} = \boxed{2 r_{o2}}$$

↑ Resistencia representativa del generador controlado _



$$\underline{R_{oD} = R_{oeq}} = \underbrace{R_{oc1} \parallel \frac{R_{oc1}}{\beta}} \parallel r_{o2} =$$

$$\cong \frac{R_{oc1}}{\beta} \parallel r_{o2} = \frac{2\cancel{\beta} r_{o2}}{\cancel{\beta}} \parallel r_{o2} =$$

$$= \frac{2 \cdot r_{o2} \cdot r_{o2}}{2 r_{o2} + r_{o2}} = \frac{2 \cdot \cancel{r_{o2}} \cdot r_{o2}}{\cancel{r_{o2}}(2+1)} = \frac{2}{3} r_{o2}$$

Modelo híbrido π