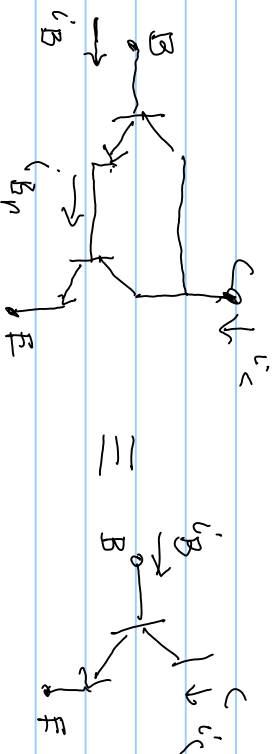


EE307

03/06/17

Note Title



Darlington
connection

$$i_{B1} = i_B \cdot \frac{\beta_2}{\alpha_2} ; i_C = i_{C1} + i_{C2} = \beta_2 i_{B1} + \beta_1 i_{B1}$$

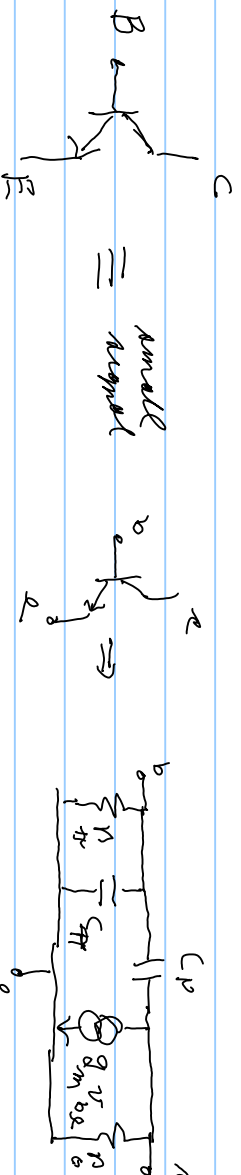
$$\beta_1 \cdot \frac{\beta_2}{\alpha_2} \cdot i_B$$

$$i_C = \left(\beta_2 + \frac{\beta_2 \cdot \beta_1}{\alpha_2} \right) i_B \Rightarrow \beta_{\text{Darlington}} = \beta$$

3/12/2017

in your power circuit
model the npr - pnp 2N3904 & 2N3906

for small signal large gain usually operate
class A $\Rightarrow$ on all the time (transistor)
for power amplifiers $\Rightarrow$ class B $\Rightarrow$ transistors on $1/2$
of the time



$$r_{\pi} = 1/g_{\pi}, \quad g_m = \frac{q_m}{e}, \quad g = \frac{I_c}{V_T}, \quad g_o = \frac{I_c}{V_A}$$

$$C_{\pi} > C_{\mu}$$

