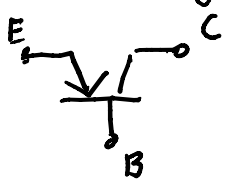
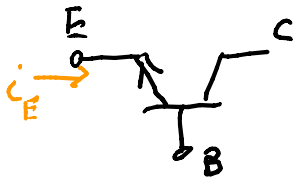
EE 303 H
09/10/13

Note Title 9/7/2013

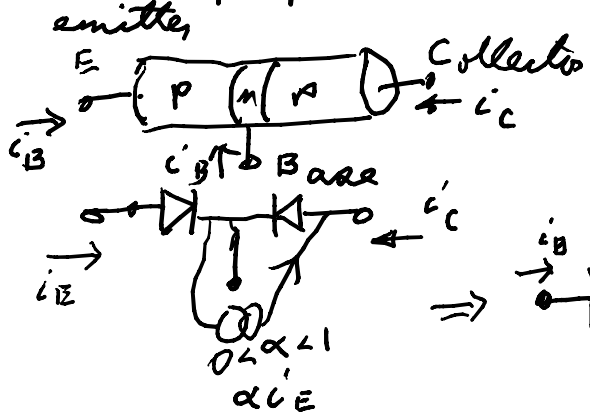
BJT = bipolar junction transistor



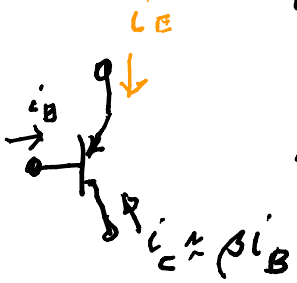
pnp



npn



$\Rightarrow$



$i_B + i_C + i_E = 0$

by KCL

if $\boxed{i_C = -\alpha i_E}$

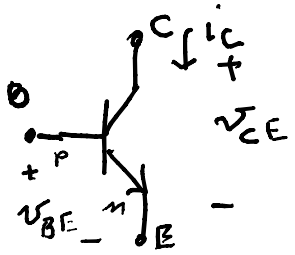
$i_B = +\alpha i_E - i_E$

$\underline{i_E = \frac{i_B}{\alpha - 1}}$

$= -\frac{1}{\alpha} i_C \Rightarrow i_C = \frac{\alpha}{\alpha - 1}(-i_B)$

$i_C = \frac{\alpha}{1-\alpha} i_B = \beta i_B$

$\beta = h_{fe}$ (signal β)



forward bias BE diode