BJT Amplifier
Equivalent Circuits (H.10)

20170203

References

Based

[1] Floyd, Electronic Devices 7th ed
[2] Cook,

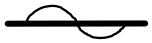
[2] en.wikipedia.org

α_{ac}	ac alpha	(I_c / I_e)
β_{ac}	ac beta	(I_c / I_b)

r_e'	ac emitter resistance
r_b'	ac base resistance
r_c'	ac collector resistance

$$I_c = \alpha_{ac} I_e$$
$$I_c = \beta_{ac} I_b$$

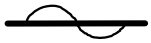
$V_{BQ} + V_b$ 

$I_B + I_b$ 

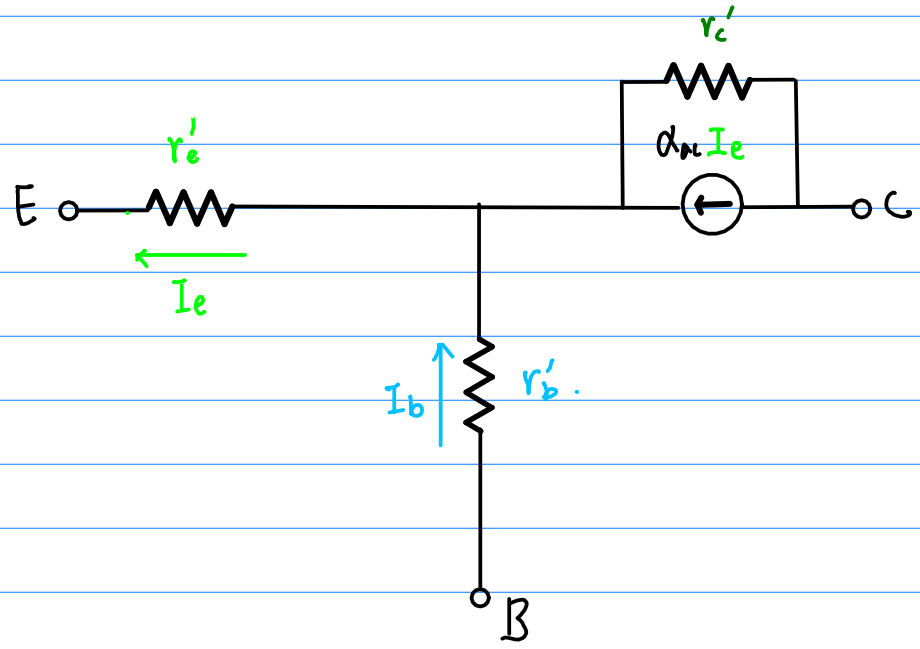
I_b 

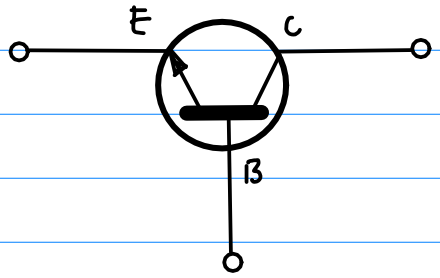
$V_{CEQ} + V_{ce}$ 

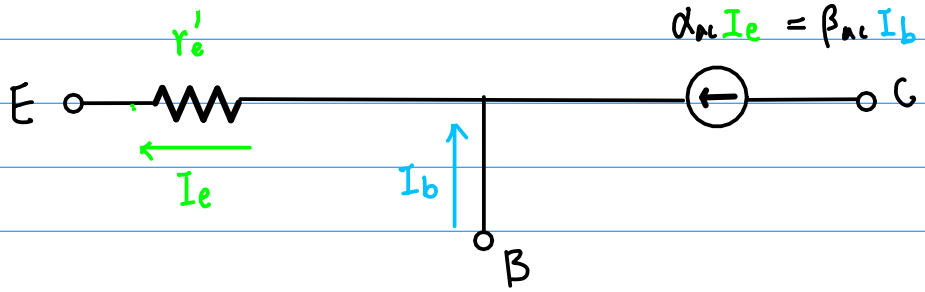
β_{ac}

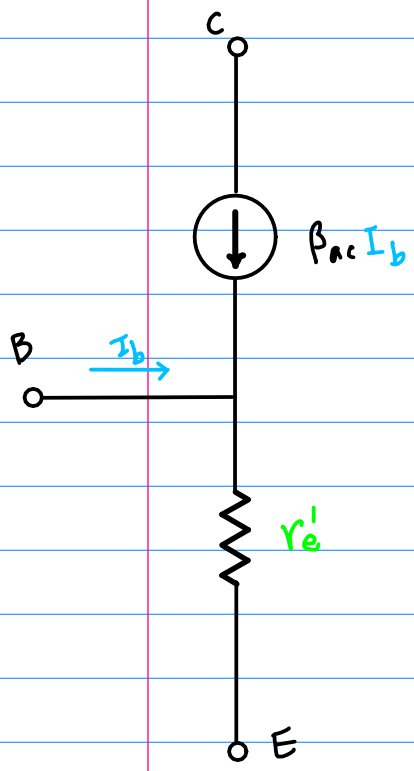
$I_{CQ} + I_c$ 

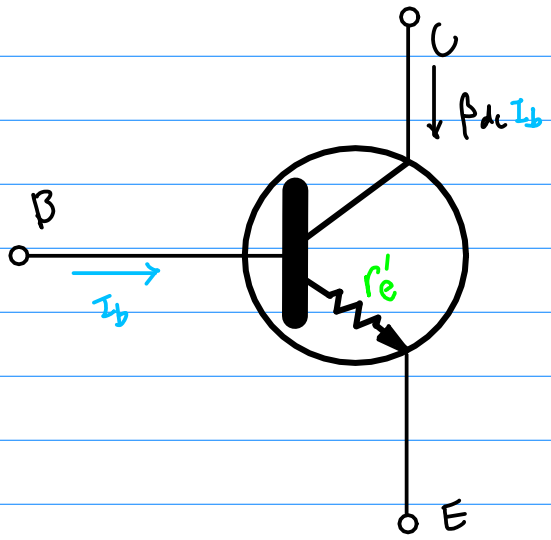
I_c 


r_c'
$\alpha_{ac} I_e$
r_e'
E
C
I_e
I_b
r_b'
B


E
C
B


r_e'
$\alpha_{ac} I_e = \beta_{ac} I_b$
E
C
I_e
I_b
B


C
$\beta_{ac} I_b$
B
I_b
r'_e
E


C
$\beta_{dc} I_b$
B
I_b
r'_e
E

I_C	I_c	i_c
I_E	I_e	i_e
I_B	I_b	i_b
V_{CE}	V_{ce}	v_{ce}

$$\left(\frac{}{\beta_{DC}} + R_C\right) I_C - V_{CC} - V_{BE}$$

$$I_C = \frac{V_{CC} - V_{BE}}{R_C + R_B/\beta_{DC}}$$