

BJT Amplifier Overview (H.9)

20170202

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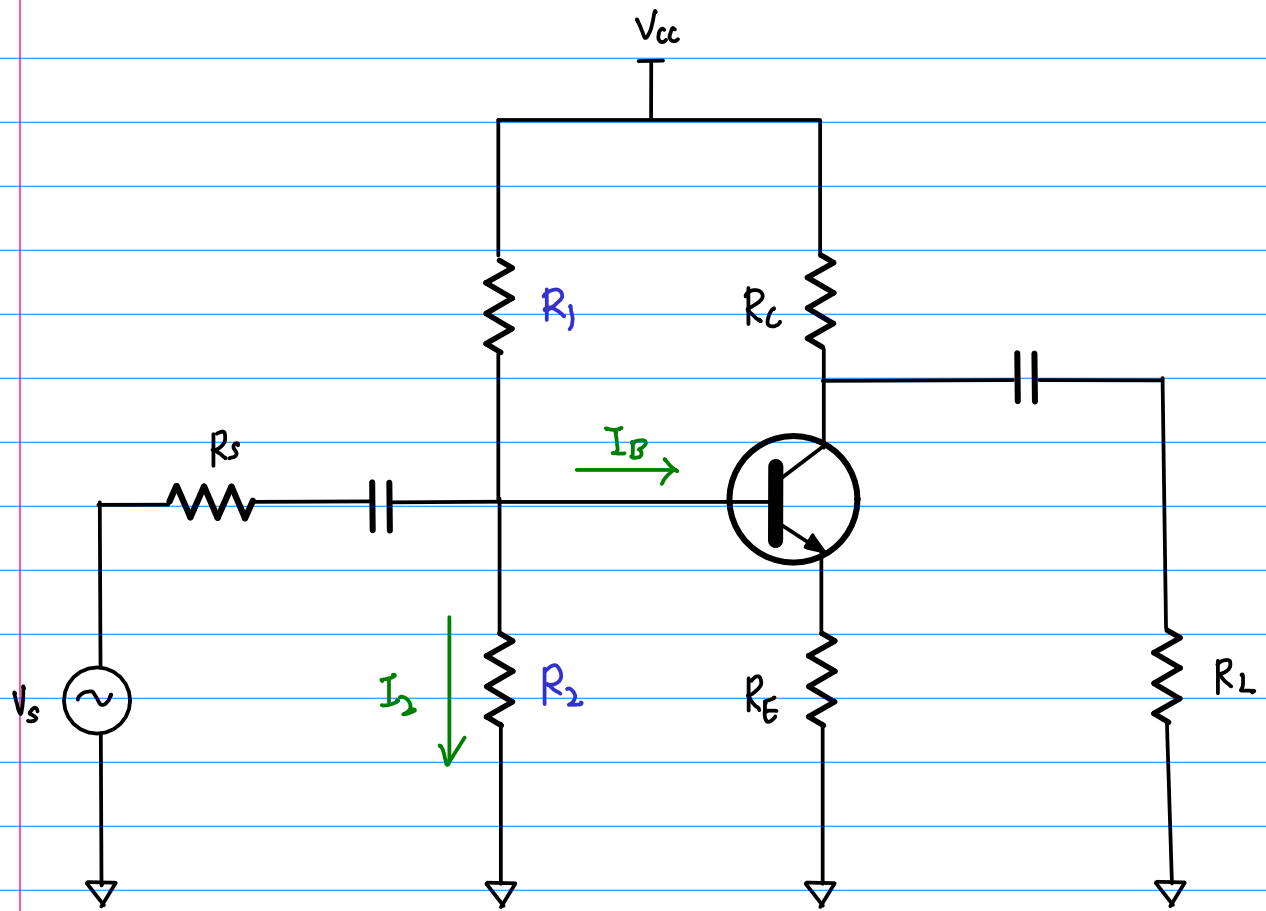
References

Based

[1] Floyd, Electronic Devices 7th ed

[2] Cook,

[2] en.wikipedia.org

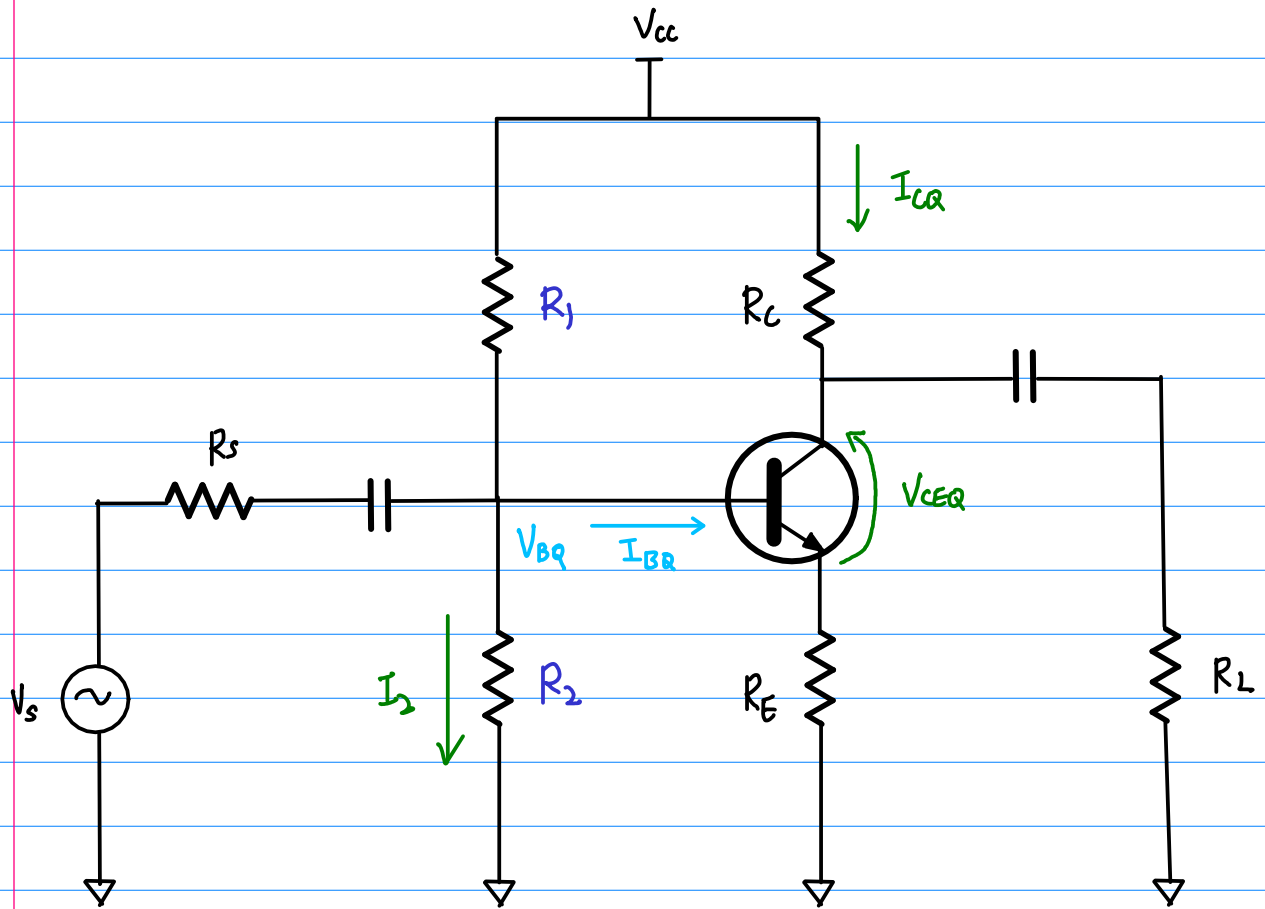


I_C	I_c
I_E	I_e
I_B	I_b
V_{CE}	V_{ce}

I_C	I_E	I_B	V_{CE}	DC quantities
I_c	I_e	I_b	V_{ce}	ac quantities (rms, peak, peak-to-peak)
i_c	i_e	i_b	v_{ce}	instantaneous quantities

$$\left(\frac{1}{\beta_{DC}} + R_C \right) I_C = V_{CC} - V_{BE}$$

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

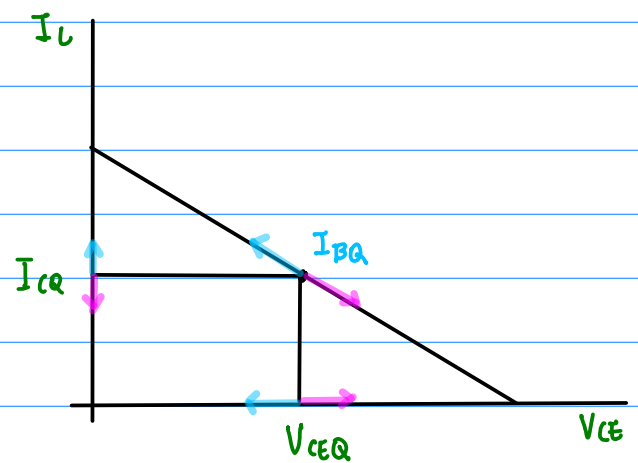
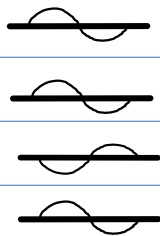


$$V_{BQ} + V_b$$

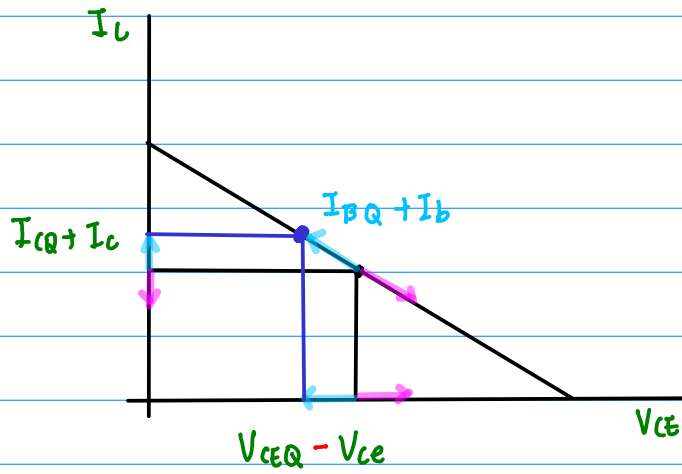
$$I_B + I_b$$

$$V_{CEQ} + V_{ce}$$

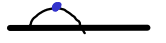
$$I_{CQ} + I_c$$



V_{BQ}	—	+	V_b	~	=	$V_{BQ} + V_b$	—
I_B	—	+	I_b	~	=	$I_B + I_b$	—
V_{CEQ}	—	+	V_{ce}	~	=	$V_{CEQ} + V_{ce}$	—
I_{CQ}	—	+	I_c	~	=	$I_{CQ} + I_c$	—



$$V_{BQ} + v_b$$



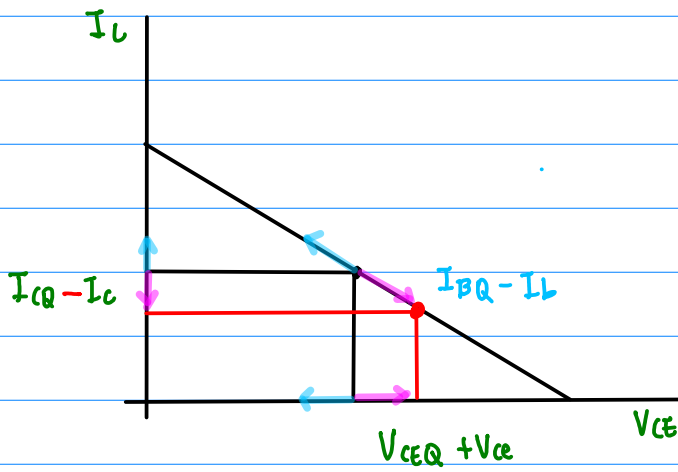
$$I_B + i_b$$



$$V_{CEQ} - v_{ce}$$



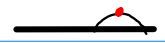
$$I_{CQ} + i_c$$



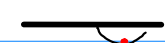
$$V_{BQ} - v_b$$



$$I_B - i_b$$



$$V_{CEQ} + v_{ce}$$



$$I_{CQ} - i_c$$

