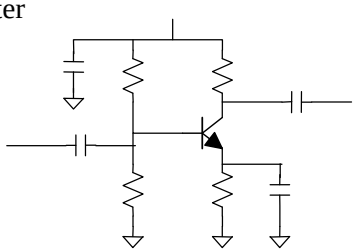
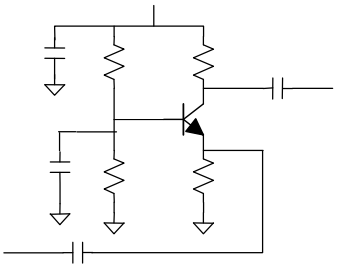
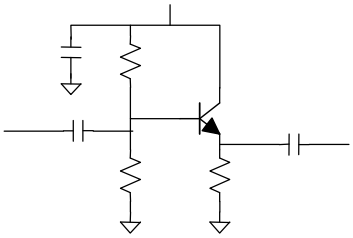
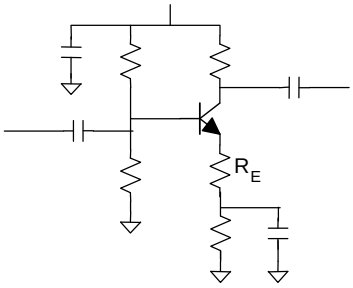
BJT Amplifier Configurations

Configuration	Representative Circuit	Approx. Formulas	$A_{Vno\text{-}load}$	R_i	R_o
Common Emitter		$A_{Vno\text{-}load} = -g_m R_c$ $R_i = r_\pi \parallel R_{b1} \parallel R_{b2}$ $R_0 = R_c$	High	Med	Med
Common Base		$A_{Vno\text{-}load} = +g_m R_c$ $R_i = 1/g_m \parallel R_E \parallel r_\pi$ $R_o = R_c$	High	Low	Med
Common Collector (Emitter follower)		$A_{Vno\text{-}load} \approx 1$ $R_i = R_{b1} \parallel R_{b2} \parallel r_\pi(1 + g_m R_E)$* $R_o = 1/g_m$**	Unity	High	Low
Common Emitter with Emitter Resistor		$A_{Vno\text{-}load} = -g_m R_c / (1 + g_m R_E)$ $R_i = R_{b1} \parallel R_{b2} \parallel r_\pi(1 + g_m R_E)$ $R_0 = R_c$	Med	High	Med

* Assumes unloaded output
** Assumes low source R

11/6/2011 WBK (updated 10/28/2013)