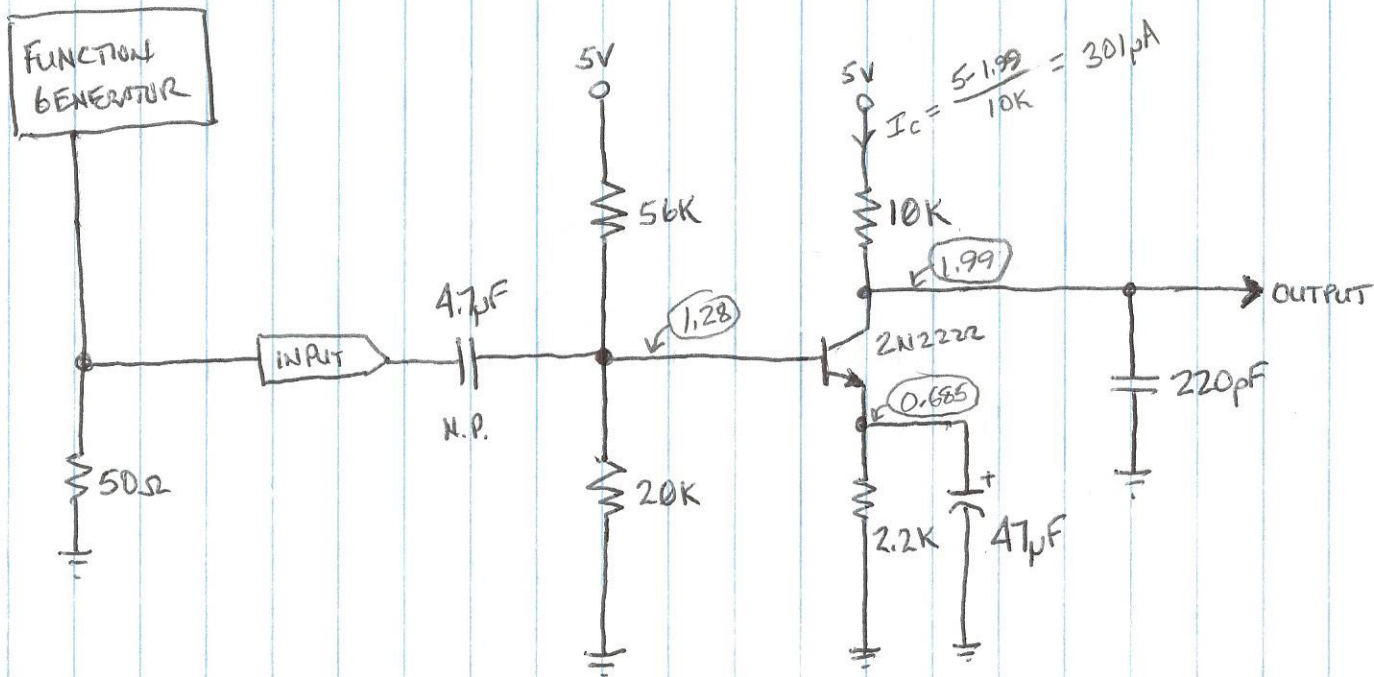


BASIC FREQUENCY RESPONSE OF A COMMON EMITTER AMPLIFIER



$$V_T = \frac{kT}{q} = 26\text{mV @ room temp}$$

$$r_e = \frac{1}{g_m}$$

$$g_m = \frac{I_c}{V_T} = \frac{301\mu\text{A}}{26\text{mV}} = 11.6\text{mS}$$

$$r_e = 86\Omega$$

$$A_v = -(g_m)(R_c) = 10\text{K} \times 11.6\text{mS} = -116$$

$$A_v = -\frac{R_c}{r_e}$$

$$f_{3dB} = \frac{1}{2\pi RC}$$

$$f_H = \frac{1}{2\pi(10\text{K})(220\text{pF})} = 72.4\text{KHz}$$

$$f_L = \frac{1}{2\pi(47\mu\text{F})(86)} = 39\text{Hz}$$