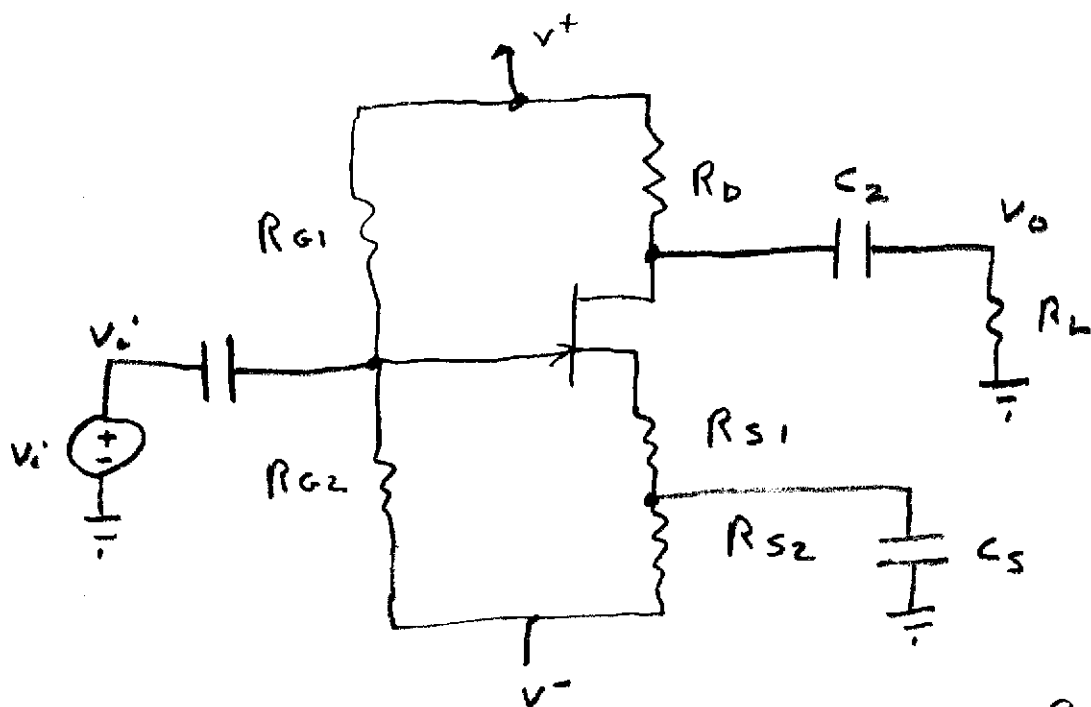




$$R_L = 100 \Omega$$

$$I_D = \beta [V_{GS} - V_{T0}]^2$$

$$\text{Max current } I_{DSS} = \beta V_{T0}^2$$

$$\text{Drained Bias } I_D = I_{DSS} / 2 \quad V_{DS} = V^+$$

$$V^+ - V_D = V^+ / 2$$

$$I_D R_D = \frac{V^+}{2}$$

$$I_D (R_{S1} + R_{S2}) = \frac{V^+}{2}$$

$$A_v = -5 = - \frac{R_D \parallel R_L}{r_o + R_{S1}}$$

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

$$g_m = 2 \sqrt{\beta I_D}$$

$$V_G = V^+ \frac{R_{G2} - R_{G1}}{R_{G1} + R_{G2}}$$

$$\text{Pich } R_{G1} + R_{G2} = 1 \text{ M}\Omega \\ = R$$

$$\frac{\frac{R_{G2}}{R_{G1}} - 1}{\frac{R_{G2}}{R_{G1}} + 1} = \frac{V_G}{V^+}$$

$$\frac{R_{G2}}{R_{G1}} - 1 = \frac{V_G}{V^+} \left(\frac{R_{G2}}{R_{G1}} + 1 \right)$$

$$\frac{R_{G2}}{R_{G1}} \left[1 - \frac{V_G}{V^+} \right] = 1 + \frac{V_G}{V^+}$$

$$\frac{R_{G2}}{R_{G1}} = \frac{1 + \frac{V_G}{V^+}}{1 - \frac{V_G}{V^+}}$$

$$\text{Pich } R_{G1} + R_{G2} = R$$

$$\frac{R_{G2}}{R_{G1}} = \frac{R}{R_{G1}} - 1$$

$$\frac{R}{R_{G1}} - 1 = \frac{1 + \frac{V_G}{V^+}}{1 - \frac{V_G}{V^+}}, \quad \frac{R}{R_{G1}} = \frac{2}{1 - \frac{V_G}{V^+}}$$

$$R_{G1} = R \frac{1 - \frac{V_G}{V^+}}{2}$$