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工作区: 可变电阻区 恒流区 可变电阻区 截止区

3-4)

- (a) 不能放大 没有电源提供负偏压, 不能保持 $V_{gs} \leq 0$
 (b) 不能放大 无电阻 使交流输出信号到地短路取不出 U_o
 (c) 能放大
 (d) 不能放大 该电路是自给偏压式共源放大电路

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$$1. I_D = I_{DSS} \left(1 - \frac{V_{GS}}{V_{GS(th)}} \right)^2 = 0.5 \text{ mA}$$

$$R_S = \frac{-V_{GS}}{I_D} = \frac{2 \text{ V}}{0.5 \text{ mA}} = 4 \text{ k}\Omega$$

2. ~~$V_{DG} \gg V$~~ 需使该管在放大区

$$\Delta V_{GS} \gg V_{GS} \quad \therefore V_{GD} \leq V_{GS(th)}$$

$$V_{DS} = 1.2 - 1.4 = 2 \text{ V}$$

$$R_D = \frac{V_{DD} - V_{DS} - I_D \times (R_{S1} + R_{S2})}{I_D} = 22 \text{ k}\Omega$$

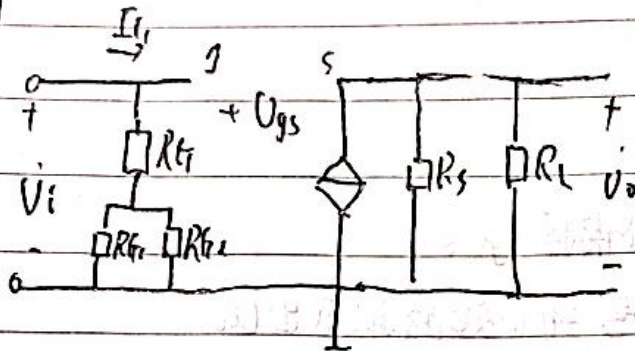
$$3. g_m = - \frac{2 I_{DSS} \left(1 - \frac{V_{GS}}{V_{GS(th)}} \right)}{V_{GS(th)}} = 0.5 \text{ mS}$$

$$V_i = V_{GS} + g_m V_{GS} (R_{S1} + R_{S2})$$

$$V_o = -g_m V_{GS} R_D$$

$$A_u = \frac{V_o}{V_i} = -0.36$$

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$$A_u = \frac{V_o}{V_i} = \frac{g_m V_{gs} R_L'}{V_{gs} + g_m V_{gs} R_L'} = \frac{g_m R_L'}{1 + g_m R_L'}$$

$$R_L' = R_C \parallel R_L$$

$$= 6 \text{ k}\Omega$$

$$\therefore A_u = 0.975 \times 2.0 = \left(\frac{200 \text{ V}}{100 \text{ V}} - 1 \right) \times 200$$

$$R_i = R_{b1} + R_{b2} \parallel R_{b1}$$

$$= 2.075 \text{ M}\Omega$$

$$V_{CE} = \frac{V_{CC}}{2} = \frac{10 \text{ V}}{2} = 5 \text{ V}$$

$$R_o = R_C$$

$$(100 \text{ V}) \geq 10 \text{ V} = 20 \text{ V}$$

$$V_{CE} = 10 - 1 - 1 = 8 \text{ V}$$

$$(100 \text{ V}) \times 10 \text{ V} = 100 \text{ V} - 100 \text{ V}$$