

# 作业纸

课程名称: \_\_\_\_\_

班级: 06011908 教学班级: \_\_\_\_\_

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5-5 解: 1)  $U_b = U_i = 10V$   $U_{om} = \sqrt{2} U_o \approx 14.14V$   
 $P_o = U_o I_o = \frac{1}{2} U_{om} I_{om} = \frac{1}{2} \frac{U_{om}^2}{R_L} \approx 25W$

$\eta = \frac{\pi}{4} \frac{V_{CC}}{R_L} \frac{U_{om}}{V_{CC}} = \frac{\pi}{4} \frac{14.14}{15} = 74\%$

$P_T = \frac{1}{R_L} \left( \frac{V_{CC} U_{om}}{\pi} - \frac{U_{om}^2}{4} \right) \approx 4.39W$

2)  $I_{cm} > (I_{om})_m = \frac{V_{CC}}{R_L} = \frac{15}{4} = 3.75A$

$P_{cm} > (P_T)_m \approx 0.2 P_o = 0.2 \frac{V_{CC}^2}{2R_L} = 0.2 \frac{15^2}{2 \times 4} = 5.625W$

$V_{(BR)CEO} > (V_{EC})_m = 2V_{CC} = 30V$

5-10 解: 1. 单电源供电,  $C_2$  上的两端电压为  $5V$ .

调节  $R_1$ , 使  $U_{B1}$ ,  $U_{B2}$  改变,  $U_{CE1}$ ,  $V_{CE2}$  相等.

使  $U_{C2} = U_{CE1} = V_{CE2} = 5V$ .

2.  $(P_o)_m = \frac{1}{2} \frac{U_{om}^2}{R_L} = \frac{1}{2} \frac{U_{om}}{R_L} = \frac{1}{2} \frac{(V_{CC} - V_{CE5})^2}{R_L} = \frac{1}{2} \frac{(5-1)^2}{16} = 0.5W$

$\eta = \frac{\pi}{4} \frac{U_{om}}{V_{CC}} = \frac{\pi}{4} \cdot \frac{5-1}{5} = 62.8\%$

3. 电阻  $R_2$  或二极管断开,  $U_{B1} \uparrow$   $U_{B2} \downarrow$ .

$I_{C2} = I_{C1} = \beta \frac{V_{B1} - V_{BE}}{R_1} \approx 179mA$

$V_{CE1max} = 10V$

$P_C = 10V \times 179mA > P_{cm} = 200mW$

$\therefore$  两晶体管不安全

联系方式: \_\_\_\_\_

