5-5

1. $P_o = \dfrac{U_o^2}{R_L} = 25W$

$\eta = \dfrac{\sqrt{2}U_o}{V_{cc}} \cdot \dfrac{\pi}{4} = 74\%$

$P_T = \dfrac{\sqrt{2}U_o}{R_L}\left(\dfrac{V_{cc}}{\pi} - \dfrac{\sqrt{2}U_o}{4}\right) = 4.38W$

2. $I_{CM} \gtrsim \dfrac{V_{cc}}{R_L} = 3.75A$

$P_{CM} \geqslant (P_T)_M = \dfrac{2}{\pi^2}(P_o)_M = \dfrac{2}{\pi^2}\dfrac{V_{cc}^2}{2R_L} = 5.70W$

$U_{CEO(BR)} \geqslant 2V_{cc} = 30V$

5-10

1. $U_{C_2} = \dfrac{V_{cc}}{2} = 5V$

应调节电阻 R_1

2. $U_{om} = \dfrac{V_{cc}}{2} - U_{CES}$

$(P_o)_M = \dfrac{U_{om}^2}{2R_L} = \dfrac{\left(\dfrac{V_{cc}}{2} - U_{CES}\right)^2}{2R_L} = 0.5W$

由于电路晶体管集电极电流波形与双电源供电时一致,

$\eta = \dfrac{U_{om}}{\dfrac{V_{cc}}{2}} \cdot \dfrac{\pi}{4} = 62.8\%$

3. $I_B = \dfrac{\dfrac{V_{cc}}{2} - U_{BE}}{R_1} = 3.53mA$

$I_c = \beta I_B = 179.2mA$

在静态时 $P_T = \dfrac{V_{cc}}{2}I_c = 896mW > P_{CM}$

晶体管不安全