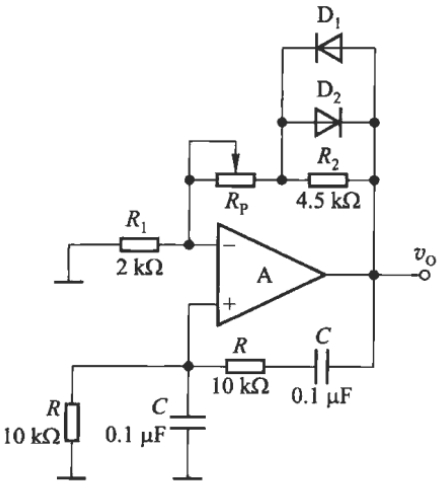
Homework for Chapter 9

Xiping Hu

https://hxp.plus/

May 30, 2020

10.6.5　正弦波振荡电路如图题 10.6.5 所示，已知 $R_1=2\ \text{k}\Omega$，$R_2=4.5\ \text{k}\Omega$，R_P在 0～5 kΩ 范围内可调，设运放 A 是理想的，振幅稳定后二极管的动态电阻近似为 $r_\text{d}=500\ \Omega$，求 R_P的阻值。



图题 10.6.5

1 Problem 1

Adjust the value of R_1 and R_3 until:

$$V_{C2}=\frac{V_{CC}}{2}=6\ \text{V}$$

2 Problem 2

Adjust the value of R_2 should solve the Crossover Distortion issue.

3 Problem 3

When D_1, D_2 or R_2 is open-circuited

$$P_{T1}=P_{T2}=\beta I_B V_{CE}=\beta\cdot\frac{V_{CC}-2|V_{BE}|}{R_1+R_3}\cdot\frac{V_{CC}}{2}=1156\ \text{mW}>P_{CM}$$

Either T_1 or T_2 will be damaged.