

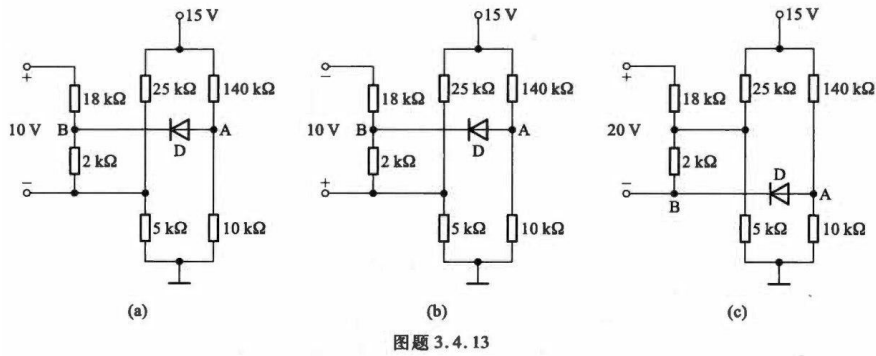
Homework for Chapter 3

Xiping Hu

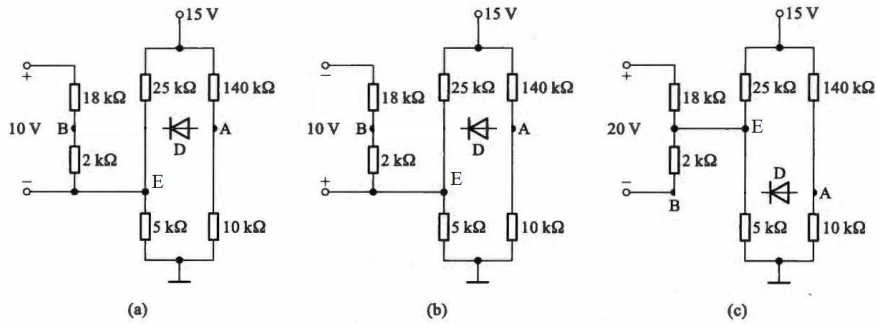
<http://thehxp.tech/>

March 21, 2020

3.4.13 试判断图题 3.4.13 中二极管是导通还是截止,为什么? 设二极管是理想的。



We first assume that the diodes are all off



As for (a):

$$v_E = \frac{5}{5 + 25} \times 15 = 2.5 \text{ V}$$

$$v_A = \frac{10}{10 + 140} \times 15 = 1 \text{ V}$$

$$v_B = \frac{2}{18 + 2} \times 10 + 2.5 = 3.5 \text{ V}$$

Since $v_B > v_A$, the diode is off.

As for (b):

$$v_E = \frac{5}{5+25} \times 15 = 2.5 \text{ V}$$

$$v_A = \frac{10}{10+140} \times 15 = 1 \text{ V}$$

$$v_B = -\frac{2}{18+2} \times 10 + 2.5 = 1.5 \text{ V}$$

Since $v_B > v_A$, the dipole is off.
As for (c):

$$v_E = \frac{5}{5+25} \times 15 = 2.5 \text{ V}$$

$$v_A = \frac{10}{10+140} \times 15 = 1 \text{ V}$$

$$v_B = -\frac{2}{18+2} \times 20 + 2.5 = 0.5 \text{ V}$$

Since $v_B < v_A$, the dipole is on.