



Chapter 2

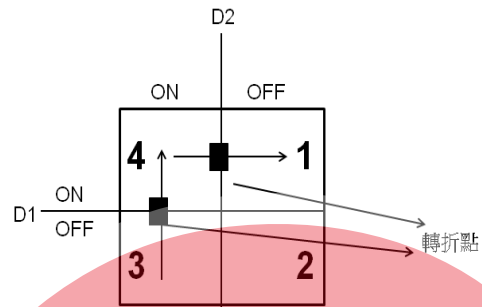
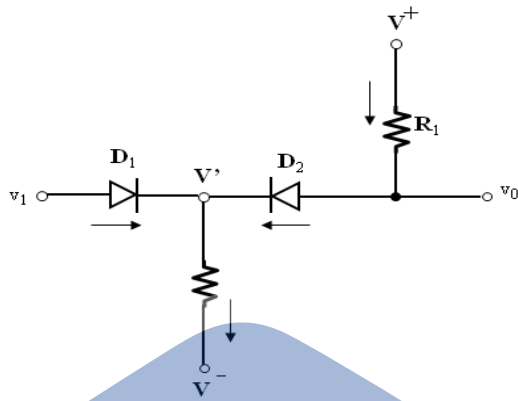
二極體電路

2.4 多個二極體電路

南方科技大學

Southern Taiwan University

2.4 多個二極體電路



1. $D_1 \rightarrow \text{ON}$ $D_2 \rightarrow \text{OFF}$

$$V_0 = V^+$$

$$V' = V_1 - V_Y$$

2. $D_1 \rightarrow \text{OFF}$ $D_2 \rightarrow \text{OFF}$

$$V_0 = V^+$$

$$V' = V^-$$

$$\because V_{D2} = V^+ - V^- > V_Y$$

\therefore 2 中 D_2 不能 OFF

3. $D_1 \rightarrow \text{OFF}$ $D_2 \rightarrow \text{ON}$

$$i_{R2} = i_{R1} = \frac{V^+ - V^- - V_Y}{R_1 + R_2}$$

$$V' = V^- + i_{R2} R_2$$

$$V' = V^- + \frac{V^+ - V^- - V_Y}{R_1 + R_2} R_2$$

$$V_0 = V' + V_Y$$

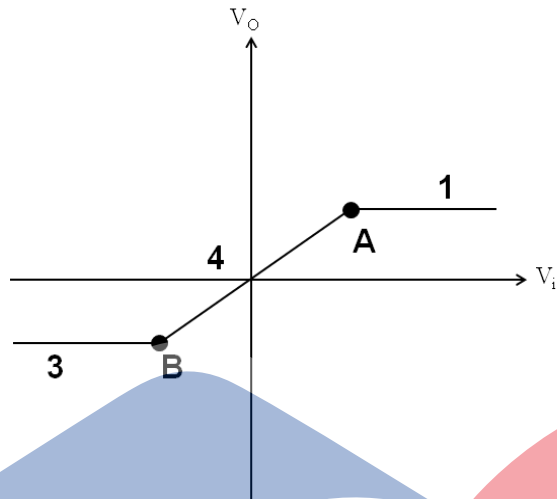
4. $D_1 \rightarrow \text{ON}$ $D_2 \rightarrow \text{ON}$

$$V' = V_1 - V_Y = V_0 - V_Y$$

$$\Rightarrow V_1 = V_0$$

南台科技大學

Southern Taiwan University



A 點:

When D1 ON 、 D2 OFF→ON

$$V^- = V_i - V_\gamma$$

$$V^+ - i_{R1} R_1 - V_{D2} = V^-$$

$$V_{D2} = V^+ - V_i + V_\gamma \geq V_\gamma$$

$$V^+ \geq V_i$$

B 點:

When D2 ON 、 D1 OFF→ON

$$V^- = \frac{V^+ - V^- - V_\gamma}{R_1 + R_2} R_2 + V^-$$

$$V_i - V_{D1} = V^-$$

$$V_{D1} = V_i - V^- \geq V_\gamma$$

$$V_i \geq V^- + V_\gamma$$

$$V_i \geq \frac{V^+ R_2}{(R_1 + R_2)} + \frac{V^- R_1}{(R_1 + R_2)} + \frac{R_1 V_\gamma}{(R_1 + R_2)}$$

南台科技大學

Southern Taiwan University