Chapter 2
二極體電路

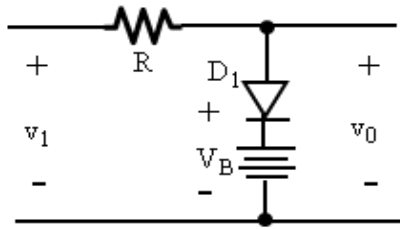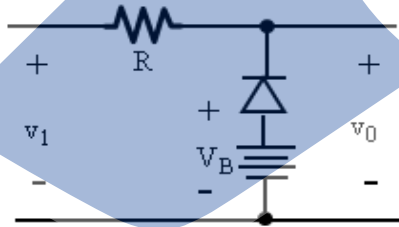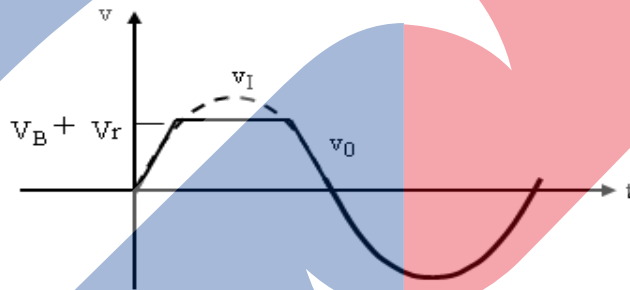**2.3** 剪波器(Clippers)與夾波器(Clampers)電路

南方科技大學
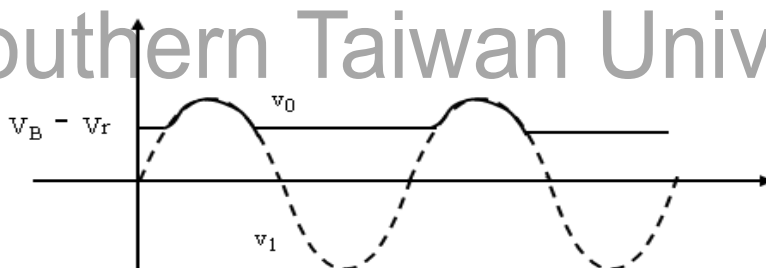Southern Taiwan University

2.3 剪波器(Clippers)與夾波器(Clampers)電路

◆ 單一二極體的剪波電路(Clippers)

When $V_i > V_B + V_\gamma$

$D \rightarrow$ ON $\quad V_O = V_B + V_\gamma$

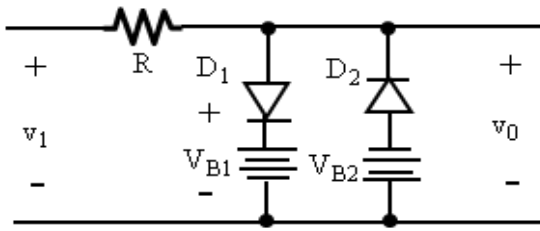When $V_i < V_B + V_\gamma$

$D \rightarrow$ OFF $\quad V_O = V_i$

When $V_D > V_\gamma$

$D \rightarrow$ ON $\quad V_O = V_B - V_\gamma$

When $V_B - V_\gamma \leq V_i$

$D \rightarrow$ OFF $\quad V_O = V_i$

◆ 兩個二極體的剪波電路(Clippers)

A. $D_1 \rightarrow OFF \quad D_2 \rightarrow OFF$

$V_O = V_i$

B. $D_1 \rightarrow ON \quad D_2 \rightarrow ON$

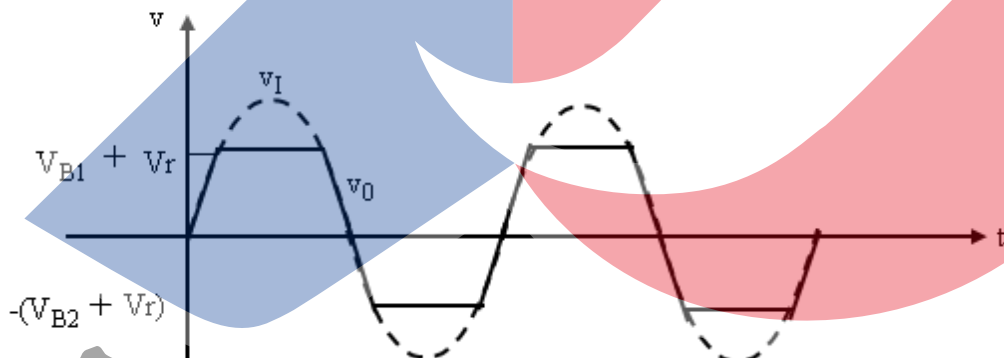$V_O = V_{B1} + V_{\gamma 1}$

$V_O = -(V_{B2} + V_{\gamma 2})$

此情況不可能發生

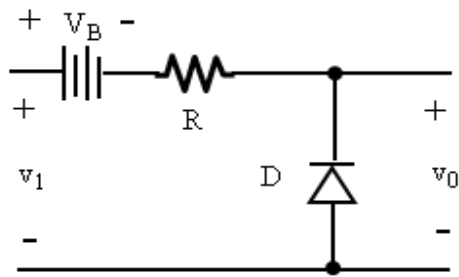C. $D_1 \rightarrow ON \quad D_2 \rightarrow OFF$

$V_O = V_{B1} + V_{\gamma 1}$

D. $D_1 \rightarrow OFF \quad D_2 \rightarrow ON$

$V_O = -(V_{B2} + V_{\gamma 2})$

◆ 單一二極體的夾波器(Clampers)

When   D   ON

$$V_O = -V_\gamma$$

$$V_D = V_B - V_i > V_\gamma$$
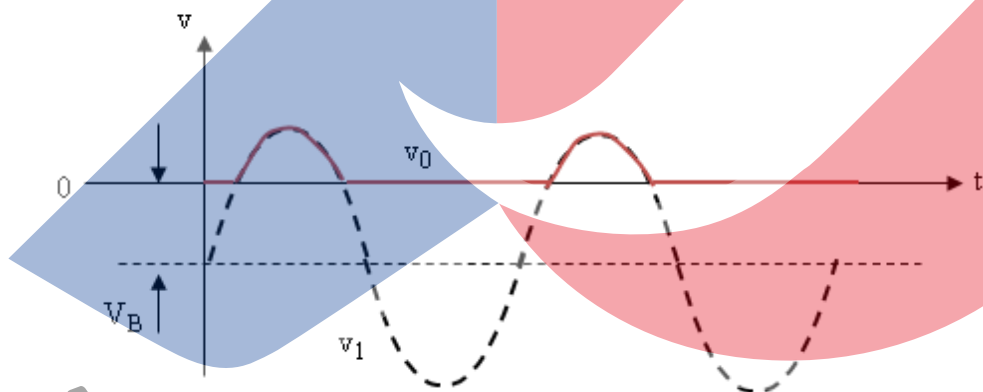
$$\boxed{V_B - V_\gamma > V_i}$$

When   D   OFF

$$V_O = V_\gamma - V_B$$

$$V_D = V_B - V_i \leq V_\gamma$$

$$\boxed{V_B - V_\gamma \leq V_i}$$