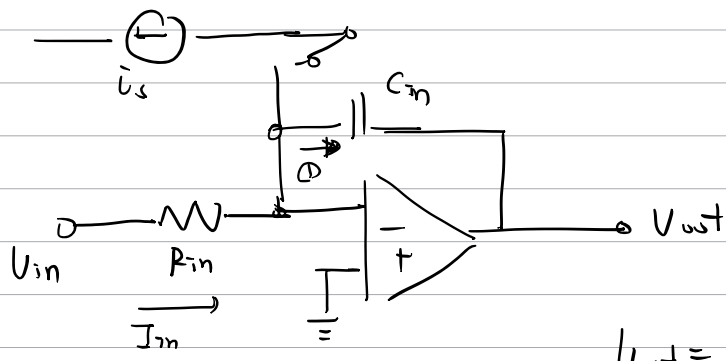


전압 극값 Converter

그림 6-25.

① reset 상태.



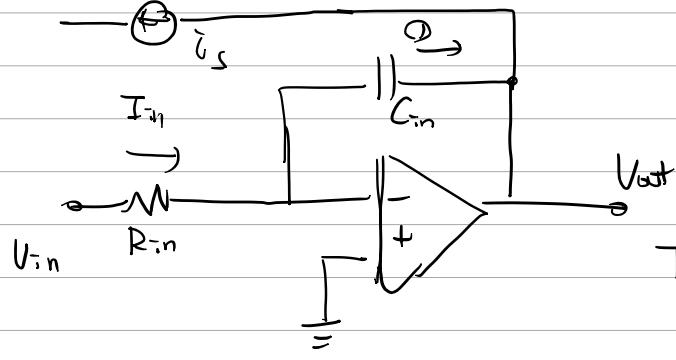
①으로 흐르는 전류
 $= I_{in} - i_s$

$$V_{out} = \frac{1}{C} \int (I_{in} - i_s) dt$$

t_{os} 시간동안 reset 상태가 유지.

$$V_{out} \Big|_{t_{os}} = \frac{1}{C} \int_0^{t_{os}} (I_{in} - i_s) dt = \frac{I_{in} - i_s}{C_{in}} t_{os} = \Delta V$$

② 적분 상태



① 전류는 $I_{in} = \frac{V_{in}}{R_{in}}$

T_1 시간동안 동작

$$V_{out} = - \frac{1}{C_{in}} \int_0^{T_1} I_{in} dt = - \frac{1}{C_{in}} \frac{V_{in}}{R_{in}} T_1$$

reset 기간중 $V_{out} = \frac{I_{in} - i_s}{C_{in}} t_{os}$ 이므로

$$T_1 = \frac{I_{in} - i_s}{-i_s} t_{os} \times \frac{C_{in} \times R_{in}}{V_{in}} = - t_{os} (I_{in} - i_s) R_{in} / V_{in}$$

$$f_{out} = \frac{1}{T_1} \neq \frac{1}{t_{os} + T_1}$$

$$t_{os} \quad T_1 = t_{os} (I_{in} - i_s) \frac{R_{in}}{V_{in}} = t_{os} \left\{ \frac{-I_{in} + i_s}{I_{in}} \right\}$$

$$f_{out} = \frac{1}{t_{os} + t_{os} \left\{ \frac{I_{in} - i_s}{I_{in}} \right\}} = \frac{I_{in}}{(I_{in} + 1 - i_s) t_{os}}$$

$$t_{os} + T_1 = t_{os} + t_{os} \left(\frac{I_{in} - i_s}{I_{in}} \right) = t_{os} \left(\frac{2I_{in} - i_s}{I_{in}} \right)$$

$$= t_{os} \left(\frac{I_{in} - I_{in} + i_s}{I_{in}} \right) = t_{os} \frac{i_s}{I_{in}}$$

$$f_{out} = \frac{1}{t_{os} + T_1} = \frac{I_{in}}{t_{os} i_s} = \frac{V_{in}}{t_{os} i_s} \frac{1}{R_{in}}$$

V_{in} rak i_{in}