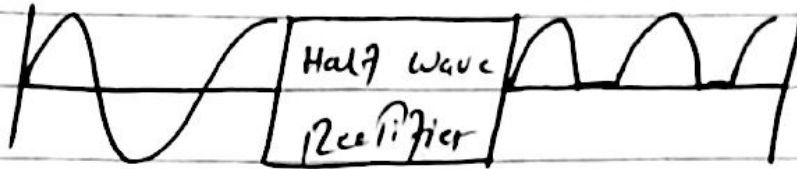


(Lecture 12) Full-Wave Rectifier

→ We saw earlier, half-wave rectifier



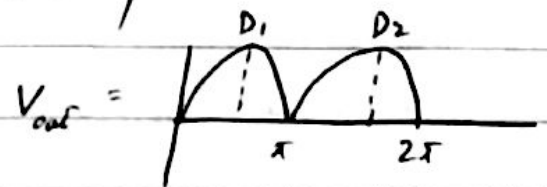
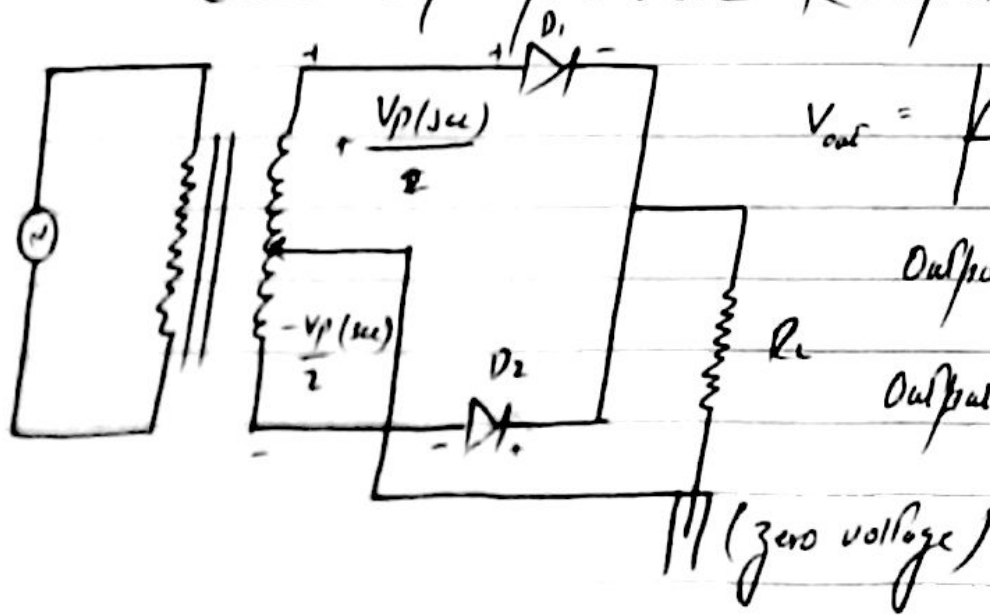
$$V_{avg} = \frac{V_p(\sec)}{\pi}$$

$$PIV = V_p(\sec)$$

Draw-backs of Half-wave rectifier:-

- i) V_{avg} is very low.
- ii) We are getting only 37% of input energy at the output.

Circuit of Full-wave Rectifier



$$\text{Output } D_1 = \frac{V_p(\sec)}{2} = 0.7V$$

$$\text{Output } D_2 = \frac{V_p(\sec)}{2} = 0.7V$$

So,

$$V_{avg} = \frac{2 V_p(\text{sec})}{\pi} = 0.68 V_p(\text{sec})$$

We will get 68% of input into Output.

$$PIV = \Delta V = V_{high} - V_{low}$$

$$= \left(\frac{V_p(\text{sec})}{2} - 0.7 \right) - \left(- \frac{V_p(\text{sec})}{2} \right)$$

$$= \frac{V_p(\text{sec})}{2} + \frac{V_p(\text{sec})}{2} - 0.7 V$$

$$= \boxed{2 \left(\frac{V_p(\text{sec})}{2} \right) - 0.7 V}$$