Free Wheeling Diode

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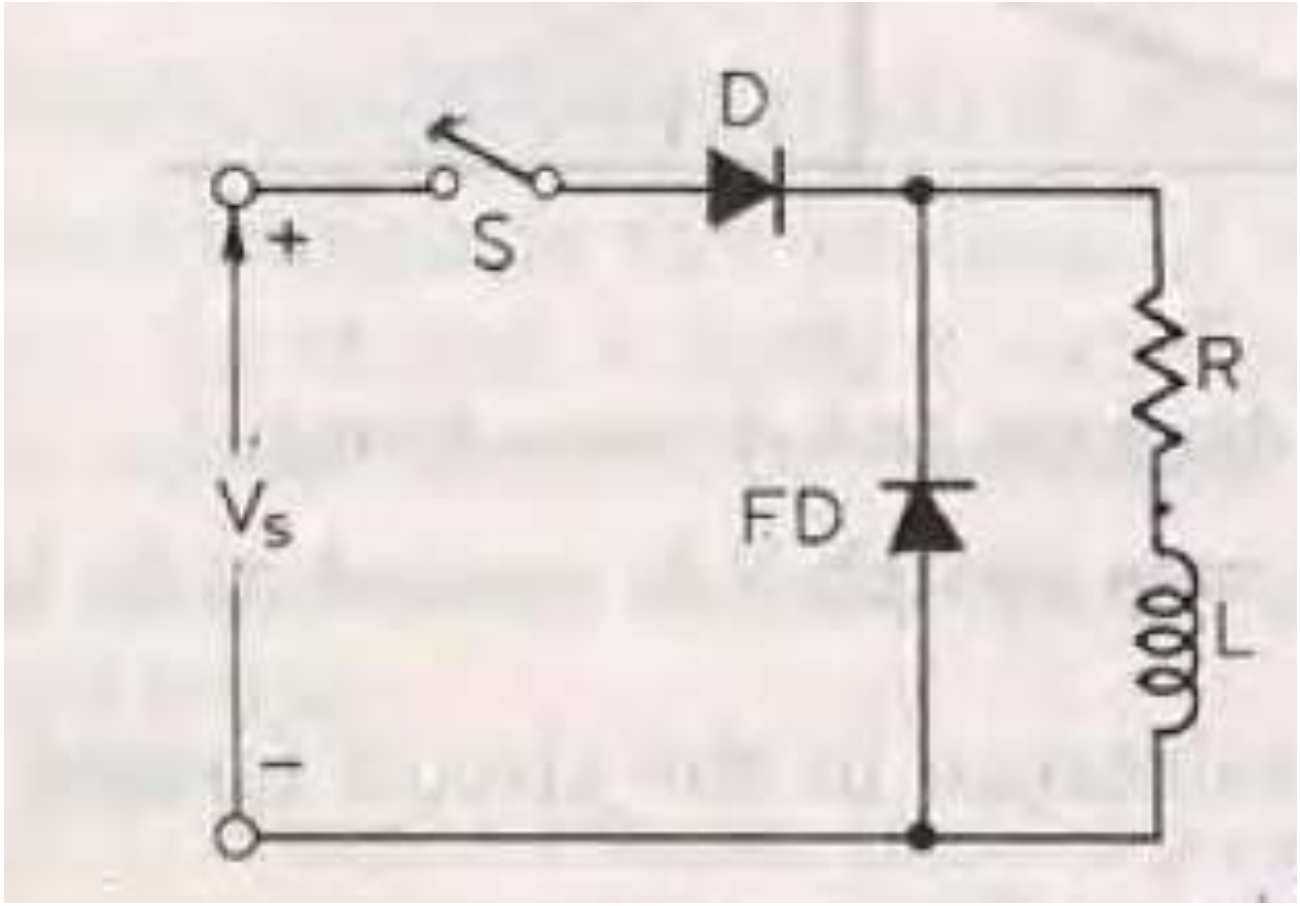
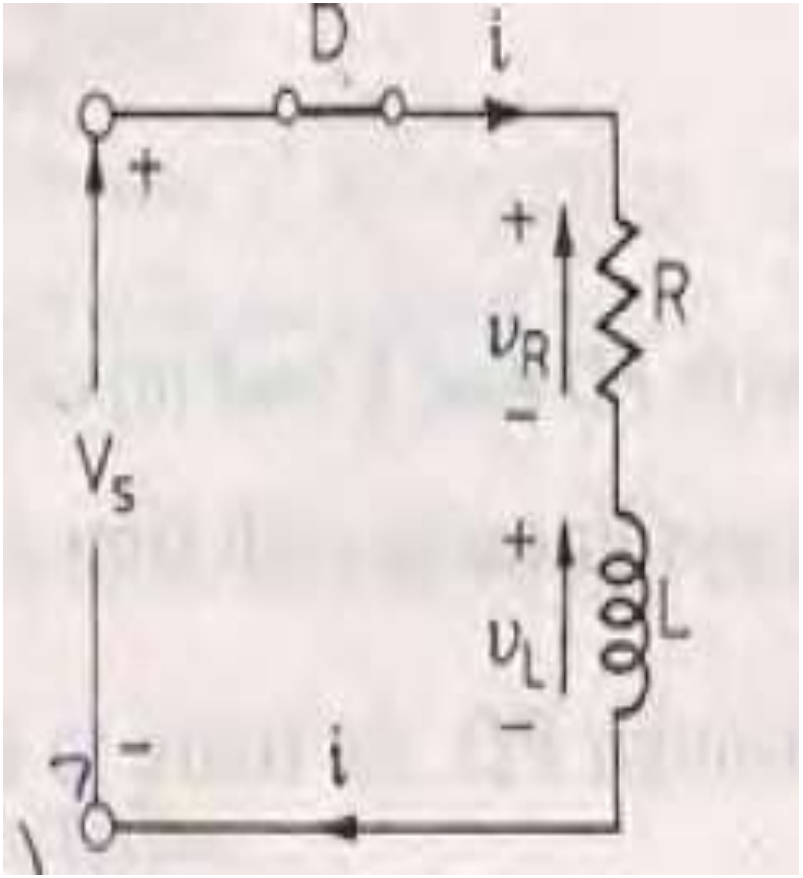
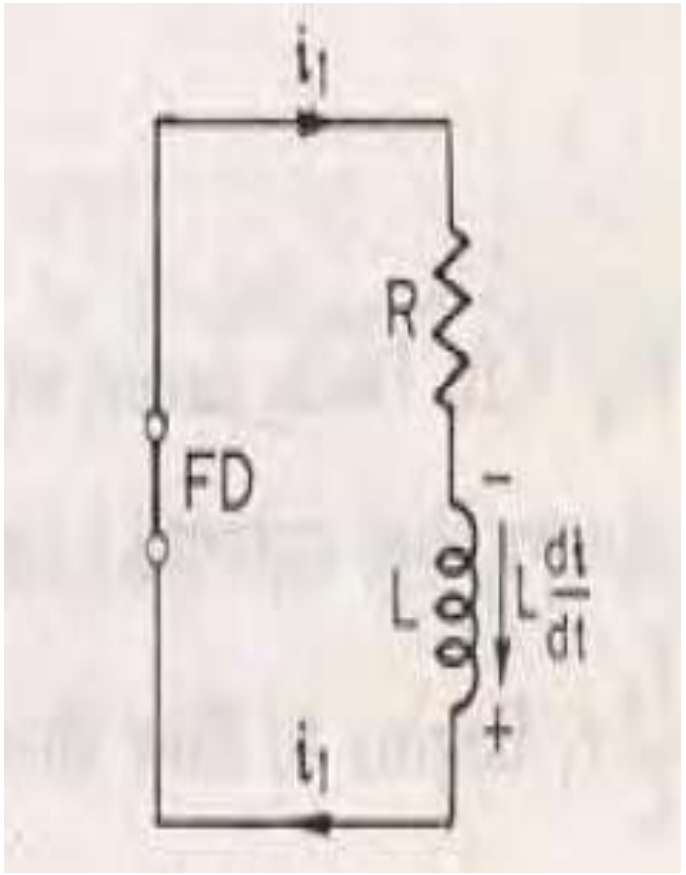


FWD





Explanation

Mode I

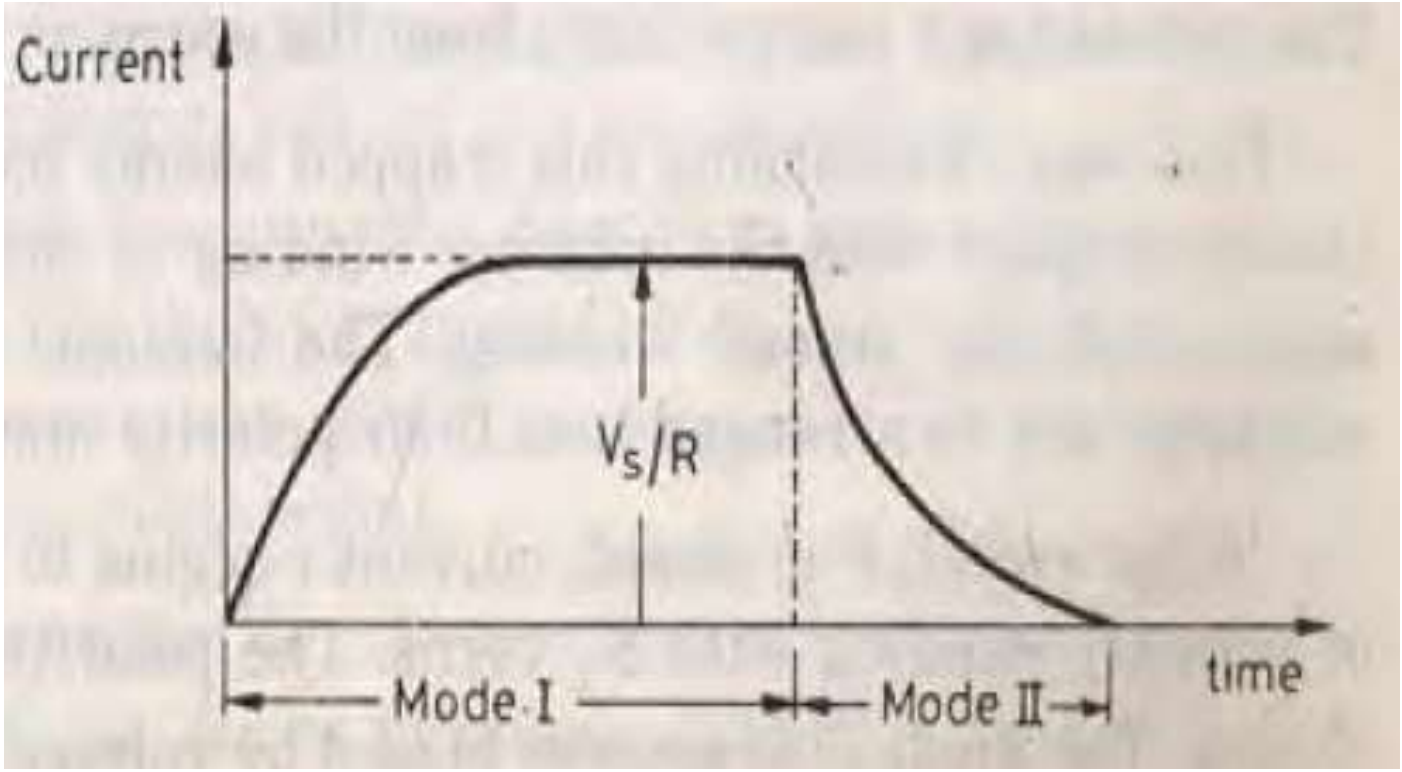
$$i = \frac{V_s}{R}\left(1 - e^{-\frac{R}{L}t}\right).$$

Final value of current, $$I = \frac{V_s}{R}$$

Mode II

$$i_1 = \frac{V_s}{R} \cdot e^{-\frac{R}{L}t}$$

The Graph



Another Case

$$V_s = L\frac{di}{dt}$$

$$i = \frac{V_s}{L}t$$