

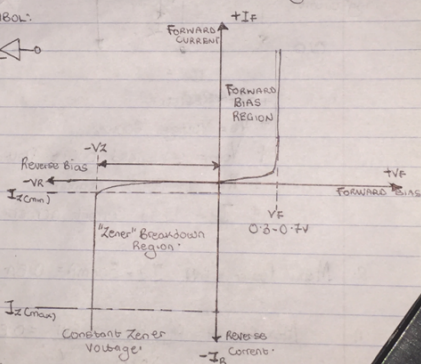
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DEPT: CIVIL ENGINEERING.

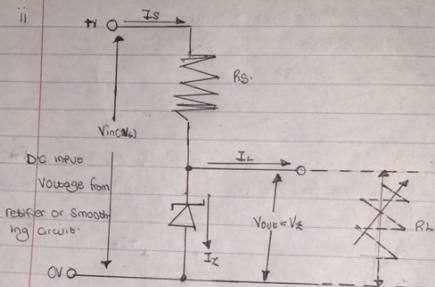
I. A Zener diode is a diode similar to the standard PN junction diode but they are specially designed to have a low and specified Reverse Break down Voltage.

SYMBOL:



I-V Characteristics Curve.

ii



+ R_S = Resistor

+ V_s = Voltage Source

+ V_{out} = Stabilised Output Voltage

+ R_L = Load Resistance

+ I_Z = Load Current across Zener diode

2. Max Power = 5W $I_Z = 500mA = 0.5A$ $20V_{max} = V_s$

1) Max Current = $\frac{\text{Max Power}}{\text{Voltage}} = \frac{5W}{V} = 0.5A$

$$V_z = 10 \text{ Volts}$$

$$\text{Minimum Resistance} = \frac{V_s - V_z}{I_z}$$

$$V_{dc} = 0.637 V_{max}$$

$$= 0.637 \times 20$$

$$= 12.74 V_{dc}$$

$$= \frac{12.74 - 10}{0.5} = 5.48$$

$$ii) \text{ Load Current } I_L = \frac{V_z}{R_L} = \frac{10}{500} = 0.02 \text{ A or } 20 \text{ mA}$$