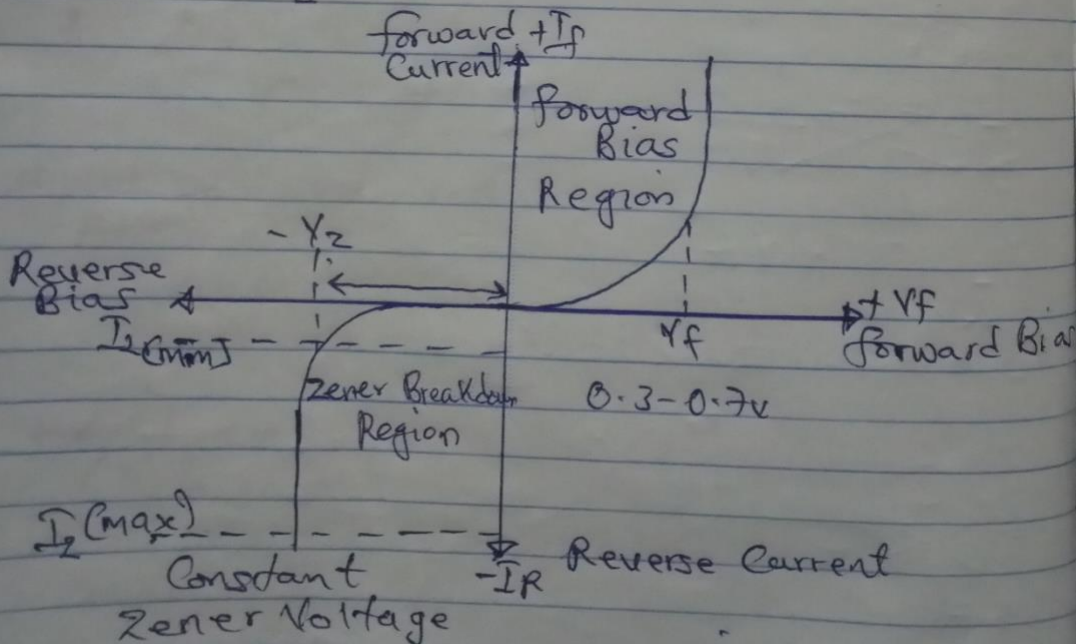
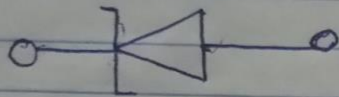


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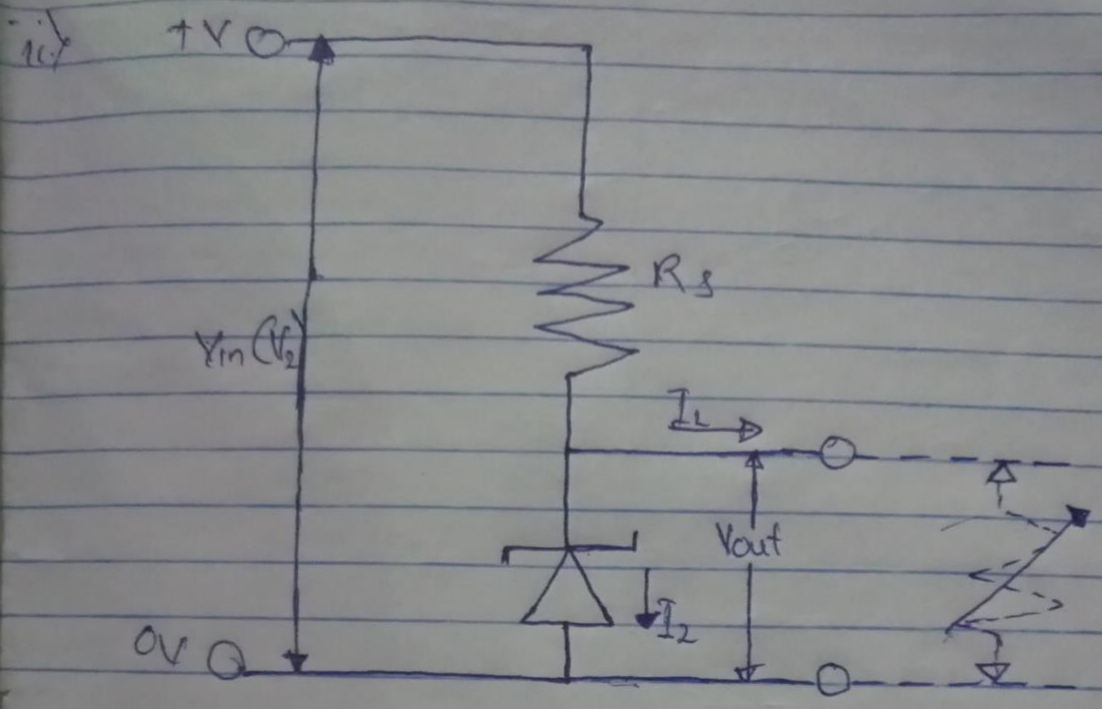
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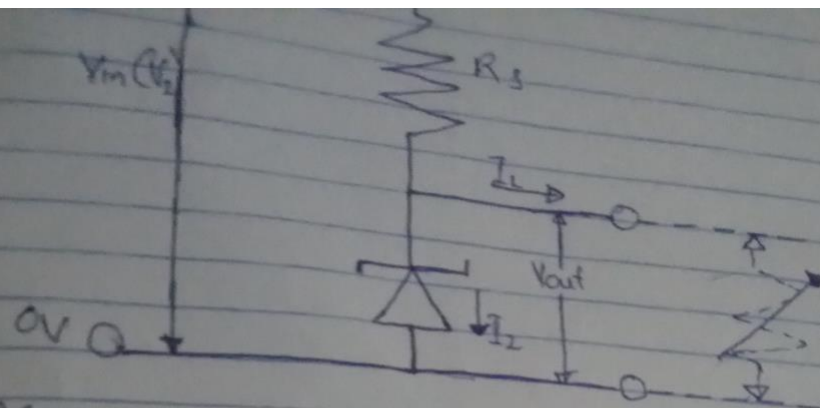
- ① Zener diode is a diode similar to the standard PN junction diode but they are specially designed to have a low and specified reverse breakdown voltage.

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I-V characteristic Curve





i) Max power = 5W, $I_2 = 500\text{mA} = 0.5\text{A}$,
 $20\text{V}_{\text{max}} = V_s$

$$\text{Maximum Current} = \frac{\text{Max power}}{\text{Voltage}} = \frac{5\text{W}}{V} = 0.5\text{A}$$

$$V_2 = 10\text{Volts}$$

$$\text{Minimum resistance} = \frac{V_s - V_2}{I_2}$$

$$V_{de} = 0.637 V_{\text{max}}$$

$$= 0.637 \times 20$$

$$= 12.74\text{V}_{de}$$

$$\text{Minimum resistance} = \frac{12.74 - 10}{0.5} = 5.48\Omega$$

ii) Load current $I_L = \frac{V_2 - 10}{R_L} = \frac{10 - 10}{500} = 0.02\text{A}$ or 20mA