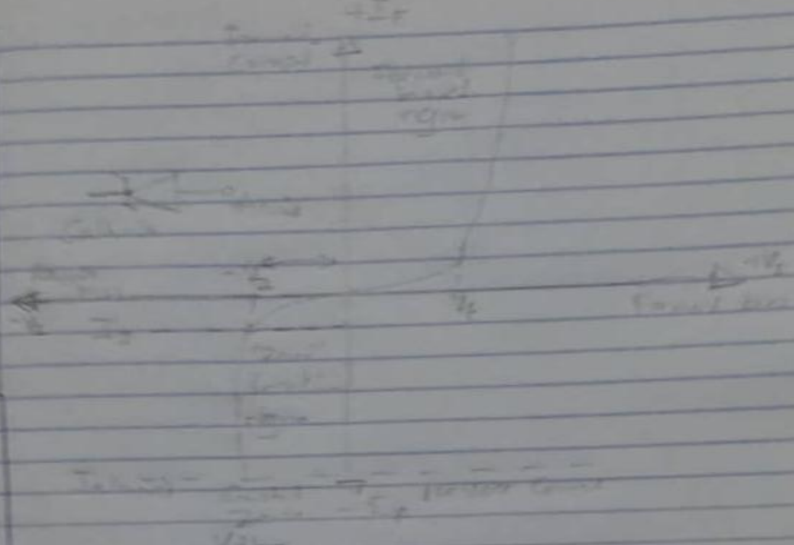
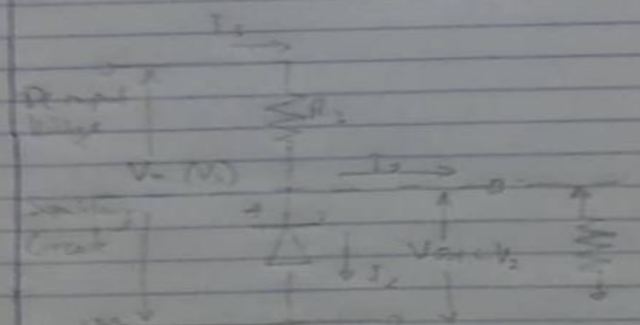


I–V Characteristics



Circuit diagram for zener diode as a voltage

Solution

$R_s = \frac{V_s - V_z}{I_z} =$ V = 20 Vmax, W = 5w

Max current = 500 mA if 1A = 1000mA

$I_{z} = 500mA$ $I_{z} = \frac{500}{1000}$

A = 0.5

$= \frac{10}{0.5} = 20\Omega$

$I_L = \frac{V_z}{R_L} = \frac{10}{500} =$

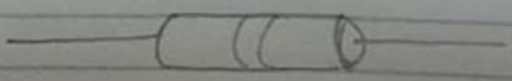
0.02A.

Oduntan Ayomide
Mechanical Eng
18/Eng06/052

iv) A Zener diode is a silicon semiconductor with a p-n junction that is specifically designed to work in the reverse biased Condition. When forward biased, it behaves like a normal Signal diode, but when the reverse voltage is applied to it, the voltage remains Constant for a wide range of current. Due to this feature, it is used as a voltage in A-C Circuit. The primary objective of the Zener diode as a voltage regulator is to maintain a Constant Voltage. Let us Say a Zener voltage of 5V is used then, the voltage becomes Constant at 5V, and it does not change. There is a Series resister Connected to the Circuit in order to the current into the diode. It is connected to the positive terminal of the d.c. It works in Such a way the reverse biased Circuit work in break down Conditon we do not use ordinary junction diode because the lower power rating diode can get damaged when we apply reverse input voltage and the more load Current is applied, the Zener diode current Should always be min.

Since the input voltage and the required output voltage is known, it is easier to chose a Zener diode with a voltage approximately equal to the load voltage i.e $V_z = V_p$

v) Appearance



Schematic Symbol