Basic Electrical Engineering BEEE101P

EXPERIMENT 10

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EXPERIMENT 10

PN Junction diode forward and reverse characteristics

Aim: To plot reverse and forward characteristics for PN Junction dioide

Materials Required:

Sl. No.	Components Name	Range	Quantity
1	Resister	1kΩ, 470Ω	1 No.
2	PN Junction Diode	D1N4007	1 No.
3	RPS	0-32 V (DC)	1 No.
4	Ammeter	(0-50)mA, (0-500)μA	Each 1 No.
	Voltmeter	(0-1)V, (0-10)V	Each 1 No.
5	Connecting Wires	-	Few
6	Bread Board	-	1 No.

Tools Required:

Screw driver, Wire stripper, Hacksaw, combination plier, drilling machine, electrician knife

Identification of Terminals:

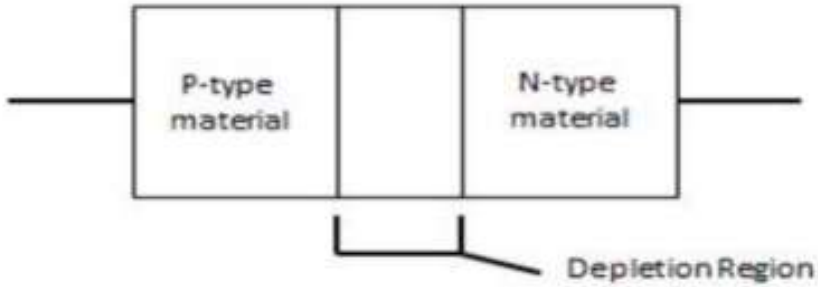


Fig: P-N Junction

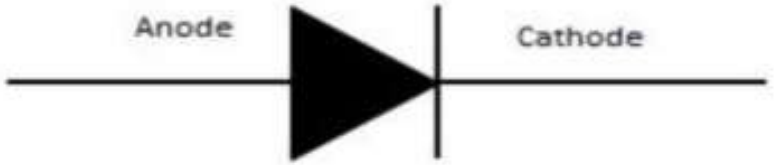
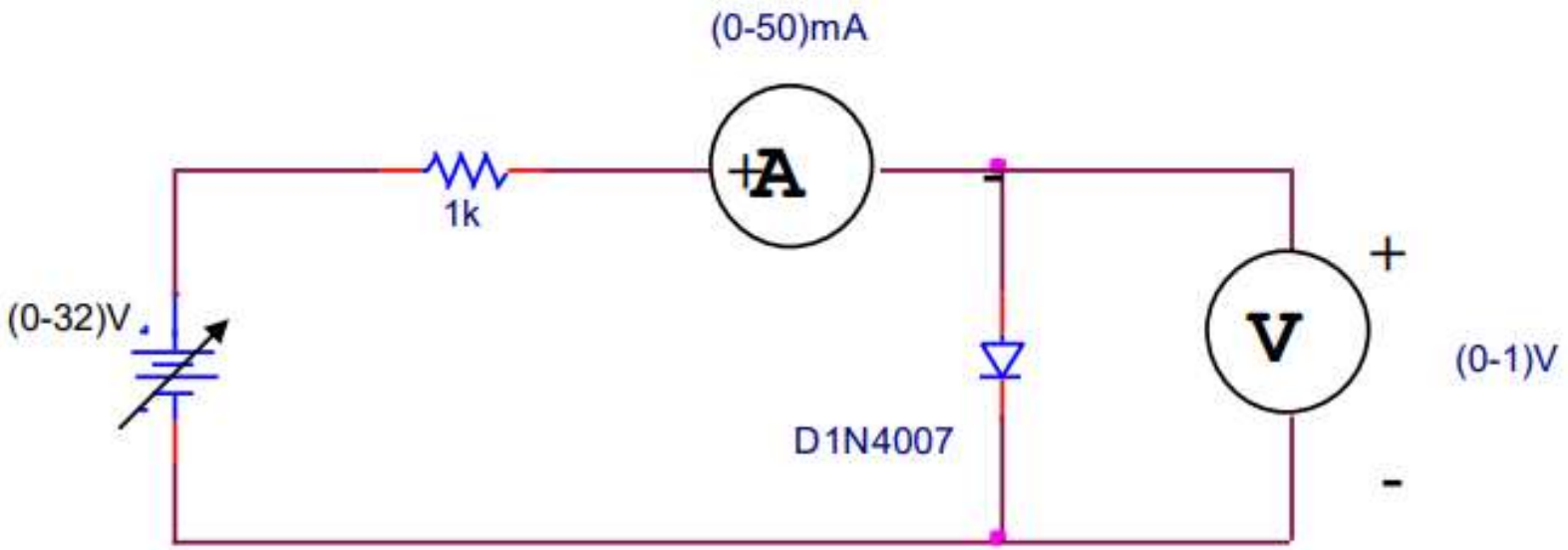


Fig: Schematic Symbol

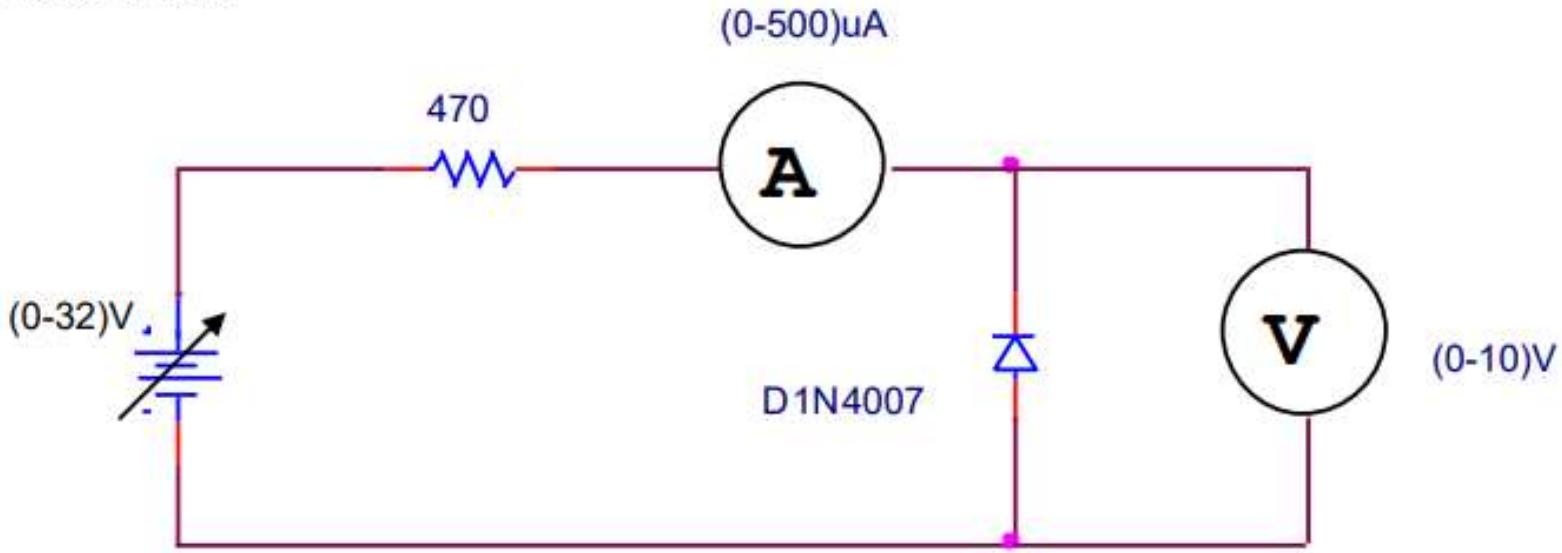
Fig: Real Component

Hardware Circuit Diagram:

Forward Bias:



Reverse Bias:



Vin=input voltage Vf= forward voltage across diode

S. No.	Vin (V)	Vf (0-1V)	If (0-50 mA)
1	0.1		
2	0.2----1		
11	2		
12	3		
----	----20		

Vr= reverse voltage across diode

S. No.	Vin	Vr (0-50 V)	Ir(0-500 uA)
1	0.1		
2	0.3		
3	0.6		
4	1		
5	2---7		

CALCULATION:

$$\text{Forward Resistance} = \frac{\Delta V_f}{\Delta I_f}$$

$$\text{Reverse Resistance} = \frac{\Delta V_R}{\Delta I_R}$$

RESULT:

The forward and reverse bias characteristics of PN junction diode were plotted and the forward and reverse resistances are found to be

Forward Resistance =

Reverse Resistance =

Cut in Voltage =

Reverse break down Voltage =

Model Graph:

V-I Characteristics: