

Title: Study of Forward and Reverse biased characteristics of PN Junction Diode.

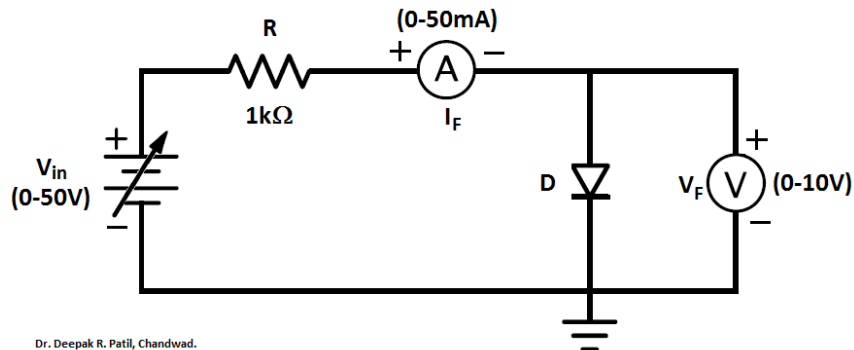
Aim: To study the forward and reverse characteristics of PN Junction Diode.

Components: PN Junction Diode (1N4007 or BY126), Resistor ($1k\Omega$).

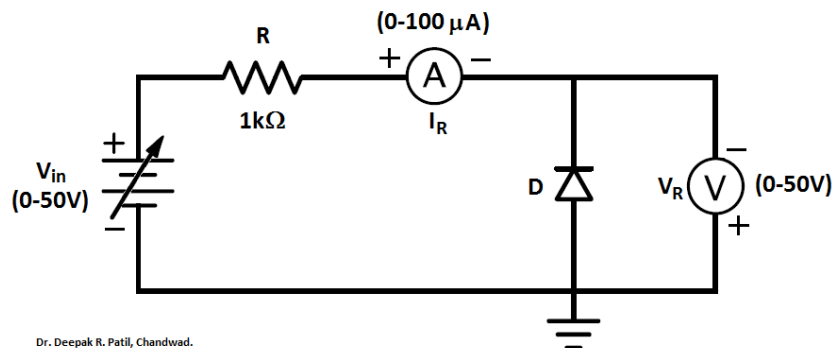
Equipment's and Miscellaneous: Regulated DC power supply (0-50V), Ammeter (0-50mA), (0-100 μ A), Voltmeter (0-10V), (0-50V), DMM, Breadboard, Connecting wires etc.

Circuit Diagram:

1. Forward Bias:



2. Reverse Bias:



Observation Tables:

Forward Biased PN Junction

Sr. No.	Diode voltage, V_F (V)	Diode Current, I_F (mA)
1.		
2.		
.	.	.
.	.	.
.	.	.
15.		

Reverse Biased PN Junction

Sr. No.	Diode voltage, V_R (V)	Diode Current, I_R (μ A)
1.		
2.		
.	.	.
.	.	.
.	.	.
25.		

(Leave enough space for observation table in practical book)

Calculations:

1. Static Resistance : $R_{DF} = \frac{V_D}{I_D}$ (From Graph)

2. Dynamic Resistance: $r_f = \frac{\Delta V_d}{\Delta I_d}$ (From Graph)

(Leave enough space for calculations in practical book)

Result:

1. Static Resistance: $R_{DF} =$
2. Dynamic Resistance: $r_f =$
3. Forward and reverse characteristics for PN junction diode is observed and plotted successfully.

(Do not write on Practical Sheet)

Precautions: The applied voltage, current should not exceed the maximum ratings of diode.

Procedure:

1. Connect the circuit as shown in the diagram.
2. Apply the supply voltage, V_{in} in steps such that, **for forward bias V_F should in increase in steps of $\sim 0.05V$ and for reverse bias V_R should in increase in steps of $\sim 2V$.**
3. Measure and note down voltage across diode. (i.e. V_F for forward bias and V_R for reverse bias) for different steps of V_{in} .
4. Measure and note down current flowing through diode. (i.e. I_F for forward bias and I_R for reverse bias) for different steps of V_{in} .
5. Plot the graph of current Vs voltage for both forward and reverse characteristics.
6. Calculate static and dynamic resistance for diode from the graph plotted.