

P-n junction diode :-

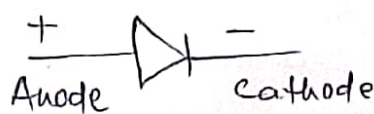
A p-n junction diode is two terminal or two electrode semiconductor device, which allows the electric current in only one direction while blocks the electric current in opposite or reverse direction.

If the diode is forward biased it allows the electric current flow. On the other hand if the diode is reverse biased it blocks the electric current flow. P-n junction semiconductor diode is also called P-n junction semiconductor device.

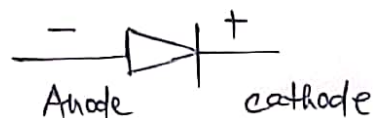
In n-type semiconductors free electrons are the majority charge carriers whereas in p-type semiconductor holes are the majority charge carriers.

When n-type semiconductor is joined with the p-type semiconductor a p-n junction is formed. This type of junction formed is called p-n junction diode.

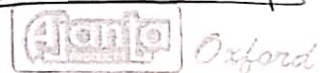
The basic symbol of p-n junction diode under forward bias and reverse bias is shown in the figure given below -

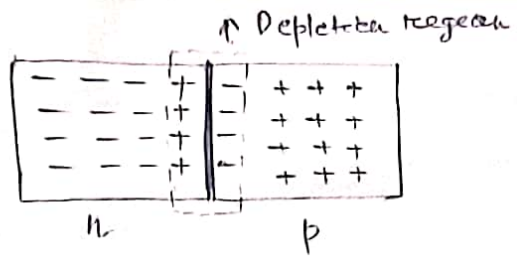


Forward biased

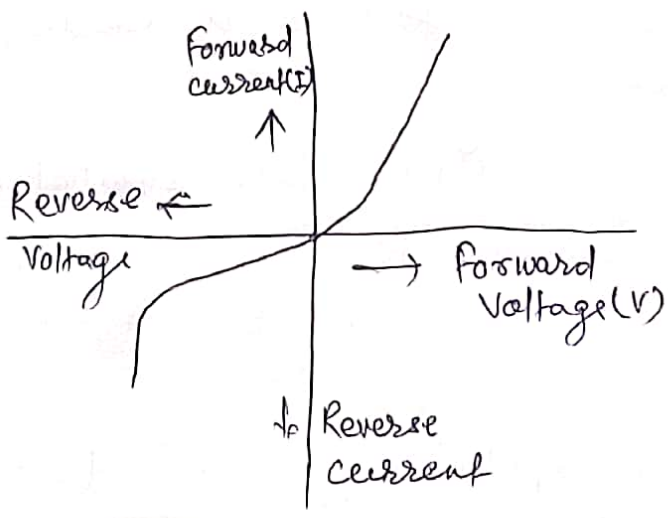
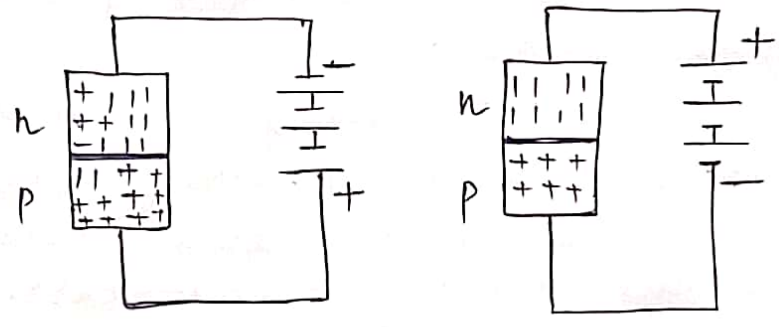


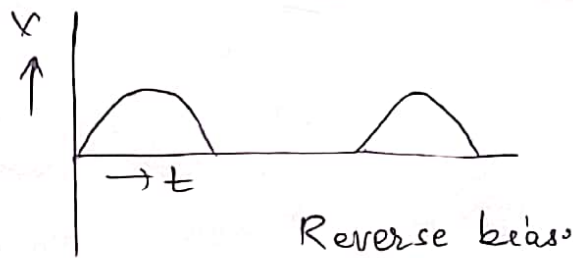
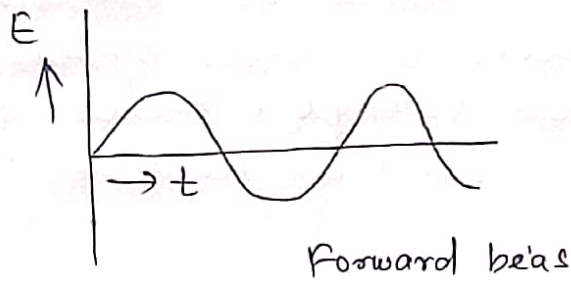
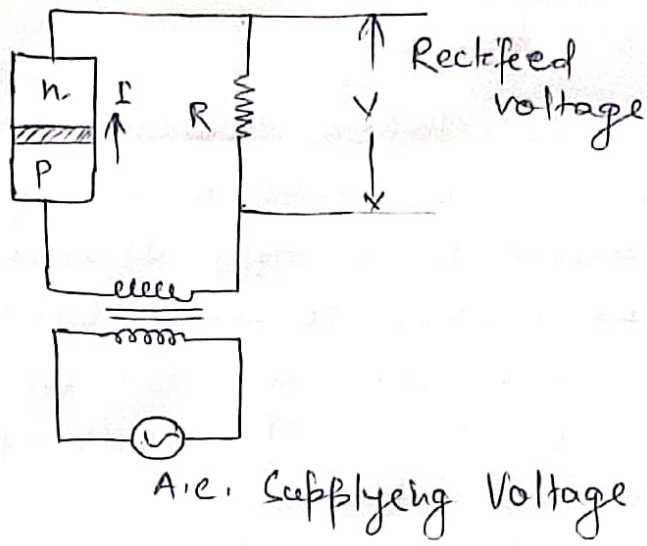
Reversed biased





Potential difference is created across the junction. This potential difference is known as barrier potential. The potential which is used to remove the barrier potential is known as forward bias and the potential which helps the barrier potential is known as reverse bias.





Forward bias :-

If The +ve terminal of the battery is connected to p-type and -ve terminal to n-type this connection is said to be under forward bias. If this connection is formed, the barrier potential across the junction is decreased and the current is flowing from p-type to n-type.

Reverse type bias: -

When positive terminal of the battery is connected to n-type and negative terminal to p-type this connection is said to be under reverse bias. In this connection holes are attracted towards negative potential and electrons towards positive (+ve) terminal. Hence forward current flowing across the junction is zero.

Hence, if alternating voltage is applied on this system, we get rectified voltage. Thus, p-n junction diode is used as rectifier.

