

## Plagiarism Scan Report



Characters:5145

Words:837

Sentences:38

Speak Time:  
7 Min

Excluded URL

None

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Q1.> Illustrate the Overview of Diode!! Ans.> A diode is defined as a two-terminal electronic component that allows current to flow in one direction when operated within a certain voltage level. An ideal diode has zero resistance in one direction. Semiconductor diodes are the most common types of diodes. These diodes will only start conducting when a certain threshold voltage is present in the forward direction Q2.> Write the Working Of Diode: In the N-type region, the majority charge carriers are electrons and the minority charge carriers are holes. Whereas, in the P-type region, the majority charge carriers are holes and the minority charge carriers are electrons. In this diffusion takes place in the majority charge carriers and they recombine with the minority charge carriers which then collect near the junction and this region is known as depletion region. When the p-type terminal of the diode is connected to the negative terminal and the n-type is connected to the positive terminal of the battery, the connection is called reverse biased condition. When the p-type terminal of the diode is connected to the positive terminal and the n-type is connected to the negative terminal of the battery, the connection is called forward biased condition. Q3.> Show the Diode Representation Symbol:- Diodes are represented using a special symbol and the symbol for a standard diode, the symbol is given below. It is clear in the figure that a diode has two terminals called cathode and anode. The head of the arrow represents the anode and the other end represents the cathode. Current flows from cathode to anode in forward bias condition. Q4.> What are The Characteristics of Diode:- Ans.> Diode has three types of characteristics which are shown below:- 1. Forward-biased diode 2. Reverse-biased diode 3.Zero biased diode or unbiased diode 1.Forward-Biased Diode:- In this diode, the semiconductor is connected to an external source while the p-type semiconductor is connected to the positive terminal of the source or battery and the negative terminal to the n-type, this type of junction is called forward-biased. . In forward bias, the direction of the built-in electric field and the applied electric field near the junction are opposite. This means, the resulting electric field has a lower intensity than the built-in electric field, due to which there is a lower resistance and therefore a thinner depletion region. 2.Reverse-Biased Diode:- In reverse biasing, n-type is connected to the positive terminal and p-type is connected to the negative terminal of the battery. In this case, the applied and built-in electric fields are in the same direction and the resulting electric field has a greater intensity than the built-

in electric field which makes it more resistive, due to the depletion field is being thicker. Q5.> What are The Types of Semiconductor Diode? Ans.> There are five types of semiconductor diodes which are widely used in our daily life which are mentioned below:- 1. LED 2. P-N junction diode 3. Zener Diode 4. Photodiode 5. Schottky diode 1. LED:- LED stands for Light Emitting Diode, it is the most useful type of diode when the diode is connected in forwarding bias, the current flowing through the junction produces light and hence it is widely used in bulbs. 2. P-N Junction Diode:- A P-N junction diode is also called a rectifier diode. This is used for correction process. In a P-N junction diode, two layers of semiconductor are used. For a P-N junction diode, one layer is made of p-type semiconductor material and the other layer is made of n-type material. Thus by combining these two layers, it forms a junction known as a P-N junction. 3. Zener Diode:- It is a type of diode that allows current to flow in the forward direction, and can also operate in reverse, Zener diodes have applications in voltage regulation, Zener diodes are heavily doped p-n junction diodes. It is designed to work in reverse bias condition. 4. Schottky Diode:- These are special P-N junction diodes designed to operate in the voltage range between 0.15 and 0.4 volts, ideally in low-voltage regions. These are constructed differently to obtain maximum performance at low voltages. These diodes are widely used in rectifier applications. 5. Photodiode:- Photodiodes produce current when a certain amount of light energy falls on them, these are special diodes that can detect any light falling on them. They work in reverse bias mode. It is also used in solar cells and photometers. Q6.> Write Some Applications of Semiconductor Diode!! Ans.> Semiconductor diodes have various applications and some of the applications are as follows: 1. Rectifier Diode: It is a type of diode used for rectification of alternating current (A.C). 2. LED: LED diodes are used to provide light. 3. Zener Diode: It is used for stabilization of current and voltage in electronic system. 4. Photodiode: These diodes are used to detect light. 5. Switching Diode: This is used for fast switching in the circuit. 6. Tunnel Diode: Tunnel diode is a special type of diode used in negative resistance region.

## Sources

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An ideal diode has zero resistance in one direction, and infinite resistance in the reverse direction. Reverse bias : In reverse bias, the n-type material is connected to the positive terminal of the battery and the p-type material is connected to the negative terminal of the battery.

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