

Silicon Diode Characteristics

Spoken Tutorial Project

<https://spoken-tutorial.org>

National Mission on Education through ICT

Spoken Tutorial & FOSSEE Team
IIT Bombay

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Learning Objectives



Learning Objectives

We will learn about



Learning Objectives

We will learn about

- **Voltage-Current (V-I) characteristics of Silicon diode in forward and reverse bias**



System Requirement



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- **Ubuntu Linux 20.04 OS**



System Requirement

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- **CircuitJS Application**



Pre-requisites



What is a Diode?



What is a Diode?

- **Diode is a semiconductor device with two terminals**



What is a Diode?

- Diode is a semiconductor device with two terminals
- These terminals control the flow of electrons in a circuit

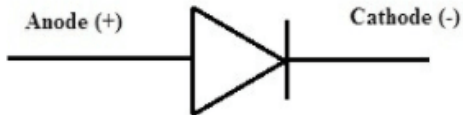


What is a Diode?

- Diode is a semiconductor device with two terminals
- These terminals control the flow of electrons in a circuit
- Diodes can be used as rectifiers, switches, voltage regulators etc.



Diode



Diode Biasing



Diode Biasing

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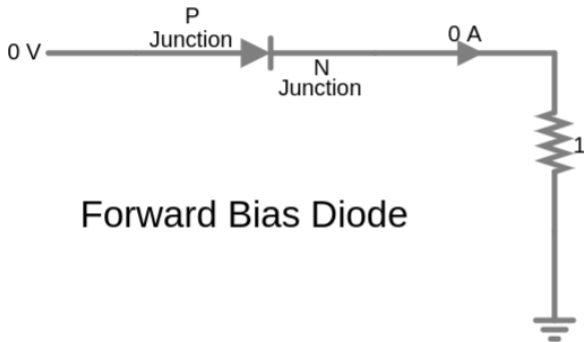


Diode Biasing

- The process of applying an external voltage to a p-n junction of a diode is called biasing
- There are two ways of Biasing:
 - Forward Bias
 - Reverse Bias

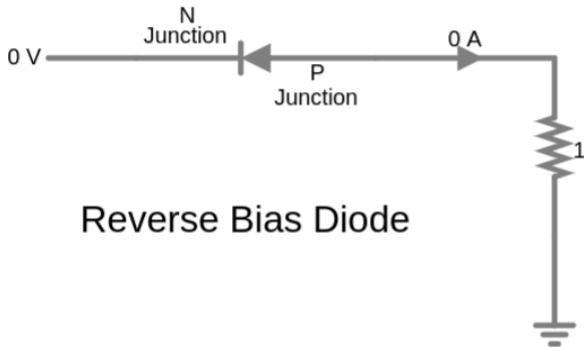


Forward Bias Diode



Forward Bias Diode

Reverse Bias Diode



Diode Characteristics



Diode Characteristics

- **Forward bias in a diode allows current flow, enabling conduction**



Diode Characteristics

- **Forward bias in a diode allows current flow, enabling conduction**
- **Reverse bias creates a barrier, limiting a negligible current passing through the diode**



Summary

In this tutorial, we learnt about

- **Voltage-Current (V-I) characteristics of Silicon diode in forward and reverse bias**



Assignment

- 1 Find the knee voltage of the Germanium diode

Hint: Double click on the diode and select 1N34 (Germanium diode)



About the Spoken Tutorial Project

- Watch the video available at https://spoken-tutorial.org/What_is_a_Spoken_Tutorial
- It summarises the Spoken Tutorial project
- If you do not have good bandwidth, you can download and watch it



Spoken Tutorial Workshops

The Spoken Tutorial Project Team

- Conducts workshops using spoken tutorials
- Gives certificates to those who pass an online test
- For more details, please write to contact@spoken-tutorial.org



Answers for THIS Spoken Tutorial

- Questions in THIS Spoken Tutorial?
- Visit <https://forums.spoken-tutorial.org>
- Choose the minute and second where you have the question
- Explain your question briefly
- The Spoken Tutorial project will ensure an answer



Acknowledgements

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Thank You

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