Photodiode

A **photodiode** is a semiconductor device that converts **light into an electrical current**. It operates in **reverse bias** and generates a small current when exposed to light.

Working Principle:

A photodiode works on the **photoelectric effect**. When light photons strike the **PN-junction**, electron-hole pairs are generated, leading to a small current flow. The current is proportional to the light intensity.

Key Features:

- **Operates in reverse bias mode**
- **Fast response to light changes**
- **Sensitive to a specific wavelength range**
- **Available in PIN and avalanche types**

Common Applications:

- Optical sensors and fiber optic communication
- Light meters and automatic brightness control
- Infrared (IR) remote control receivers
- Medical devices (pulse oximeters)