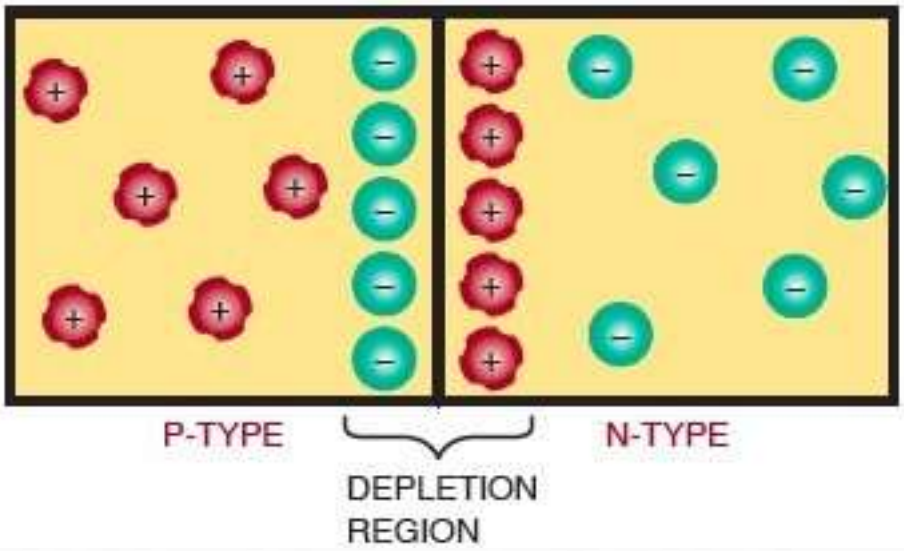
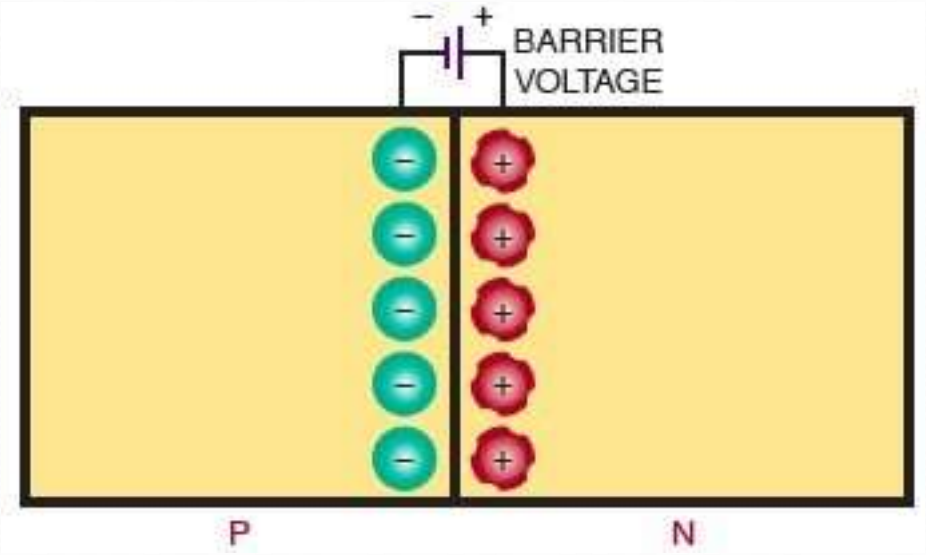
PN Junction Diodes

PN Junctions



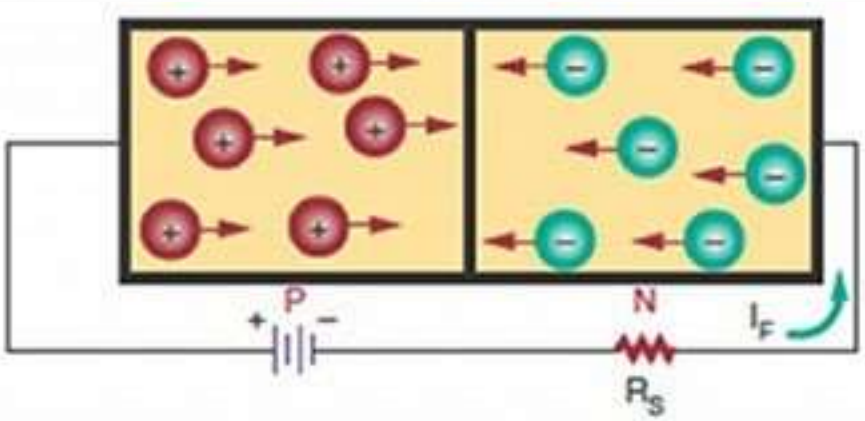
. Diode formed by joining P- and N-type material to form a PN junction.

PN Junctions (cont'd.)



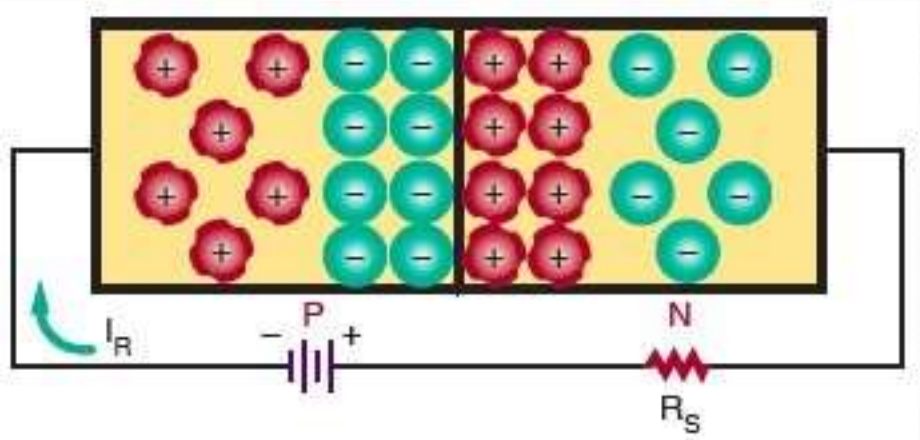
Barrier voltage as it exists across a PN junction.

Diode Biasing



PN junction diode with forward bias.

Diode Biasing (cont'd.)

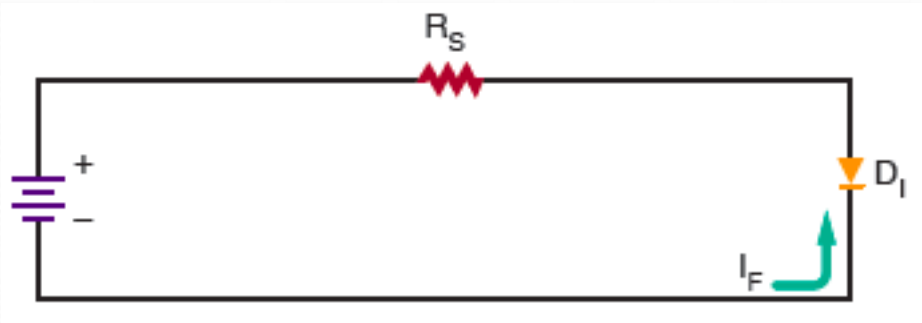


. PN junction diode with reverse bias.

Diode Characteristics

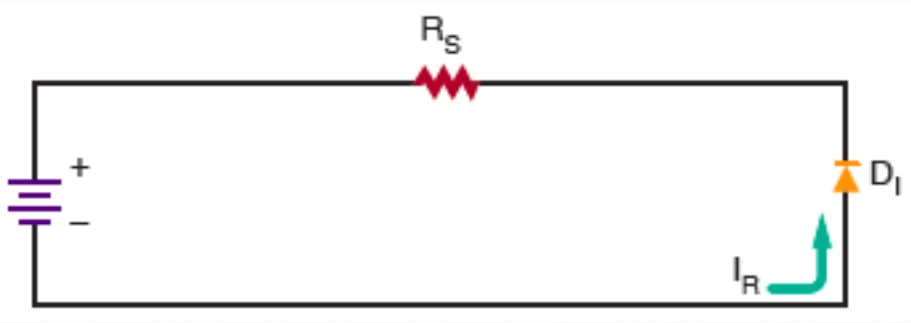
Diode schematic symbol.

Diode Characteristics (cont'd.)



Diode connected with forward bias.

Diode Characteristics (cont'd.)



Diode connected with reverse bias.

Diode Construction Techniques

- Types of PN junctions
  - Grown junction
  - Alloyed junction
  - Diffused junction

Diode Construction Techniques

Common diode packages.

Diode Construction Techniques

Packages for diodes.

Testing PN Junction Diodes

- Ohmmeter
  - Checks the forward-to-reverse-resistance ratio of a diode
- Forward-biased diode
  - Low resistance
- Reverse-biased diode
  - High resistance

Summary

- A junction diode is created by joining N-type and P-type materials together
- The region near the junction is referred to as the depletion region
- The charge at the junction creates a voltage called the barrier voltage
- A diode that is forward biased conducts current

Summary (cont'd.)

- A diode that is reverse biased conducts only a small leakage current
- Diodes can be constructed by the grown junction, alloyed junction, or diffused junction method
- A diode is tested by comparing the forward to the reverse resistance with an ohmmeter