

## 3.7 Physical Operation of Diodes

Reading Assignment: *pp. 190-200, 203-205*

### A. Semiconductor Materials

Q: So, what exactly is a junction diode **made** of?

A:

#### HO: Intrinsic Silicon

Q: We call Silicon a **semi-conductor**. Can current flow in a semi-conductor?

A:

#### HO: Drift Current

#### HO: Diffusion Current

Q: So, is a junction diode just a **single** hunk of **intrinsic** Silicon?

**A:**

HO: Doped Silicon

## B. p-n Junction Diode Operation

**Q:** So, exactly how is a junction diode formed?

**A:**

HO: The p-n Junction Diode

**Q:** How does this **simple** device result in the **complex** diode  $i$ - $v$  characteristic that we studied earlier?

**A:**

HO: The p-n Junction Diode in Forward Bias

HO: The p-n Junction Diode in Reverse Bias

HO: The p-n Junction Diode in Breakdown