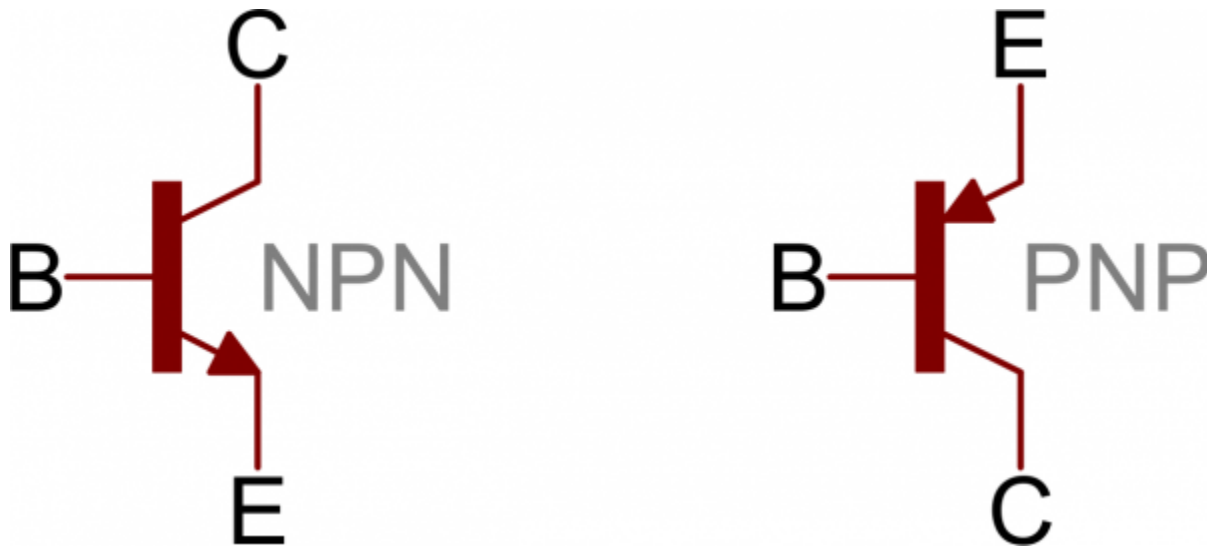


# Transistors

## Overview

Transistors are fundamentally three-terminal devices. On a **bi-polar junction transistor (BJT)**, those pins are labeled **collector (C)**, **base (B)**, and **emitter (E)**.

The circuit symbols for both the NPN and PNP BJT are below:



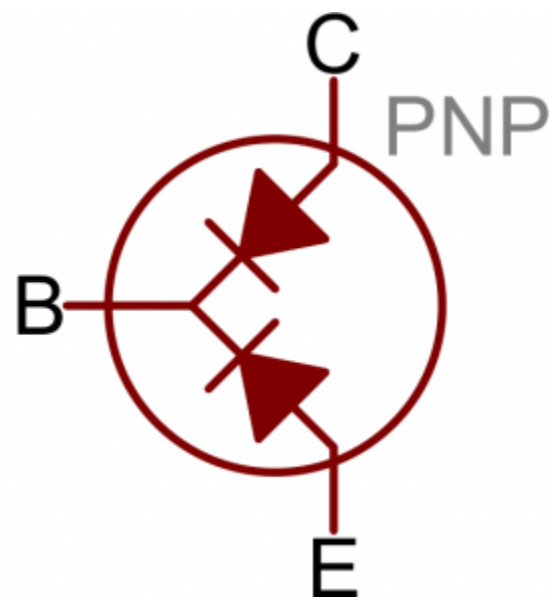
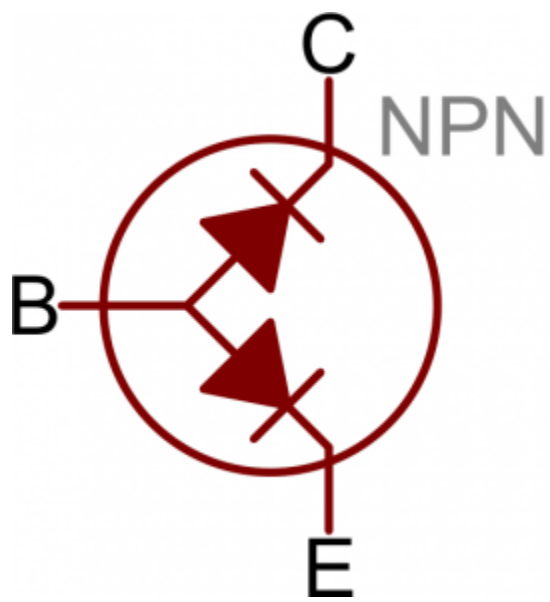
**NPN (Not Pointint iN)**

## Transistor Construction

Transistors rely on semiconductors to work their magic. A semiconductor is a material that's not quite a pure conductor (like copper wire) but also not an insulator (like air). The conductivity of a semiconductor – how easily it allows electrons to flow – depends on variables like temperature or the presence of more or less electrons. Let's look briefly under the hood of a transistor. Don't worry, we won't dig too deeply into quantum physics.

### A Transistor as Two Diodes

Transistors are kind of like an extension of another semiconductor component: **diodes**. In a way transistors are just two diodes with their cathodes (or anodes) tied together:



## References

Reference	URL
Sparkfun - Transistors	<a href="https://learn.sparkfun.com/tutorials/transistors">https://learn.sparkfun.com/tutorials/transistors</a>