Diodes & Bridge Rectifiers

Diodes are prevalent in various devices, including power supplies, both old linear and newer switching types.
In DC circuits, current flows unidirectionally; connecting power incorrectly can damage the circuit.
A diode allows current to flow only when a positive voltage is applied to its anode, preventing reverse polarity damage.
Diodes exhibit a voltage drop that reduces the effective voltage supplied to the circuit. This results in wasted power; even minor loads can cause significant heat generation requiring larger diodes for higher currents.
Diodes are essential for converting AC to DC; using a transformer one can safely work with mains power.
A bridge rectifier configuration allows for consistent positive output regardless of input polarity changes.