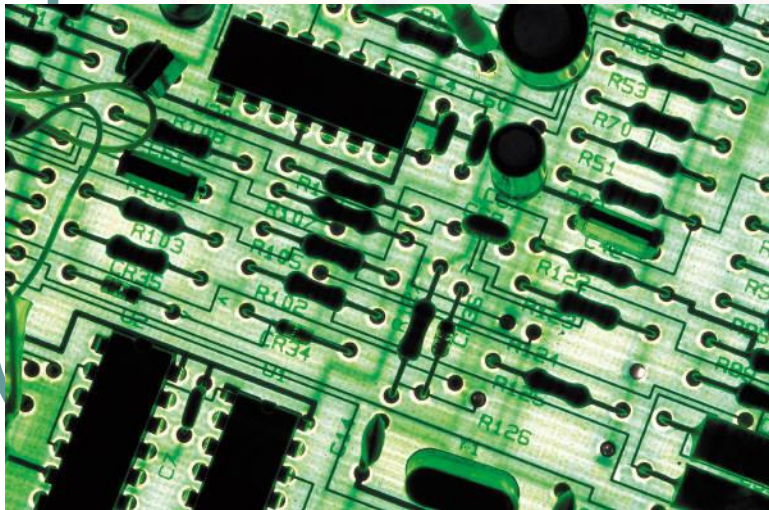




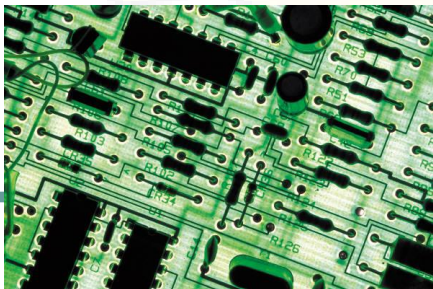
# Ohm's Law





# Statement of Ohm's Law

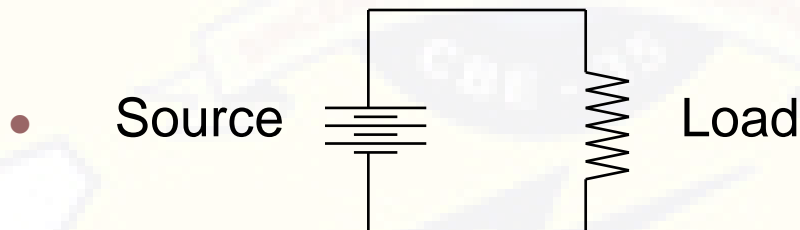
- The basic law concerning the flow of electricity is **Ohm's Law**.
- Ohm's law states that when electrical potential (voltage) creates a flow of electricity (current), the current and the electrical resistance of the circuit are proportional to the voltage.
- In mathematical terms,  $V = I \times R$  where  $V$  is voltage,  $I$  is current, and  $R$  is resistance





# Circuits

- Electricity cannot flow without a complete circuit.
- A circuit consists of a source, a load, and the connecting circuit.





# Definitions

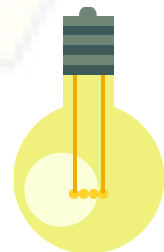
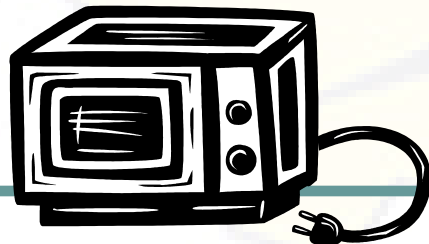
- **Electrical Potential** is the energy stored ready to do work. It is measured in volts, is represented as  $V$ , and is determined by the source in a circuit.
- **Electrical Flow** is the flow of energy from a high potential point to a low potential point. This flow is called the current, is measured in amperes (amps), and is represented as “ $I$ .”





# Definitions

- **Electrical Resistance** is the resistance to the flow. The resistance can be either a function of the circuit material, or it can be the load.
- The **load** is the part of the circuit that converts the electrical energy into another form. (light bulbs, motors, heaters, etc.)
- Electrical resistance is measured in ohms and is represented as “R.”





# Ohm's Law Restated

- Another way to state Ohm's law is:
  - Potential (volts) equals current (amps) times the load (ohms).
- In a basic circuit, one of the three values can be calculated from the other two.

