

Diodes

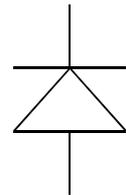
Functionality

Diodes let current flow in one direction, but stop it from flowing in the other. They are like a one way valve. A lot of electronics, particularly integrated circuits don't like being connected up the wrong way around and can be permanently damaged. Diodes can be used to protect electronics from people connecting the power supply or battery up the wrong way around.

They are also used in almost every mains operated electronic product that is more complicated than a light bulb. The mains sockets provide 240 volts AC. The AC stands for alternating current, which means it switches from being positive to being negative 50 times a second. Electronic circuits require DC (direct current), which does not change. A diode can be used to stop the negative parts of the AC power, leaving just the positive section. A big capacitor placed across the supply after the diode will smooth out the power (See below). Often four diode are used together to give a smoother supply by keeping the positive parts and inverting (changing) the negative sections into positive.

Schematic symbol

The symbol for a diode is an arrow with a line across the end of the arrow. The arrow shows the direction that current will flow. The component has a band on one end so it can be put into the circuit the right way around. The band on the part corresponds to the line on the end of the arrow on the schematic symbol.



Values

Diodes don't have a value, but they do have a maximum current that they can take. This is not printed on the part, however a number, which identifies the part, will be printed on it. This part number can be used in a catalogue to find out what the maximum amount of current the diode can handle is.



Unregulated mains electricity



Positive parts after the diode, shown right



Positive parts after the diode & smoothing cap, shown right

