

Full-wave rectification of alternating current

Half-wave rectification of alternating current provides a very uneven form of direct current. Half of the electrical energy is wasted. A more efficient way of converting alternating current to direct current is by using four diodes in a circuit called a full-wave rectifier, as shown.

At any given time one pair of diodes conduct while the other two do not.

If A is positive and B is negative the pair of diodes 1 and 4 conduct, while diodes 3 and 2 conduct when the potential at A and B is reversed.

In this way output C is always positive and output D is always negative.

The input and output waveforms that would be seen on an oscilloscope are shown.