

AC Adapter

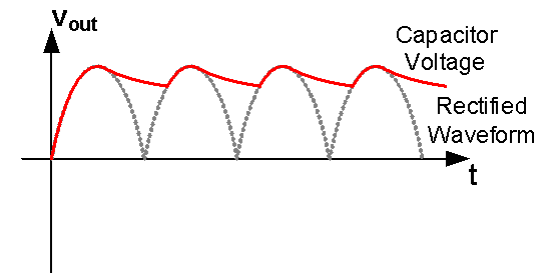
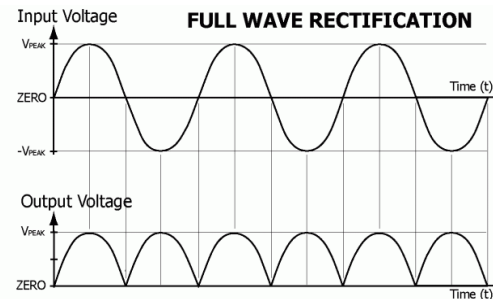
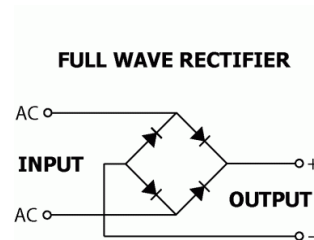
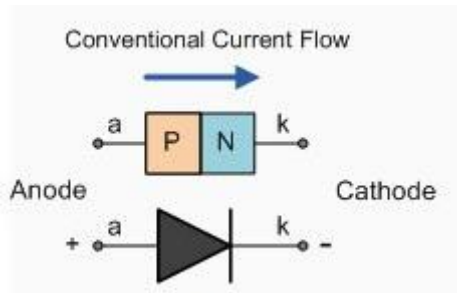
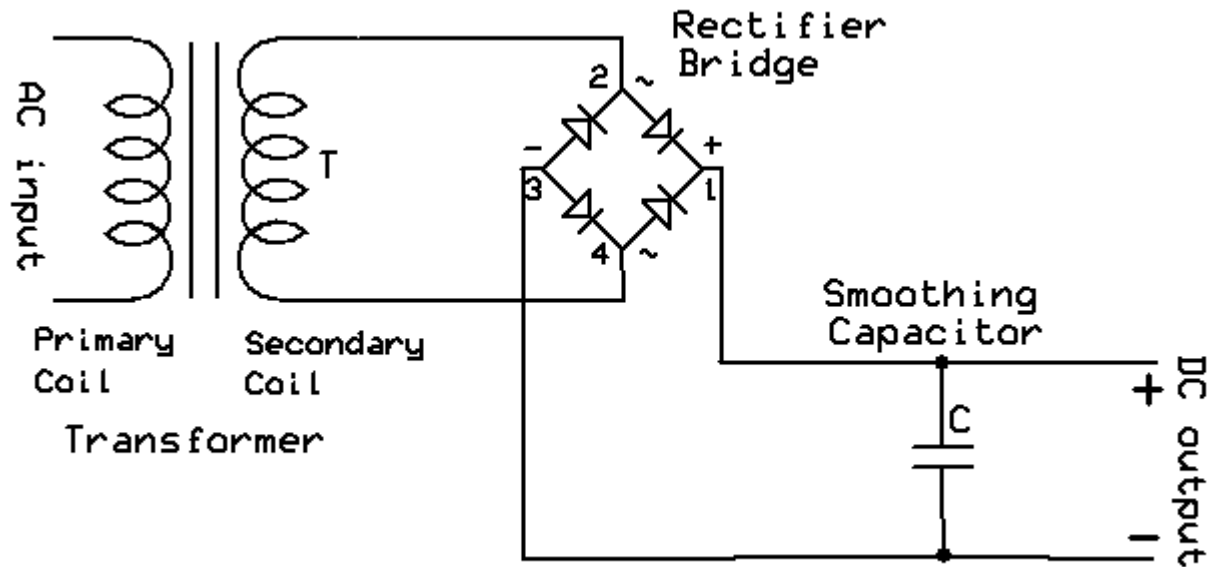


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Principle

- Today, most of the electronic appliances needs **DC voltages from 3-12 Volts** for operation.
- An adaptor is a device which is used to **convert high AC voltages to low DC voltage**.
- An adaptor works in these 3 simple steps:
 1. AC voltage is **stepped down** using a Transformer
 2. A **rectifier circuit** changes the AC signal to DC signal.
 3. A **capacitor filters** the signal to smooth DC waveform.

Mode of Operation



Advantages

- Safety
- Heat reduction
- Electrical noise reduction
- Weight and size reduction
- Ease of replacement
- Configuration versatility
- Simplified product inventory, distribution, and certification
- Constant voltage is produced by a specific type of adapter used for computers and laptops. These types of adapters are commonly known as **eliminators**.

Problems

- Size
- Weight
- Inefficiency
- Confusion
- Compatibility problems
- **Dangerous and unreliable adapters**

Standards

- In 2009, the **International Telecommunication Union (ITU)** announced support of the Open Mobile Terminal Platform's (OMTP) "Common Charging and Local Data Connectivity" standard.
- The **European Union** defined a Common External Power Supply for "hand-held data-enabled mobile phones" (smartphones) sold from 2010.
- IEC has created a standard for interchangeable laptop power supplies, IEC Technical Specification 62700.