

CAPACITOR & CAPACITANCE - BASICS

Definition

A **capacitor** is an electrical device that can store energy in the electric field between a pair of conductors.

Capacitance is the ability of a body to hold an electrical charge.

Basics

A **capacitor** is an electrical/electronic device that can store energy in the electric field between a pair of conductors (called "plates"). The process of storing energy in the capacitor is known as "charging", and involves electric charges of equal magnitude, but opposite polarity, building up on each plate.

Capacitors are often used in electrical circuit and electronic circuits as energy-storage devices. They can also be used to differentiate between high-frequency and low-frequency signals. This property makes them useful in electronic filters.

Capacitors are occasionally referred to as **condensers**. This is considered an antiquated term in English, but most other languages use an equivalent, like the German word "*Kondensator*".

History

Various types of capacitors. From left: multilayer ceramic, ceramic disc, multilayer polyester film, tubular ceramic, polystyrene, metallized polyester film, aluminium electrolytic. Major scale divisions are cm.

In October 1745, Ewald Georg von Kleist of Pomerania invented the first recorded capacitor: a glass jar coated inside and out with metal. The inner coating was connected to a rod that passed through the lid and ended in a metal sphere. By having this thin layer of glass insulation (a dielectric) between two large, closely spaced plates, von Kleist found the energy density could be increased dramatically compared with the situation with no insulator.

In January 1746, before Kleist's discovery became widely known, a Dutch physicist Pieter van Musschenbroek independently invented a very similar capacitor. It was named the Leyden jar, after the University of Leyden where van Musschenbroek worked. Daniel Gralath was the first to combine several jars in parallel into a "battery" to increase the total possible stored charge.

The earliest unit of capacitance was the 'jar', equivalent to about 1 nF.

Early capacitors were also known as *condensers*, a term that is still occasionally used today. It was coined by Alessandro Volta in 1782 (derived from the Italian *condensatore*), with reference to the device's ability to store a higher density of electric charge than a normal isolated conductor. Most non-English languages still use a word derived from "condensatore", as the 'in other languages' links from this article testify.

Source: <http://www.juliantrubin.com/encyclopedia/electronics/capacitor.html>