

How does a variable capacitor work?

In a variable capacitor, adjusting the rotor changes the overlapping area A , thereby altering the capacitance. In certain designs, the distance d can also be varied mechanically. This principle allows the capacitance to be fine-tuned for specific applications. Use air as the dielectric, commonly found in tuning circuits for radios.

What determines the capacitance of a variable capacitor?

The capacitance of a variable capacitor is determined by the overlapping area and distance between the rotor and stator plates. When the rotor plates are fully screwed into the fixed plates, the capacitance is at its maximum. Conversely, when the rotor plates are completely rotated out of the fixed plates, the capacitance is at its minimum.

What are the applications of variable capacitors?

There are various applications of these Variable Capacitors. Some of them are listed as follows: In this capacitor, the type called Trimmer Capacitor can be easily used on the 'Printed Circuit Board'. These are preferred in the 'Calibration' of the equipment. These are used in the 'Receivers' of radio. Where the LC circuits are present.

What are the parts of a variable capacitor?

The construction (see figure 1) of a variable capacitor consists of the following major parts: Rotor: A set of movable conductive plates. These plates rotate to adjust the capacitance by changing the overlapping area with the fixed plates. Stator: A set of fixed conductive plates.

What is a fixed capacitor & a variable capacitor?

The capacitors with the capacitance value are fixed are known as 'Fixed Capacitors'. Similarly, the capacitors that are with varying amounts of capacitance are known as Variable Capacitors. This type of capacitor has the capability of changing the values of its capacitance either "Electrically" or "Mechanically".

What is the construction of a variable capacitor?

The construction of the variable capacitor is shown below. These capacitors are frequently used in different applications due to their simple construction. Generally, these capacitors are made with 2 sets of hemispherical metal plates which are divided through air gaps.

According to the different structures and working principles, variable capacitors are mainly divided into two categories: rotary type and fine-tuning type. Rotary variable capacitors. This type of capacitor adjusts the ...

What is a Variable Capacitor? A capacitor whose capacitance can be varied based on the requirement to a certain range of values is defined as a Variable Capacitor. ...

A variable capacitor is a capacitor whose capacitance may be intentionally and repeatedly changed mechanically or electronically. Variable capacitors are often used in L/C circuits to set ...

A wide selection of nominal WC capacitances is available, ranging approximately from 6 pF to 700 pF. The capacitance tuning ratio (TR) is the ratio of C T at a small reverse voltage to C T at a ...

A variable capacitor used for tuning radios is shown in Figure 8.2.5 . One set of plates is fixed to the frame while an intersecting set of plates is affixed to a shaft. Rotating the ...

A capacitor is a small rechargeable battery that stores energy in the form of an electrical charge. On the basis of its structure, there are three capacitor types - Fixed Capacitors, ...

The working principle of a capacitor is based on the concept of capacitance, which is the ability of a device to store electrical energy. The capacitance of a capacitor is ...

Key learnings: Capacitor Definition: A capacitor is defined as a device with two parallel plates separated by a dielectric, used to store electrical energy.; Working Principle of a ...

A variable capacitor is a kind of capacitor whose capacitance can be continuously adjusted and changed within a certain range. The principle is generally that by changing the relative effective area between the pole pieces ...

The figure represents the constructional details of variable capacitors, which consist of 2 sets of semi-circle plates out of which one set is fixed called a stator, and another ...

Explanation of the Pin Distribution and Working Principle of Quad-section Variable Capacitors . The figure shows the external view of a quad-section variable capacitor. ...

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