

What is a capacitive coupling structure?

The capacitive coupling structure can be equivalent to a combination of coupling capacitors. and are the equivalent capacitances of the transmitter and the receiver. Since the cross-couplings of and are caused by the edge effects of to and to ,they are usually small. Fig. 5 shows the simplified equivalent model of coupling capacitors.

Can a capacitive coupling structure be used in battery charging?

In this paper,we design a novel capacitive coupling structure and its circuit model,which can be applied in battery chargingfor miniaturised devices such as wireless sensors as shown in Fig. 1d. The structure consists of two sets of metal plates that are formed by the primary plates and the pickup plates.

What are coupling capacitors & bypass capacitors?

Coupling capacitors (or dc blocking capacitors) are use to decouple ac and dc signals so as not to disturb the quiescent point of the circuit when ac signals are injected at the input. Bypass capacitors are used to force signal currents around elements by providing a low impedance path at the frequency.

Can capacitive coupling transfer power wirelessly?

Although the idea of using capacitive coupling to transfer power wirelessly is not new,it is novel to use the proposed capacitor coupled structure to charge a small position-insensitive receiver. It is worth mentioning that this article mainly considers the model of single receiver for wireless power transmission.

Does a capacitive coupling structure increase maintenance costs?

However, to ensure the power supply for numerous passive devices in a WSN, it is necessary to replace batteries periodically, which will undoubtedly increase maintenance costs. This study proposes a capacitive coupling structure that is different from the previous capacitive power transfer (CPT) structures.

Does increasing coupling coefficient k increase voltage gain?

Obviously,increasing the coupling coefficient k can increase the voltage gain. Increasing the load resistance can increase the voltage gain . However,the value of the voltage gain is very low (below 0.03) due to the small value of the coupling capacitor .

reflection from the AC coupling capacitors and mounting structures This example is follow-up to App Note #2008_02 Demonstrates how to minimize reflection from the AC coupling capacitors ...

The authors describe the development by EPRI of digital coupling capacitor voltage transformer (CCVT) models that are intended for digital simulation of fault transients. Experimental ...

Mathematical models for current, voltage, and coupling capacitor voltage transformers Abstract: This paper

reviews a number of mathematical models used to represent the nonlinear behavior ...

A generic CCVT model consists of stack capacitances, tuning reactor, step-down transformer (SDT) and Ferroresonance Suppression Circuit (FSC). During faults, the magnetic and electric ...

The algorithms for the correction of transients in coupling capacitor voltage transformers (CCVTs) are generally designed from processing samples in the time domain. ...

In this work, an accurate coupling capacitor voltage transformer (CCVT) model for electromagnetic transient studies is presented. The model takes into account linear and ...

Fig. 2 CCVT model for calculation of parameters. 2 f 2 2 (a) (b) Fig. 3 (a) FSC configuration. (b) FSC digital model. A. Calculation of the CCVT Model Parameters In order to develop the ...

Accurate models for the AC coupling capacitor mounting structures can be built with a 3-D full-wave electromagnetic solver This example demonstrates how to build 3D full-wave models for ...

Determining adequate rating: The voltage rating of a coupling capacitor is a measure of the maximum voltage it can handle without risk of failure or degradation. Safety ...

This review paper puts together complete information regarding five realistic CCVT digital models available in the literature and performs a detailed sensitivity analysis of ...

C1 is the input coupling capacitor. C2 is the output coupling capacitor. The values of C1 and C2 are determined by the desired low frequency response of the circuit. If you were ...

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