

How to choose a resonant capacitor?

When choosing the resonant capacitor, one should consider the current rating because a considerable amount of current flows through the capacitor. The RMS current through the resonant capacitor at nominal input voltage has been obtained in equation (23).

What is the equivalent resonant capacitance?

In the first diagram, the equivalent resonant capacitance (the  $C_r$  in the second diagram) is the sum of the  $C_{split\_A}$  and  $C_{split\_B}$ . Half bridge variant is mostly used in low power since the effective voltage across the LLC resonant network is only half the level of  $V_{in}$ .

What is the switching frequency of a resonant capacitor?

For each topology, the switching frequency is designed at around 200kHz. Figure 4.1 [B8]-[B13]. The DC characteristic of SRC is shown in Figure 4.2. The resonant inductor  $L_r$  and resonant capacitor  $C_r$  are in series. They form a series resonant tank. The resonant tank will then be in series with the load. From this

What is resonant switched capacitor (ResSC) topology?

As a way to mitigate the limitation of the inductor-based and switched-capacitor based converter, we explore the resonant switched capacitor (ResSC) topology as a hybrid approach. The ResSC topology can utilize the favorable on-die capacitor for tight integration while leveraging a small inductor to eliminate the intrinsic charge sharing.

What is the resonant capacitance of a transformer?

load. Since transformer primary side is a capacitor, an inductor is added on the secondary side to match the impedance. Resonant capacitance: 11.7nF. (No load). The operating region of PRC is shown in Figure 4.5 as shaded area.

What are the advantages of resonant switched-capacitor converter?

This offers the major benefit of the resonant switched-capacitor converter over conventional switched-capacitor converter, since the latter sacrifices efficiency to achieve the regulation of the output voltage. In the design example for  $V_{in}=2V$  and a 2-to-1 topology, with  $\eta=0.4$ , the output can be losslessly adjusted from 0.83 to 1.17.

We introduce an evaluation example focused on resonant capacitors for wireless chargers intended for smartphones. We compared the changes in efficiency and mounting area of the charger when switching the type of capacitor used. ...

consequently the magnetizing inductor will be free to enter the resonance with the resonant inductor and capacitor, the frequency of this second resonance is smaller than the original resonant frequency  $f_r$ , especially

at high values of  $m$  where  $L_m \gg L_r$ , thus the primary current during the freewheeling operation will only change slightly, and can be approximated to be ...

Block diagram of a resonant converter (source: ... For resonant capacitors, we typically recommend multilayer ceramic capacitors (MLCCs) with very stable capacitance, tight tolerances, and low dissipation to prevent overheating, such as our 500V-1kV 4.7nF-39nF COG capacitors. Regardless of the capacitor specifications you need, make sure to work with an ...

Resonant converter, which were been investigated intensively in the 80's [B1]-[B7], can achieve very low switching loss thus enable resonant topologies to operate at high switching ...

An LC circuit, also called a resonant circuit, tank circuit, or tuned circuit, is an electric circuit consisting of an inductor, represented by the letter L, and a capacitor, represented by the letter C, connected together.

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September 2008 Rev 2 1/64 AN2644 Application note An introduction to LLC resonant half-bridge converter Introduction Although in existence for many years, only recently has the LLC resonant converter, in

This paper proposes an output adjustable resonant switched capacitor converter (OARSCC) based on voltage doubler. The proposed OARSCC works in regulated mode with on time fixed frequency ...

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