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Title: VHF Inverter

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What is a VHF DC-DC power converter?

A VHF DC-DC power converter consists of an inverter stage and a rectifier stage. When designing a VHF class ? 2 DC-DC power converter, the input impedance of the rectifier at fundamental frequency is tuned to be nearly resistive. Thus, the rectifier is modeled as a resistor in the design of the inverter stage.

What are the limitations of a VHF inverter?

Other limitations of many inverter topologies appropriate to VHF operation include the use of bulk "rf choke" inductors (which is disadvantageous for rapid transient response and on-off control), and a tight tie between device parasitic capaci-tance and achievable output power and frequency , .

How to design a VHF Class 2 DC-DC power converter?

When designing a VHF class ? 2 DC-DC power converter, the input impedance of the rectifier at fundamental frequency is tuned to be nearly resistive. Thus, the rectifier is modeled as a resistor in the design of the inverter stage. Therefore, the proposed design method can be easily adopted when designing the DC-DC power converter.

How can a VHF power system maintain a high efficiency?

To maintain a high efficiency while increasing the operating frequency, it is essential to realize zero-voltage-switching (ZVS) and zero-current-switching (ZCS) for VHF power systems [5,6,7].

Nov 12, 2025 · To address this, the VHF community has developed the class EF or ? (FE) inverter [7], [8], which utilizes the specific behavior of a quarter-wavelength transmission line. ...

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Mar 13, 2019 · This letter introduces a self-oscillating very high-frequency (VHF) class ?2 inverter based on a free-running oscillator. The class ?2 is a low-voltage semiconductor stress, fast ...

Nov 16, 2022 · This paper proposes a fully analytical loss model to reduce circling currents and improve the power efficiency of a class ?2 inverter. Firstly, analytical expression of the ...

Feb 23, 2024 · The converter power stage comprises a resonant inverter, a transformation stage, and a resonant rectifier. The resonant inverter accepts a dc input voltage, and generates very ...

Sep 6, 2024 · This paper discusses a high-efficiency class EF (?) inverter that utilizes a modified input network instead of the conventional quarter-wavelength input transmission line. An ...

Jun 4, 2025 · Abstract--This letter introduces a self-oscillating very high- frequency (VHF) class?2 inverter based on a free-running oscillator. The class?2 is a low-voltage ...

This paper proposes a fully analytical loss model to reduce circling currents and improve the power efficiency of a class ?2 inverter. Firstly, analytical...

2 days ago · Furthermore, detailed design guidance and equations are provided to calculate circuit parameters of a class ?2 inverter, which reduces its circling currents and improves ...

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