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Dual silicon high frequency inverter





Overview

Is a DC-DC converter suitable for operation at high frequencies?

Abstract— This paper introduces a new dc-dc converter suitable for operation at very high frequencies under on-off control. The converter power stage is based on a resonant inverter (the Φ_2 inverter) providing low switch voltage stress and fast settling time.

How does a resonant inverter work?

The resonant inverter accepts a dc input voltage, and generates very high frequency (VHF) ac, which is processed through the transformation stage to produce different ac voltage and current levels. The resonant rectifier then converts the trans-formed ac power back to dc.

Which CMOS inverter drives a resonant drive?

This single gate in turn drives a stack of eight CMOS inverters in parallel, providing a tapered drive. The CMOS hard-switched inverter drives the gate of the resonant drive inverter (Fig. 13), which is a second-harmonic class E inverter . The second harmonic class E inverter is well suited to the gate drive problem.

What is a second harmonic class E inverter?

The second harmonic class E inverter is well suited to the gate drive problem. The inverter contains only resonant components and requires no bulk inductor. This provides fast transient response, which is necessary for fast startup and shutdown of the gate drive under on-off control.



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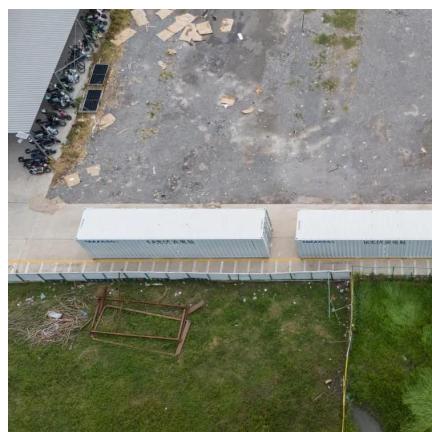
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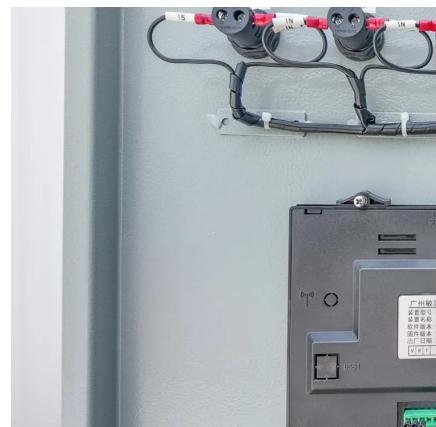
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