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# Zvs and home inverter





## Overview

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What is a ZVS based inverter?

A ZVS-based Royer oscillator or Class-D inverter ensures soft switching, preventing thermal stress on IGBTs or MOSFETs. The load impedance ( $Z_{load}$ ) is matched to the inverter output using a resonant tank, enabling ZVS over a wide range of operating conditions.

How does the proposed inverter achieve constant output current and ZVS?

The proposed inverter achieves the constant output current and the ZVS at any load resistance without any control. The waveforms and design equations of the proposed inverter are shown. Besides, a wireless-power-transfer system was implemented using the proposed inverter.

What is zero voltage switching (ZVS)?

As electrification accelerates across mobility, renewable energy, and industrial systems, Hillcrest Energy Technologies is offering a smarter path forward. Our proprietary Zero Voltage Switching (ZVS) inverter technology unlocks new levels of efficiency, performance, and integration — all while reducing complexity and cost.

How is ZVS maintained in a wireless power transfer system?

For example, in wireless power transfer systems, the coupling coefficient between transmitter and receiver coils changes with alignment, affecting the reflected impedance. ZVS is maintained by dynamically adjusting the switching frequency to track the resonant point.



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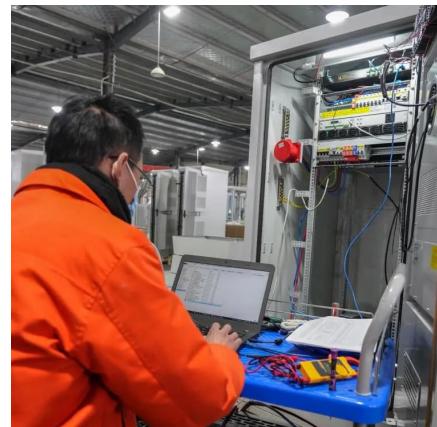


### [Load-independent inverse class-E ZVS ...](#)

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### **Technology**

Hillcrest's ZVS inverter architecture is purpose-built to complement and enhance wide bandgap devices. By switching only when voltage is near zero, our technology dramatically reduces ...



### [Hillcrest's ZVS Technology to Elevate Efficiency and ...](#)

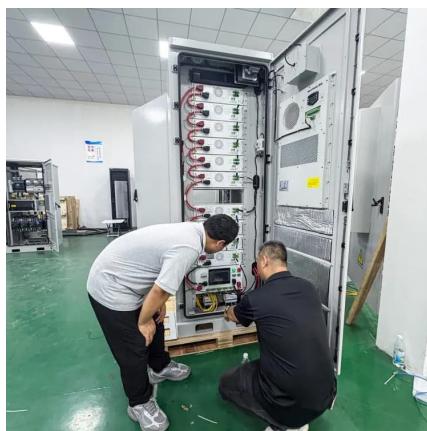
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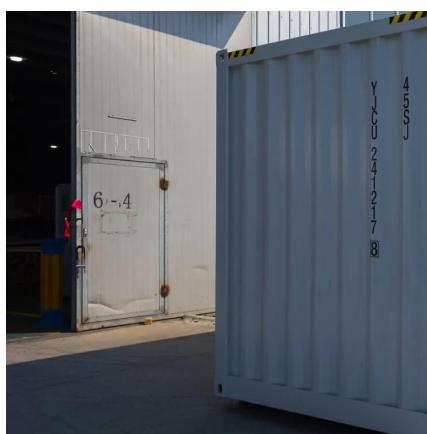
## Load-independent inverse class-E ZVS inverter and its ...

May 20, 2022 · Home Journals & magazines IET Power Electronics Issues Vol. 15, Iss. 7 Load-independent inverse class-E ZVS inverter and its application to wireless power transfer ...



## North American Clean Energy

Nov 12, 2024 · By achieving lower die area per kilowatt, Hillcrest's ZVS traction inverter is optimizing the physical semiconductor area required for power handling. This innovation ...



## Load-independent inverse class-E ZVS inverter and its ...

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