



SolarTech Power Solutions

High frequency soft-open inverter



Overview

What is a high frequency link inverter?

High Frequency-Link (HFL) Inverters have been employed to integrate renewable energy sources into utility grids and electric vehicles. The soft-switching range of High-Frequency Link Inverters (HFLI) is increased using auxiliary inductors and capacitors.

How to increase the soft-switching range of high-frequency link inverters (hfli)?

The soft-switching range of High-Frequency Link Inverters (HFLI) is increased using auxiliary inductors and capacitors. The application of auxiliary components increases the conduction loss and the complexity of the circuit.

What is a high frequency switch in a DC inverter?

Upgrading high-frequency switches. In the inverter, the high-frequency switches associated with the positive and negative ends of DC bus are replaced by resonant “positive bus units” and “negative bus units”, respectively. Increasing the commutation branch of the resonant network.

Does a high-frequency link inverter use space vector modulation?

The proposal of high-frequency link inverter utilizing space vector modulation (SVM) is given in (Jin et al., 2023) aimed to alleviate the current stress on cycloconverter switches, despite the operation of semiconductor switches under hard switching conditions.

Which resonant converter based single-stage inverter is developed with GaN HEMT?

6.1 Conclusions In this dissertation, the resonant converter based single-stage isolated inverter is developed with GaN HEMT. Meanwhile, the LCLCL based single-stage inverter has bi-directional power flow capability as well and power factor correction can be achieved with variable frequency modulation.

What happens if a high frequency link inverter is not clamped?

Conventional high frequency link inverter when operated at high switching frequency without clamper circuit, high value voltage spikes are created, many times larger than nominal voltage, as shown in Figure 10D.

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