

Inverter boost three-phase





Overview

Can a three-level inverter based on switched capacitors solve boosting problems?

Conventional multi-level inverters such as neutral point clamped and flying capacitor inverters do not have boosting capability and self-balanced capacitor voltage. Thus, in this paper, we propose a novel three-level inverter based on switched capacitors to solve the above problems.

Can a three level inverter boost output voltage?

The SC inverter in Ref. and the proposed inverter can achieve both purposes, but the diodes are unavoidable, resulting in higher conduction loss and a higher voltage stress in Ref. The proposed three-level inverter can boost output voltage, has self-balanced capacitor voltage, and lower voltage stress, and the inverter has no diodes.

What DC voltage should a three-phase inverter supply?

The analyzed topologies of the three-phase inverters were configured to supply a three-phase inductive load (10- Ω resistance in series with 5-mH inductance) from a low-voltage dc supply; an input dc voltage or Photovoltaic Panel of 100 V was assumed for the simulation, whereas 20 V was used in the experimental design.

How to increase DC-bus voltage in a multi-level inverter?

At present, a boost circuit is used to increase the DC-bus voltage in multi-level inverters. In Ref. , a three-level boost circuit with two huge inductors is employed to increase output voltage in the photovoltaic grid-connected system. However, its boosting capability is limited by the parasitic resistor in the inductor.



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