New Bootstrap Gate Drivers For Multilevel Converters

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BRIEF DESCRIPTION

A new circuit and control method consisting of new bootstrap gate drivers with the redundant switching states for the multilevel converters. Based on the new bootstrap capacitor charging method and the use of the redundant switching states, the proposed bootstrap gate drivers can achieve stable bootstrap capacitor voltages with minimum capacitance and wide operation range.

SUGGESTED USES

May be used for low or high power multilevel converter applications.

ADVANTAGES

Only a single control voltage supply is needed to drive all the switching devices of the multilevel converters.

The same and stable gate driver voltages can be used to control the switching devices of the multilevel converters.

The redundant switching states can be effectively used to improve the gate driver voltages under low frequency operation.

The bootstrap capacitance can be minimized and integrated with small size and low cost.

Based on the simple and modular configuration, it can easily be extended to the high-level multilevel converters.

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INVENTORS

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OTHER INFORMATION

KEYWORDS

Multilevel converter, dc to dc converter

CATEGORIZED AS

- **Communications**
  - Wireless
- **Semiconductors**
  - Design and Fabrication
  - Other

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