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Pristina single phase high efficiency inverter





Overview

This paper presents a high-reliability single-phase transformerless grid-connected inverter that utilizes superjunction MOSFETs to achieve high efficiency for photovoltaic applications. What is a single phase inverter?

. A single-phase inverter was developed for low-power applications in and , and PWM methods reduced the harmonic content and maintained the highest level of power conversion efficiency.

How does a single-phase string inverter work?

When the PV string reaches the DC link operating voltage level, the DC-DC converter is bypassed (via a low VF diode) to maximize efficiency. To ensure reliability and cost optimization, single-phase string inverter systems are required to deliver high efficiency and to be compact in size.

How much power can a single-phase grid convert?

When interfacing with single-phase grid, the design can convert steady state maximum power of 7.3 kW in both power-flow directions, with peak efficiency of 98.95 % (PFC) and 98.91 % (inverter).

What is the peak efficiency of a PFC inverter?

11 kW in both power-flow directions, i.e., either PFC mode or inverter mode, with peak efficiency of 99.15 % (PFC) and 99.122 % (inverter) with 230 VRMS grid voltage.



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High Efficiency Single Phase Inverter Design

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