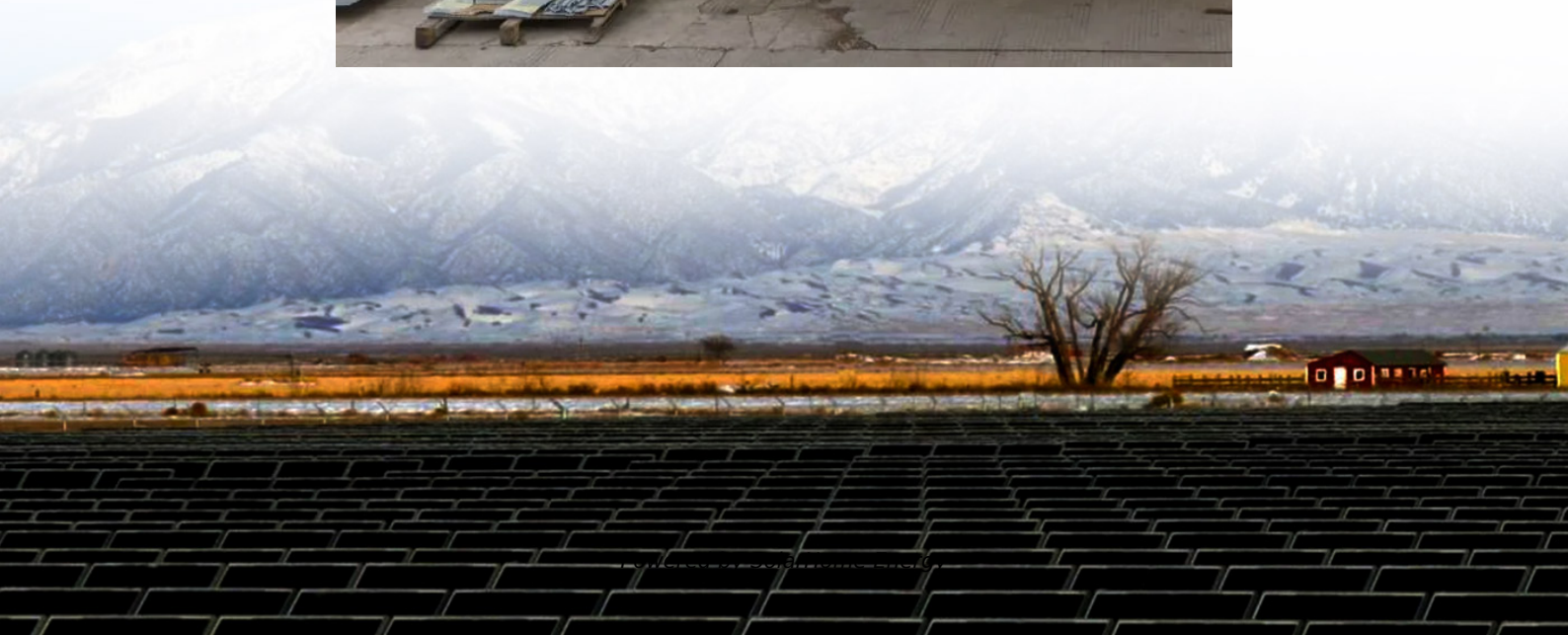


High frequency inverter voltage doubler rectification





Overview

How resonant AC link & doubler rectifier improve the performance of the system?

The system has exhibited the expected voltage achieved through the resonant A.C. link and the doubler rectifier. The proposed advantages have been achieved and verified in both simulations and experimental verification. Further the performance of the system could be improved with advanced reconfigurable development boards.

Can a voltage doubler be used instead of a rectifier diode?

Although the turn ratio can be reduced to 1/4.6 after a voltage doubler is adopted, however, the conductive loss of the rectifier diode still greatly reduces the efficiency. Active switches can be applied instead of the diode to improve efficiency and realize the SR function as the S-LLC converter does.

What is a PRI & doubler rectifier?

In the proposed work, a chain of power electronic converters using the PRI and doubler rectifier act as the interface between the solar photovoltaic source and the battery. The PRI produces an A.C. link in which the source side D.C. voltage is converted into an A.C. voltage with a frequency of 12 kHz, and the voltage level is stepped up.

Can an inverter be replaced with a full-wave rectifier?

It should be pointed out that the primary-side inverter can be replaced by a half-bridge or a push-pull inverter, and the output stage can be replaced by a full-wave rectifier or other rectifier forms as shown in Fig.1.

Can isolated power converters be synchronously rectified?

Isolated power converter with output synchronous rectification. Using SR in isolated converters can improve their performance significantly. All isolated topologies: forward, flyback, push-pull, half and full bridge (current and



voltage fed), can be synchronously rectified.

How to reduce the voltage stress of a rectifier switch?

However, the voltage stress of the secondary-side switch is larger than twice the value of the output voltage in practical . Obviously, designer can choose a full-bridge or a voltage doubler structure as the output stage, in order to decrease the voltage stress of the rectifier switches.



High frequency inverter voltage doubler rectification



Voltage Doubler: A Cheaper and Lighter Alternative to ...

While they have some limitations in output current and regulation, a well-designed doubler using appropriate components can be suitable for many cost-sensitive or low-power ...

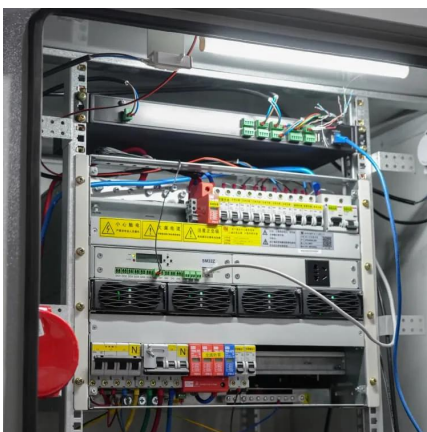
A High Frequency Active Voltage Doubler in Standard CMOS ...

In this paper, we present a fully integrated active voltage doubler in CMOS technology using offset-controlled high speed comparators for extending the range of inductive power ...



A Detailed Analysis and Gain Derivation of Reconfigurable Voltage

In this paper, a complete analysis of an LLC resonant converter with a customized rectifier structure is presented. The converter is intended for wide, low-input, high-output ...

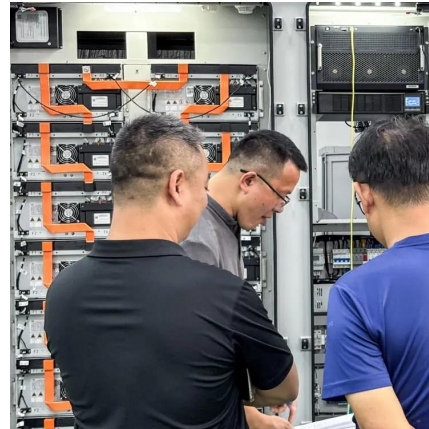


Voltage multiplier

A voltage multiplier is an electrical circuit that converts AC electrical power from a lower voltage to a higher DC voltage, typically using a



network of capacitors ...



Phase Shifted Full Bridge DC-DC Converter

2.1. OPERATING PRINCIPLE The phase shifted full bridge dc-dc converter is as shown in the fig 1. This converter are used to step down high voltages and used in medium to high power ...

(PDF) A High Frequency Planar Transformer Isolated ...

A High Frequency Planar Transformer Isolated DC-DC Power Converter with Secondary-Side ZCS Active Switches and Voltage-Doubler ...



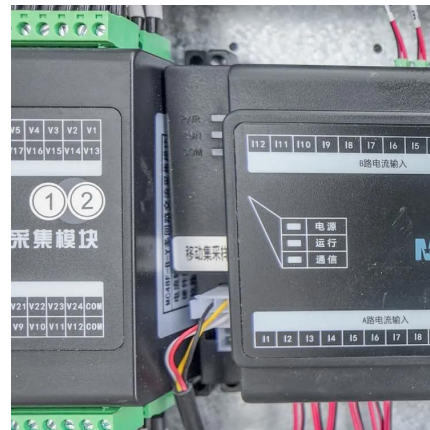
Synchronous rectification in high-performance power ...

To meet these demands, switching power supply designers in the late 1990s began adopting Synchronous Rectification (SR)--the use of MOSFETs to achieve the rectification function ...



Inverter operating voltages and corresponding duty cycles

Proposed three-level NPC half-bridge topology with high-frequency isolation and current doubler rectifier. transistors. Moreover, to further improve the power density of the APS it was decided ...



[\(PDF\) Analysis and Design of 3.3 kV IGBT Based ...](#)

For a 3-phase pulse width modulated high-bandwidth AC voltage source, this paper presents a series resonant DC-DC converter (SRC) with a high ...

Derivation and Analysis of a Secondary-Side LLC Resonant ...

Abstract--An isolated high step-up converter, which is derived from the reverse structure of a regular LLC resonant converter, is proposed in this paper. The proposed converter consists of ...



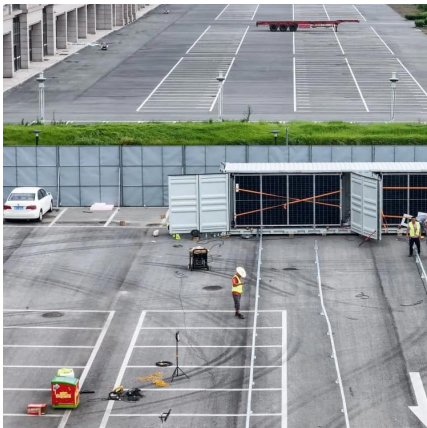
(PDF) Analysis and Design of 3.3 kV IGBT Based Three-Level ...

Proposed three-level NPC half-bridge topology with high-frequency isolation and current doubler rectifier.



A novel interleaved nonisolated high gain DC-DC boost

This article proposes an interleaved DC-DC boost architecture with a voltage multiplier rectifier circuit to achieve superior performance.

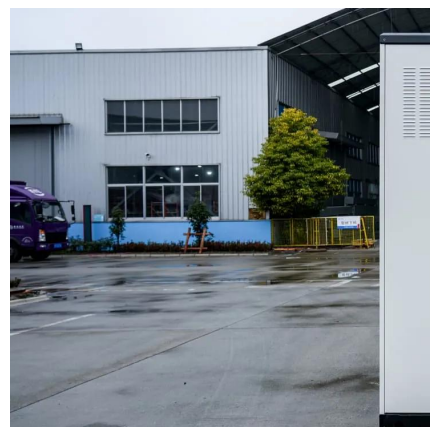


Voltage Doubler: A Cheaper and Lighter Alternative to ...

While they have some limitations in output current and regulation, a well-designed doubler using appropriate components can be suitable for ...

Phase-Shifted Full-Bridge Converter Fundamentals

A full-bridge rectifier will have lower rectifier voltage stress compared to a center-tapped rectifier with the same D_{eff} and output voltage (V_{OUT}). Since the maximum D_{eff} of a current-doubler ...



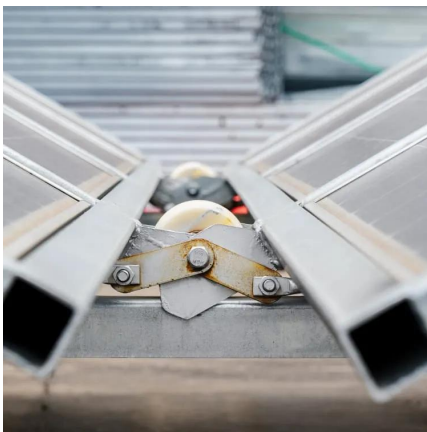


[\(PDF\) Analysis and Design of 3.3 kV IGBT Based ...](#)

Proposed three-level NPC half-bridge topology with high-frequency isolation and current doubler rectifier.

High efficiency CMOS active rectifier with adaptive delay ...

A 13.56 MHz 40 mW CMOS high-efficiency inductive link power supply utilizing on-chip delay-compensated voltage doubler rectifier and multiple LDOs for implantable medical devices



A High-Efficiency High-Voltage Step-Down ICPT System With ...

To overcome these challenges, a novel higher voltage step-down ICPT topology is proposed by incorporating the hybrid switched capacitor (HSC) inverter and synchronous ...

Series diode balancing and diode evaluation for high-voltage ...

Abstract--Miniaturization of high voltage power converters is severely limited by the availability of fast-switching, low-loss high-voltage diodes. This paper explores techniques for using discrete ...



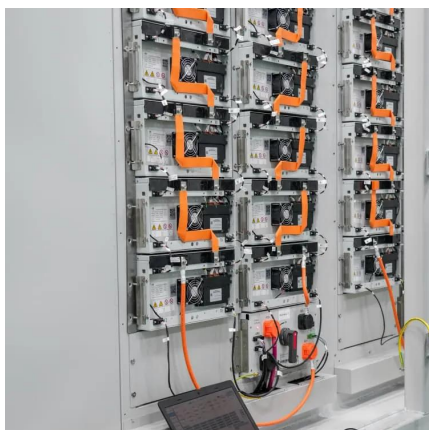
Voltage Multiplier

or The voltage multiplier is an electronic circuit that converts the low AC voltage into high DC voltage. or The voltage multiplier is an AC-to-DC converter, made up of diodes and capacitors ...



A revolutionary Partial Resonant Inverter and doubler rectifier with

This article presents a novel solar photovoltaic energy harvesting system for charging the high voltage Electric Vehicle (E.V.) battery using a Partial Resonant Inverter ...



High Efficiency Class-F Rectifier Based on Harmonic-Controlled ...

This paper presents a highly efficient class-F rectifier based on a harmonic-controlled voltage doubler (HCVD) structure. Previous studies on voltage doubler-based class ...



A New Voltage-Doubler Rectifier for High-Efficiency ...

To address these challenges, this paper proposes a novel rectification circuit based on the VDR topology, specifically designed for LLC ...



A New Voltage-Doubler Rectifier for High-Efficiency LLC ...

To address these challenges, this paper proposes a novel rectification circuit based on the VDR topology, specifically designed for LLC resonant converters, offering simplified ...



High Efficiency Class-F Rectifier Based on Harmonic-Controlled Voltage

This paper presents a highly efficient class-F rectifier based on a harmonic-controlled voltage doubler (HCVD) structure. Previous studies on voltage doubler-based class ...



(PDF) Variable frequency multiplier technique for high efficiency

This paper presents a Variable Frequency Multiplier (VFX) technique that enables design of converters for wide input and/or output voltage ranges while preserving high efficiency. The ...



An Active Voltage-Doubler Rectifier Based Hybrid Resonant ...

To develop thermoelectric power conditioning systems that are highly efficient over a wide range of input voltages and support medium-rated power, this paper introduces a hybrid resonant ...

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