Single-ended high voltage inverter

What is single-ended resonant inverter topology?

Single-ended resonant inverter topology is widely used in domestic induction heating(IH) application due to its concise structure and cost effectiveness. Whereas high resonant voltage caused by the energy trans-fer between load inductor and resonant capacitor in the IH system may negatively affect the operation of system and long-term reliability.

What is a power electronic inverter?

Abstract: A power electronic inverter is developed for a high-frequency induction heating application. The application requires high power for induction melting process of the electric furnace. This power-frequency product represents a significant challenge for today's power semiconductor technology.

Why are single-ended resonant inverters vulnerable to AC voltage variation?

As single-ended resonant inverters adopt small capacitancefor DC link to ensure high power factor,the inverter system is vulnerable to the variation in supply AC voltage. Especially,if AC supply is shared with industrial area,voltage variation can occur more frequently.

What is a micro-inverter based on isolated SEPIC converter?

In this paper, a novel micro-inverter based on isolated SEPIC converter is introduced. The active clamp limits the stress voltage along with performing power decoupling function. The proposed circuit has no electrolytic capacitor resulting in life expansion and more reliability for AC module.

What are grid-connected inverters for PV systems?

The grid-connected inverters for PV systems are divided into three categories: centralised inverter topologies,string topologies,and AC modules called micro-inverter[4]. Owing to eliminating PV panel mismatching and shade effect,the trend of PV systems is toward using AC modules.

How to improve the reliability of micro-inverters?

One of the most effective methods to enhance the reliability and life duration of micro-inverters is achieved by substituting their electrolytic power decoupling capacitor with the film capacitors. In this study,a new DC/AC inverter based on an isolated single-ended primary-inductance converter with an active clamp power decoupling is introduced.

Micro-inverter based on single-ended primary-inductance converter topology with an active clamp power decoupling. Milad Keshani, Corresponding Author. Milad Keshani ... the high voltage and current stresses on switches ...

General single-ended resonant inverters in IH applications protect the system if abnormal condition is detected. Fig. 7a shows IGBT voltage, resonant current, and AC supply voltage waveforms of conventional

single ...

With the switching times of today"s high-voltage IGBTs being still quite high, 1200V IGBTs were chosen for the 500Hz application. These IGBTs can operate at a 800V dclink voltage. Therefore, a voltage boost is necessary to obtain the required voltage of ...

This work presents a Schmitt trigger based pseudo-differential single-ended voltage amplifier using a Schmitt trigger inverter cell in parallel with a push-pull inverter cell to eliminate hysteresis and improve voltage gain for ultra-low-voltage supplies. Positive feedback is controlled by changing independently the Schmitt trigger and push-pull cells body input terminal voltages, ...

Fig. 2. Internal block diagram of the ACPL-C87A. First the isolation amplifier senses the input voltage (single-ended analog signal) and converts it to a digital bit stream.

The single-ended (SE) resonant inverter is a type of class E parallel resonant inverter popularly used in many IH (induction heating) applications due to its low cost structure and relatively high ...

Abstract: This paper presents an efficient single-ended type high-frequency induction-heating quasi-resonant inverter circuit using a single advanced 2nd generation IGBT for soft-switching and its specially-designed driver IC, which operates at a zero-voltage soft-switching (ZVS) mode under PFM-based power regulation strategy. The generic voltage-fed and current-fed circuit versions ...

Single-ended resonant inverter topology is widely used in domestic induction heating (IH) application due to its concise structure and cost effectiveness. Whereas high resonant voltage caused by the ... Single-ended resonant inverter topology is widely used in domestic induction heating (IH) application due to its concise structure and cost ...

Single-ended (SE) resonant inverters are widely used as power converters for high-pressure rice cooker induction, with 1200 V insulated-gate bipolar transistors (IGBTs) being used as switching ...

Single-ended voltage sensing involves measuring a voltage signal relative to a common ground reference. It offers a straightforward way to buffer or amplify a signal with minimal complexity. Our amplifiers are designed for accurate and reliable single-ended voltage sensing in both high-precision and cost-sensitive applications.

ABSTRACT For the design of inverter-based OTAs with differential input and single-ended output, the differential to single-ended (D2S) converter is a key building block. In fact, the performance ...

The single-ended (SE) resonant inverter is a type of class E parallel resonant inverter and popularly used in many IH applications due to its lower cost structure and relatively high efficiency. However its maximum power rating should be limited because the resonant voltage of SE resonant inverter increases as its power

increases. Consequently the maximum power ...

For the design of inverter-based OTAs with differential input and single-ended output, the differential to single-ended (D2S) converter is a key building block. In fact, the performance of the D2S strongly affects the overall common-mode rejection ratio (CMRR) and input common-mode range (ICMR) of the whole OTA. In recent literature, inverter-based OTAs ...

I challenged myself to find an IC somewhere out there that will create a split supply from a single sided supply WITH high current capability... I can''t find one. Sure there are plenty of chips that create virtual grounds so you ...

The proposed single-ended OTA (Fig. 7) was designed and simulated with a supply voltage of 0.3 V in a 65 nm CMOS technology. The load capacitance of the OTA is 10 pF. The differential voltage gain and phase response of the proposed OTA (Fig. 7) are shown in Fig. 10 (a,b), compared to the OTA-A provided in Fig. 3.

Abstract: This brief presents an ultra-low voltage single-ended level shifter (LS) with a stacked current mirror and an improved split-controlled inverter as an output driver to enable wide-range voltage conversion. At the ultra-low input supply voltages, VDDL, the differential LS circuit will gradually be dysfunctional as the inverter produces limited voltage swings at the output.

This application-specific high-frequency single-ended push-pull inverter using new-generation specially designed insulated gate bipolar transistors (IGBTs) can efficiently operate under a ...

This article proposes a dual-input stacked inverter-based single-ended sense amplifier (DISA) to achieve improved sensing capability with reduced energy consumption, small area, and high speed. The dual-input stacked inverter in DISA significantly reduces the static current during both OC and main sensing phases while improving inverter gain.

In this study, a new DC/AC inverter based on an isolated single-ended primary-inductance converter with an active clamp power decoupling is ...

Voltage source converter based High-voltage direct-current (VSC-HVDC) transmission systems have been increasingly applied in power networks due to its advantages in fast independent control mode, perfect power quality, and asynchronous system integration [1].Moreover, VSC HVDC has been developed to larger scale gird, multi-terminal HVDC ...

This paper presents a high-precision single-ended-current-to-differential-voltage (SC-DV) converter that is used in the reconfigurable neural recording front-end. For processing neural signals detected by current-mode sensors in a differential way, a single-ended-current signal is converted into a differential-voltage signal with low power consumption and low-noise ...

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In the occurrence of an AC fault on the inverter side within a hybrid HVDC transmission system, the reduction in AC bus voltage on the inverter side imposes a constraint on the active power delivery from the AC side of the MMC. ... this paper proposes a single-ended high-impedance fault protection scheme. The scheme presupposes the control ...

General single-ended resonant inverters in IH applications protect the system if abnormal condition is detected. Fig. 7a shows IGBT voltage, resonant current, and AC supply voltage waveforms of conventional single-ended resonant IH inverter. Once AC supply voltage reaches 260 V, the system detects abnormal condition and turns the system off.

the high-speed differential to single-ended converters found in the prior art suffer from inherent design limitations that limit the prior art circuits" ability to convert differential input signals of low amplitudes, particularly if the centerpoint of the differential input signal is skewed from the centerpoint of the CMOS rail voltages. . Additionally, many of the prior art designs ...