

Title: Llc high frequency inverter

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What is a high frequency inverter?

In many applications, it is important for an inverter to be lightweight and of a relatively small size. This can be achieved by using a High-Frequency Inverter that involves an isolated DC-DC stage (Voltage Fed Push-Pull/Full Bridge) and the DC-AC section, which provides the AC output.

Can LLC resonant converter-based high-frequency-link grid-connected inverter be efficiency-oriented? This study proposes an efficiency-oriented control approach for an LLC resonant converter-based high-frequency-link grid-connected inverter. The proposed topology has two stages. In the first stage, the LLC resonant converter generates a rectified sine wave output synchronized with the grid voltage.

What is a high frequency link inverter? HFTs are typically integrated into a DC/DC converter stage, forming a high-frequency-link (HFL) inverter, as shown in Figure 1b . However, in this structure, the grid-side inverter operates at a high switching frequency, which increases control complexity and switching losses . Typical isolated grid-connected inverter types.

How does a resonant converter work in a HFL inverter? Aforementioned, in the proposed HFL inverter, the LLC resonant converter must generate a rectified sine wave voltage and current at the DC bus. Since the input power source is DC, the converter gain must be dynamically regulated from zero to a specific value to follow the sine wave reference signal.

Is there a single-stage inverter with the LLC topology? Based on this, this article proposes a single-stage inverter with the LLC topology. The proposed inverter employs a topology-morphing of full-bridge (FB) to half-bridge (HB) and a hybrid control strategy of the pulse frequency modulation (PFM) combined with the pulsewidth modulation (PWM).

How to control LLC resonant converters? Therefore, adjusting the converter switching frequency, known as pulse-frequency modulation (PFM), is widely used to control LLC resonant converters . However, when the switching frequency is much lower than the resonant frequency, the circulating current increases due to the magnetizing inductance.

Abstract--Conventional frequency modulated LLC topology is unsuitable for ultra wide voltage range applications and suffers from poor voltage regulation performance at light ...

The LLC converter is a resonant inverter with three reactive elements where the DC input voltage is turned

into a square wave by a switch network arranged ...

Learn more about LLC converters and how their resonant nature provides benefits such as high efficiency, soft switching, reduced board space, and ...

Based on this, this article proposes a single-stage inverter with the LLC topology. The proposed inverter employs a topology-morphing of full-bridge (FB) to half-bridge (HB) and ...

The LLC converter operates in the ZVS region except the narrow band around the zero-crossings of the inverter output current. Since the LLC resonant converter has a high frequency ...

LLC resonant inverter has greater advantages including the zero-voltage switching (ZVS) in operating load ranges and zero-current switching (ZCS) for specific condition in case ...

Introduction A power inverter converts DC power into AC power for operating AC loads and equipment. High-frequency power inverters utilize ...

In order to solve the circulation problem caused by the parameter difference of parallel high frequency resonant inverters, a current equalization control strategy is proposed. ...

Abstract--In this article, a new topology for a grid-connected solar photovoltaic inverter for the direct connection to the medium-voltage grid is proposed. This topology employs an LLC ...

A modified multilevel LLC resonant inverter for multi-string photovoltaic (PV) applications. An efficient variable frequency and an integrated control...

This paper presents a novel single-stage inverter based on multi-resonant LLC converter along with its design optimization. A single-stage dc-ac inverter reduce

half bridge inverter, resonant tank, high frequency transformer, rectifier and coil. The switching bridge generates a square waveform to excite the LLC resonant tank, which will ...

In this paper, the development of a compact LLC resonant converter based on GaN devices and with output power up to 10 kW is described. The capability of 1 MHz operation ...

This article presents the analysis of a converter based on an LLC resonant output inverter and its optimal design used in induction heating applications. The new optimal design ...

Abstract- In this paper, A simple power-control scheme for high frequency an LLC resonant inverter with asymmetrical control technique is proposed. The aim is to control the ...

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