Abstract

This paper presents a current-fed full-bridge boost DC-AC-DC converter with transformer isolation operating without switching power dissipation. The output voltage is regulated by dc-ac converter whose frequency changes with a constant turn-off time of transistors. The proposed converter is devoid of parasitic oscillations, as all of the parasitic capacitances and inductances are included in a resonant tank circuit. The main advantage of such systems is that they include a capacitive output filter, which is preferred in higher voltage applications. Moreover, it achieves ZCS for all active switches and zero-voltage switching (ZVS) operation for all diodes on high voltage side, which is an additional benefit. In this paper, the system operation is first explained, then a mathematical description that is useful for its design is provided, and finally, a report on the implementation of a laboratory prototype with 125W power is presented.

Reference

Implementation of Full-Bridge Current-Fed Resonant Boost Converter using PIC microcontroller

- J.A.sabate, V.Vlatkovuc, R.B.Ridely, FC.Lee and B.L.Cho "design consideration for high voltage high power full bridge zero voltage switching PWM converters" in proc. Applied power electronics conf. and exposition (APEC '90) ( 1990)

Index Terms

Power Engineering          Power Applications

Key words

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current fed

boost

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ZCS