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

- 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 electroics conf. and exposition (APEC '90) (1990)

Index Terms
Power Engineering
Power Applications

Key words
Bridge current fed boost Dc-Dc converter
ZVS
ZCS