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


Index Terms
Power Engineering Power Applications

Key words
Bridge current fed
boost
Dc-Dc converter
ZVS

ZCS