A VHF Interleaved Self-Oscillating Resonant SEPIC Converter with Phase-Shift Burst-Mode Control

This paper presents design and implementation of the phase-shift burst-mode control method for interleaved self-oscillating resonant SEPIC converters for LED lighting applications. The proposed control method utilizes delays in the turn-on and turn-off of the power stage and control circuitry in order to reduce requirements for the comparator in the regulation circuit. The control method is experimentally evaluated on a 49 MHz dc-dc converter prototype, and the results are presented. The designed converter demonstrates peak efficiency of 81%, maintains efficiency above 75% from 20% load to full load, and is implemented using low-cost switches and integrated circuits.