Design and Implementation of a Solf-Switching Power Converter

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ABSTRACT

This work focuses on Full-Bridge Phase-Shifted PWM power converter, which uses the leakage inductance of transformer and the junction capacitance of MOSFET to product resonant, and then it makes circuit reach the ZVS switch. The zero-voltage-switch can reduce the loss of switching loss and promote the efficiency of circuit during operating the switch in high frequency. Instead of the drive transformer, an HIP4081A directly drives the four switches of MOSEFT, which can simplify the configuration of circuit and easily carry out the ZVS of Full-Bridge Phase Shifting. A single PWM can be transformed into four Phase-Shifted driver signals by using this simple logic circuit. Eventually, the power converter of input voltage 36V(ranged from 36V to 72V)and output voltage 5V/10A can be easily implemented in this thesis.

Keywords : Soft Switching . Full-Bridge Power Converter . Phase-Shifted PWM . Isolated Transformer

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