Design of A Novel High Efficiency Power Converter

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ABSTRACT

In recent years, there is a fast progress in power electronics technology. The main reason is the improvement in electrical components and the development of new magnetic material. For example, the manganese - zinc ferrite are used in high frequency power transformer and MPP (Molybdenum Perm-alloy Powder) are used in the power inductor (choke) to reduce core loss; Ceramic material are used in PCB for better heat dissipation. High speed power transistors, such as MOSFET and IGBT (Insulated Gate Bipolar Transistor), IEGT (Injection Enhanced Gate Transistor) , FRD (Fast Recovery Diode) and pulse width modulation IC, all these make high power — high frequency converter possible. In this paper, the topology and performance of various kinds of power converter are discussed and compared. Improved designs are proposed to increase the efficiency of power conversion, and to reduce the noise interference. Experimental results show the improvement in performance.

Keywords : 電力用金屬氧化半導體之場效應電晶體

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