Investigation and implementation of efficiency monitoring and reliability assurance for the green energy products

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ABSTRACT

The purpose of this thesis is to conduct a series of researches on high efficiency full-bridge Converter and apply it to practical use. In this thesis, IC (Specs: ISL6754) of Zero Voltage Switching (ZVS) was adopted, which has been mainly applied in the field of ZVS full-bridge converter, power supply of telecommunication, wireless station, file server and industrial power system. In addition, ISL6754 can be used for ZVS in pre-stage and in post-stage as synchronization-rectifier for controlling transistors. Therefore, in his study, ISL6754 is applied to Full-Bridge synchronization-rectifier in order to reduce the loss of conduction and enhance the output efficiency rate up to 96% theoretically and practically. This study will further prove the effect of energy saving. To reduce the size of circuit ’s contents and the efficiency loss of semi-conductor, and to enhance the efficiency of power conversion, L-C resonance circuit power converter is also adopted, which is also recognized as “ Soft-Switching Technique, ” to reduce the power loss of switching with ZVS technology. This paper is one of the case plan. Part of the main power supply for the system to achieve the best power conversion.

Keywords : High-efficiency full bridge power converter、zero voltage switching、radio base station power supply、synchronous rectifier

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