

A ZVT-ZCT-PWM DC-DC Boost Converter with Direct Power Transfer

Authors : Naim Suleyman Ting, Yakup Sahin, Ismail Aksoy

Abstract : This paper presents a zero voltage transition-zero current transition (ZVT-ZCT)-PWM DC-DC boost converter with direct power transfer. In this converter, the main switch turns on with ZVT and turns off with ZCT. The auxiliary switch turns on and off with zero current switching (ZCS). The main diode turns on with ZVS and turns off with ZCS. Besides, the additional current or voltage stress does not occur on the main device. The converter has features as simple structure, fast dynamic response and easy control. Also, the proposed converter has direct power transfer feature as well as excellent soft switching techniques. In this study, the operating principle of the converter is presented and its operation is verified for 1 kW and 100 kHz model.

Keywords : direct power transfer, boost converter, zero-voltage transition, zero-current transition

Conference Title : ICEE 2016 : International Conference on Electrical Engineering

Conference Location : London, United Kingdom

Conference Dates : May 23-24, 2016