ABSTRACT

In this project is to develop a high-efficiency Single-Input Multiple-Output (SIMO) DC–DC converter. The proposed converter can boost the voltage of a low-voltage input power source to a controllable high-voltage DC bus and middle-voltage output terminals. The high-voltage DC bus can take as the main power for a high-voltage DC load or the front terminal of a DC–AC inverter.

The middle-voltage output terminals can supply powers for individual middle-voltage dc loads or for charging auxiliary power sources. In this project, a coupled-inductor based DC–DC converter scheme utilizes only one power switch with the properties of voltage clamping and soft switching, and the corresponding device specifications are adequately designed.