

Thirteen-Level Modified Packed U-Cell Multilevel Inverter for Renewable-Energy Applications

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Abstract

Multilevel inverters are getting more interest to be used in several applications due to their various advantages compared to the classical inverters. In this paper, a modified packed U-cell inverter is proposed to provide thirteen-level smooth waveform at the output. The proposed inverter uses eight switches and three DC sources, which is very less compared to the classical inverters. The efficient multi-carrier PWM switching technique is employed to control the operation of the inverter and to reduce the current harmonics. Simulations are carried out using Matlab/Simulink package to investigate the performance of the proposed inverter. The improvement in the output waveform and the reduced harmonic distortion are pointed out, which prove the efficiency of the proposed inverter.

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