

GENERALIZED CASCADED MULTI LEVEL INVERTER USING REDUCED NUMBER OF COMPONENTS WITH DC SOURCES

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ABSTRACT

Multi Level Inverters (MLIs) requires great number of semiconductor switches in order to generate a staircase output voltage waveform (stepped) from the DC voltage sources. MLIs were becoming more popular for higher power purposes in industries because of high-quality output waveform (which is nearer to sinusoidal) in comparison with the normal two-level inverters. The reliability of MLI is relatively proportional to the number of semi conductor components employed in it. So, more number of components is the main drawback of MLI. This paper presents a generalized cascaded multilevel inverter (with constant DC voltage sources) uses reduced number of power semiconductor components and this can be analyzed in both symmetric and asymmetric states. The selection of optimal structures are based on the different aspects like minimum number of DC sources, gate driver circuits, power electronic switches, minimum standing voltages on switches etc. Total Harmonic Distortion (THD) analysis is done between both states with loads R and RL loads. The simulation has been accomplished in MATLAB.

KEYWORDS: *Generalized Cascaded MLI Topology, Thirteen Level Symmetrical, Thirty One Level Asymmetrical Inverter, Optimal Structures*

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