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(57) Abstract :

The present invention relates to a multi-level switched-capacitor-based single source inverter (100) generating boosted voltage. The proposed inverter transforms direct current (DC) electric power to alternating current (AC) electric power. The power converter is a six-level switched capacitor multilevel operating from a single DC source, providing 2.5 times voltage gain and capable of suppressing inrush capacitor charging current, resulting in lower power loss. The six-level inverter has a DC source of voltage V_{dc} , a plurality of capacitors (C1-C5), a plurality of switches (S1-S6), a plurality of diodes (D1-D4) and a pair of charging inductors (Lr). The steady state voltage across C1 (VC1) and C2 (VC2) is $V_{dc}/2$, and across C3 (VC3), C4 (VC4), and C5 (VC5) is V_{dc} . The capacitor voltages are self-balanced and do not require any additional complex circuit to balance the voltages of the capacitors. The proposed inverter has fewer components, resulting in reduced size and cost. Single Input DC source eliminates power mismatching problem. [Figure 1]

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