

A new three-level current-source PWM inverter and its application for grid connected power conditioner

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Abstract	<p>This paper presents a novel topology of a three-level current-source PWM inverter totally driven by using single gate-drive power supply used for a grid connected inverter. The great feature of the proposed inverter circuit is that all of the power switches are connected on common-source or common-emitter configuration. Using this common-source current-source inverter (CS-CSI) the number of gate-drive power supply can dramatically be reduced into only a single power source without using bootstrap technique or many isolated power supplies. Operation of the proposed new inverter was tested by using computer simulation and experimentally. The simulation and experimental results proved that the inverter works properly generate a three-level output current waveform and inject a sinusoidal current into power grid with unity power factor operation. During grid connected operation, almost all harmonic orders are suppressed by using an additional harmonic suppression technique. (C) 2010 Elsevier Ltd. All rights reserved.</p>
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