Novel Single Phase Grid Connected Current-source PWM Inverter with Harmonic Suppression

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Abstract	This paper presents a novel topology of a three-level current source PWM inverter used for a grid connected power conditioner. The circuit can be operated at higher switching frequency because all power switches are connected at common-source 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 a bootstrap technique. The effectiveness of the proposed circuit is verified through computer simulation and experimental test. The simulation and experimental results proved that the inverter works properly to inject an AC current into power grid with a unity power factor operation. A current harmonic suppression technique is also proposed in case of grid connected operation. Almost all harmonic orders are suppressed by using the proposed technique.
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