

## Performance Analysis of Transformerless DC-DC Boost Converter

**Authors :** Nidhi Vijay, A. K. Sharma

**Abstract :** Many industrial applications require power from dc source. DC-DC boost converters are now being used all over the world for rapid transit system. Although these provide high efficiency, smooth control, fast response and regeneration, conventional DC-DC boost converters are unable to provide high step up voltage gain due to effect of power switches, rectifier diodes and equivalent series resistance of inductor and capacitor. This paper proposes new transformerless dc-dc converters to achieve high step up voltage gain as compared to the conventional converter without an extremely high duty ratio. Only one power stage is used in this converter. Steady-state analysis of voltage gain is discussed in brief. Finally, a comparative analysis is given in order to verify the results.

**Keywords :** MATLAB, DC-DC boost converter, voltage gain, voltage stress

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