

# A Minimum Phase DC-DC Converter with Continuous Input Current and High Voltage Gain

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## Abstract

**Summary:** This paper presents a minimum phase high step-up DC-DC converter. In addition to the common ground sharing between the input and output ports, the converter draws a low ripple current from the input source, prolonging the input source's life cycle. Moreover, eliminating the right half plane zero from the control to output transfer function enables the converter to provide fast dynamic responses. Theoretical analysis, including the principle of operation, the mathematical calculation for steady-state operation, and small-signal modelling derivation, are clarified in detail. At last, to verify these analyses and mentioned features of the proposed converter, a 25-100V laboratory prototype has been implemented, and the main experimental results have also been outlined.

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