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Parametric sweep analysis of medium voltage range boost converter for energy harvester application (Conference Paper)

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Abstract

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This paper presents a parametric sweep analysis discussion on proposed DC-DC boost converter circuit for low and wide voltage supply range. Analysis is initially done using computer simulation and then tested with experimental work. Results are combined and discussed in details. In this work, effect of parameter such as input voltage, switching frequency and inductance is presented in details. A linear conversion has been observed in this work. Low DC input voltage of 100 mV to 1.5 V is used and successfully converts to up to 50 V in linear inclination, considering $CL = 10 \mu F$, and $RL = 10 k$. The circuit parameter for this voltage range are $L = 100 \mu H$, $D = 50 \%$, and 2 kHz frequency operation. This circuit can be used for energy harvesting purpose and medium voltage application such as aircraft, wireless measurement system and automotive. © 2015 IEEE.

Author keywords

boost converter energy harvester low frequency low input wide input voltage

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