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A DC-DC circuit using boost converter for low voltage energy harvesting application (Article)

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Abstract

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A DC-DC step-up voltage converter is designed to convert a very low voltage supply, 35 mV such as from the thermal energy source from body heat. The converter can generate an output voltage up to 210 mV, approximately six times its initial input voltage over a frequency of 36 GHz. The effect of switching transistors, inductor current, rise and fall time is also highlighted. The circuit operates using 2 μ H inductor and 0.01 fF load capacitor, is simulated using PSpice Simulation tool. This voltage converter is suitable for energy harvesting application in implanted electronic devices. © 2015 Nurul Arfah Che Mustapha, A.H.M. Zahirul Alam, Sheraz Khan, Amelia Wong Azman.

Author keywords

Boost converter; CMOS; DC-DC converter; Low input voltage; Switch transistor

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