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### Parameter optimization for piezoelectric micro-energy harvesting system

(Conference Paper)

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#### Abstract

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A piezoelectric micro-energy harvesting system is composed of piezoelectric transducer, rectifier, DC to DC converter and storage device. Parameters of the DC to DC converter have been optimized to harvest maximum energy from piezoelectric transducer. The key parameters are switching frequency, duty cycle, output load and inductance have been studied. The input voltage of the circuit from the piezoelectric transducer of 0.3V AC amplitude and output DC load voltage of 1.91V are considered. The circuit has been simulated using PSpice (V16.5) electronic circuit simulation software. The results show that the efficiency of the energy harvesting circuit is 34% and the maximum output power across the load is 3.69mW. © 2014 IEEE.

#### Author keywords

DC to DC converter micro-energy harvesting piezoelectric transducer

#### Indexed keywords

Engineering controlled terms: Computer software DC-DC converters Electric rectifiers Energy harvesting HVDC power transmission Piezoelectricity SPICE Transducers Virtual storage

- DC load
- DC-to-DC converters
- Duty-cycle
- Input voltages
- Maximum output power
- Micro energy
- Output load
- Parameter optimization

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