



## Cmos Circuits for Piezoelectric Energy Harvesters: Efficient Power Extraction, Interface Modeling and Loss Analysis (Hardback)

By Thorsten Hehn, Yiannos Manoli

Springer, Netherlands, 2014. Hardback. Book Condition: New. 2015 ed.. 236 x 155 mm. Language: English . Brand New Book. This book deals with the challenge of exploiting ambient vibrational energy which can be used to power small and low-power electronic devices, e.g. wireless sensor nodes. Generally, particularly for low voltage amplitudes, low-loss rectification is required to achieve high conversion efficiency. In the special case of piezoelectric energy harvesting, pulsed charge extraction has the potential to extract more power compared to a single rectifier. For this purpose, a fully autonomous CMOS integrated interface circuit for piezoelectric generators which fulfills these requirements is presented. Due to these key properties enabling universal usage, other CMOS designers working in the field of energy harvesting will be encouraged to use some of the shown structures for their own implementations. The book is unique in the sense that it highlights the design process from scratch to the final chip. Hence, it gives the designer a comprehensive guide of how to (i) setup an appropriate harvester model to get realistic simulation results, (ii) design the integrated circuits for low power operation, (iii) setup a laboratory measurement environment in order to extensively characterize the chip in combination with...



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