

An Efficient and Reliable Pyroelectric MEMS Energy Harvester/Cooler Operating between Two Thermal Reservoirs

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Two Thermal Reservoirs Over 55% of the generated electricity is lost as dissipated heat. We propose an efficient and reliable pyroelectric MEM energy harvester operating between two thermal reservoirs. The high temperature reservoir could be an electronic component that is required to stay below a certain threshold temperature. The proposed device acts as a heat engine that receives heat from the high temperature reservoir and rejects heat to the low temperature reservoir. The proposed design is a significant improvement over a device proposed by Scot Hunter in 2011. Reduced order model of the device will be developed and implemented. Extensive simulation sweeping the design parameters will be carried out ultimately leading to a design of improved efficiency and longer life