



IMPROVING THE EFFICIENCY OF PELTIER COOLING WITH RECUPERATIVE POWER MANAGEMENT

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ABSTRACT

Peltier elements claims new qualities in various cooling applications, but do not compare well with traditional cooling systems due to a low efficiency. This paper researches new approach to increase Peltier element based cooling system efficiency using advanced power management system. It is realized by using Peltier element as thermoelectric generator periodically turning excess heat to electricity. This method is potentially effective in several specific applications that suffer from weak heat dissipation or don't need constant cooling. Main advantages and drawbacks are presented, including further study opportunities. Research opens new direction for improving cooling ability of Peltier elements, thus bringing it one step closer to efficiency of gas compression based cooling systems.

Keywords: Peltier, recuperation, efficiency, excess heat, power management