Abstract

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Temperature effects on Silicon/Germanium superlattice solar cell

The influence of temperature on electrical parameters of Silicon germanium superlattice solar cell are presented in this work. SCAPS tool has been used to simulate and analyze the effect of temperature on short circuit current density, open circuit voltage, fill factor, maximum output power and conversion efficiency of Si/Ge superlattice solar cell. The Simulation result shows that the highest conversion efficiency is achieved at $T = 327$ K. Above 327 K, the conversion efficiency will be decreased with 7%/K.