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Heat sink fin number variation analysis on single chip high power LED

Abstract

Thermal management of high power LED is crucial the reliability and performance of the LED affected by the heat produced during photon emission. Heat sinks are utilized to dissipate the heat and to lower the operating junction temperature of LED. This paper demonstrates a simulation work done to evaluate the influence heat sink fin number on the junction temperature and stress of single chip LED package using Ansys version 11. The heat sink with fin number of 4 fins, 6 fins and 8 fins were used and compared. Results showed that increase in heat sink fin number significantly reduces the junction temperature of the LED package.

Keywords; Ansys, Heat Sink Fin Number, High Power LED, Junction Temperature, Von Mises Stress