

Effects of heat slug shapes on the heat dissipation of high power LED

Abstract

High power light emitting diodes are currently challenged by thermal issue of high heat generation which limits the reliability and efficiency. Each component in the LED package has a significant role in heat dissipation. In this paper, a simulation study was done to scrutinize the influence of heat slug shape on the heat dissipation of single chip LED package using Ansys version 11. Two types of heat slug shapes, rectangular and cylindrical were used. The analysis was carried out under natural convection condition at ambient temperature of 25°C. Simulated results indicate that rectangular shape heat slug exhibits better heat dissipation.

Keywords; Aluminum Slug, ANSYS, Heat Slug Shape, High Power LED, Junction Temperature, Von Mises Stress