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LED heat dissipation analysis using composite based cylindrical slug

Abstract

The optical efficacy and reliability of light emitting diode is extensively influenced by the operating junction temperature of the LED. Therefore, the evaluation of junction temperature is significant. This paper reports a simulation analysis on the heat dissipation of single chip LED package with based material, copper diamond (Cu/Dia) cylindrical heat slug.Ansys version 11 was utilized as the simulation platform. The junction temperature and stress of the LED chip under natural convection condition were evaluated with varied input power of 0.1 W, 0.5 W and 1 W. Results indicated the maximum junction temperature of LED chip was attained at input power of 1 W.

Keywords; ANSYS, Cu/Dia Cylindrical Heat Slug, Junction Temperature, LED, Von Mises Stress