Correlation Between Junction Temperature and Surface Thermal Image of the InGaN LED Package

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ABSTRACT

Light-emitting diodes have a small size, long life, low power, fast response characteristics. Thermal management of power LEDs is essential for various advanced applications, such as solid-state lighting and backlight source of LCD. Power LEDs by high current drive. So how to improve under relatively high-power light emitting diodes of the cooling mechanism is an essential. Demonstrated a measurement scheme for characterization of thermal resistance in InGaN-based power LEDs, in which the junction temperature of LEDs is obtained by utilizing the forward voltage method, while the surface temperature of heat sinks is determined by a thermal imager. The validity of the forward voltage method for deriving the junction temperature of LEDs was verified first. Then, the obtained thermal resistance from this scheme was compared with those from other approaches.

Keywords : thermal image, thermal resistance, junction temperature, LEDs

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