Abstract

The characteristics of blue InGaN multiple quantum well (MQW) Light Emitting Diodes (LEDs) with InGaN barriers are studied. The current-voltage (I-V) curve, Internal Quantum Efficiency (IQE), spontaneous rate are investigated. The simulation results show that the newly In0.15Ga0.85N /InGaN LED (Device 1) has reduced the forward voltage due to reduced energy barriers for electron and hole transport as compare to In0.2Ga0.8N/InGaN LED (Device 2). The Internal Quantum Efficiency (~98.5 %), Output Power (~1497.8 W/m) and spontaneous rate (~616.8 ×1026) achieved is more in case of In0.15Ga0.85N /InGaN 3-QW LED.

References

Characteristics of In$_x$Ga$_{1-x}$N based Light Emitting Diode with InGaN Barriers


Index Terms

Computer Science

Power Electronics
Keywords

InGaN barriers, Light Emitting Diodes (LEDs), Multi-Quantum well structure.