

LASER ANNEALING OF GaN LEDs WITH REDUCED PATTERN EFFECTS

ABSTRACT

The disclosure is directed to laser annealing of GaN light-emitting diodes (LEDs) with reduced pattern effects. A method includes forming elongate conductive structures atop either an n-GaN layer or a p-GaN layer of a GaN LED structure, the elongate conductive structures having long and short dimensions, and being spaced apart and substantially aligned in the long dimensions. The method also includes generating a P-polarized anneal laser beam that has an anneal wavelength that is greater than the short dimension. The method also includes irradiating either the n-GaN layer or the p-GaN layer of the GaN LED structure through the conductive structures with the P-polarized anneal laser beam, including directing the anneal laser beam relative to the conductive structures so that the polarization direction is perpendicular to the long dimension of the conductive structures.

FIG. 5