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Bhat et al.

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(54) **MULTI-CHIP SEMICONDUCTOR LED ASSEMBLY**

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Related U.S. Application Data

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(51) **Int. Cl.**[7] **H01L 27/15**; H01L 29/20

(52) **U.S. Cl.** **257/99**; 257/79; 257/81; 257/88; 257/103

(58) **Field of Search** 257/79–82, 84, 257/85, 88, 99, 103

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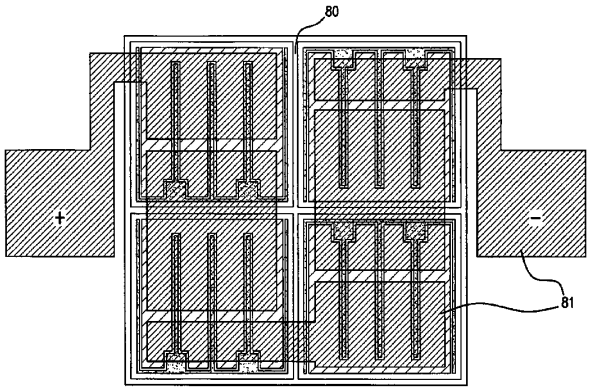
(57) **ABSTRACT**

A light emitting device includes several LEDs, mounted on a shared submount, and coupled to circuitry formed on the submount. The LEDs can be of the III-Nitride type. The architecture of the LEDs can be either inverted, or non-inverted. Inverted LEDs offer improved light generation. The LEDs may emit light of the same wavelength or different wavelengths. The circuitry can couple the LEDs in a combination of series and parallel, and can be switchable between various configurations. Other circuitry can include photosensitive devices for feedback and control of the intensity of the emitted light, or an oscillator, strobing the LEDs.

36 Claims, 34 Drawing Sheets



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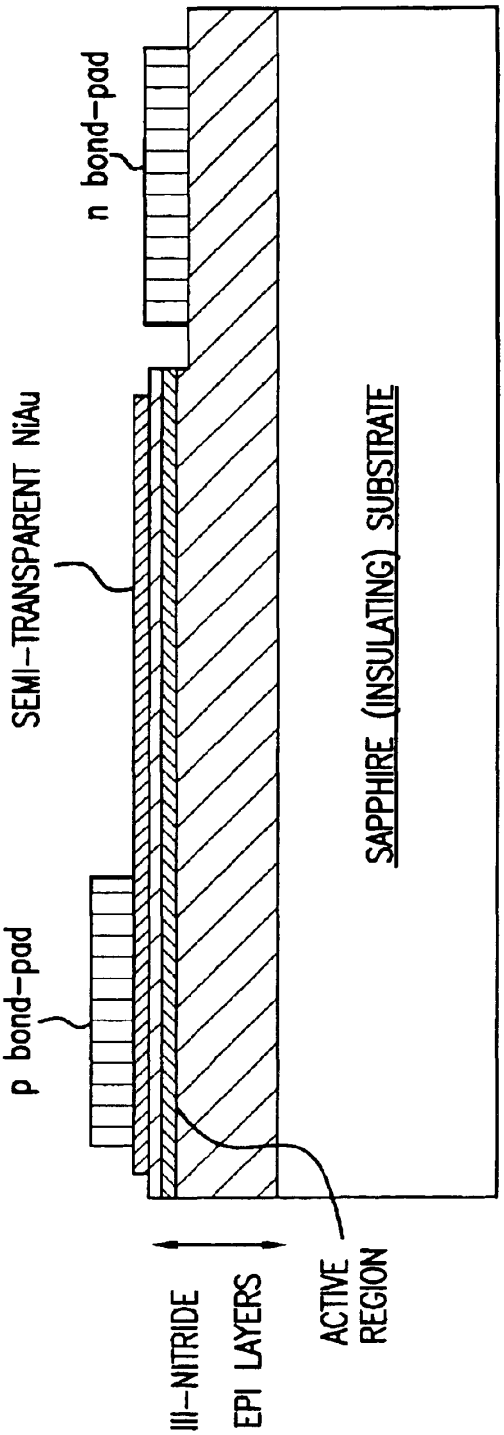

FIG. 1
PRIOR ART

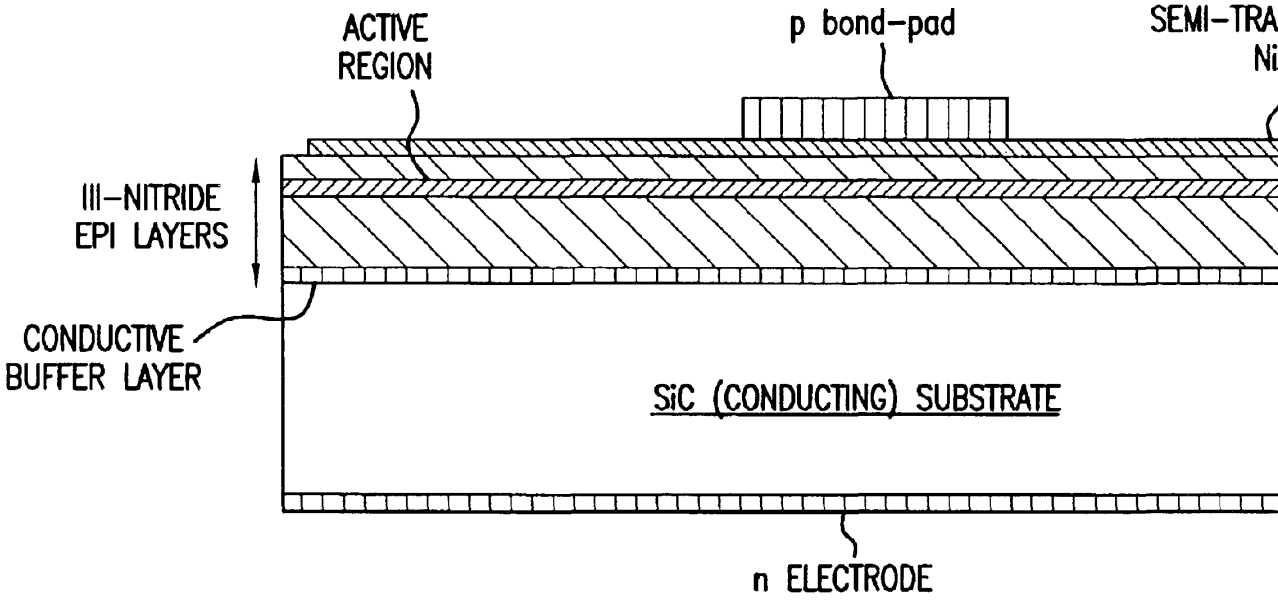

FIG.2
PRIOR ART

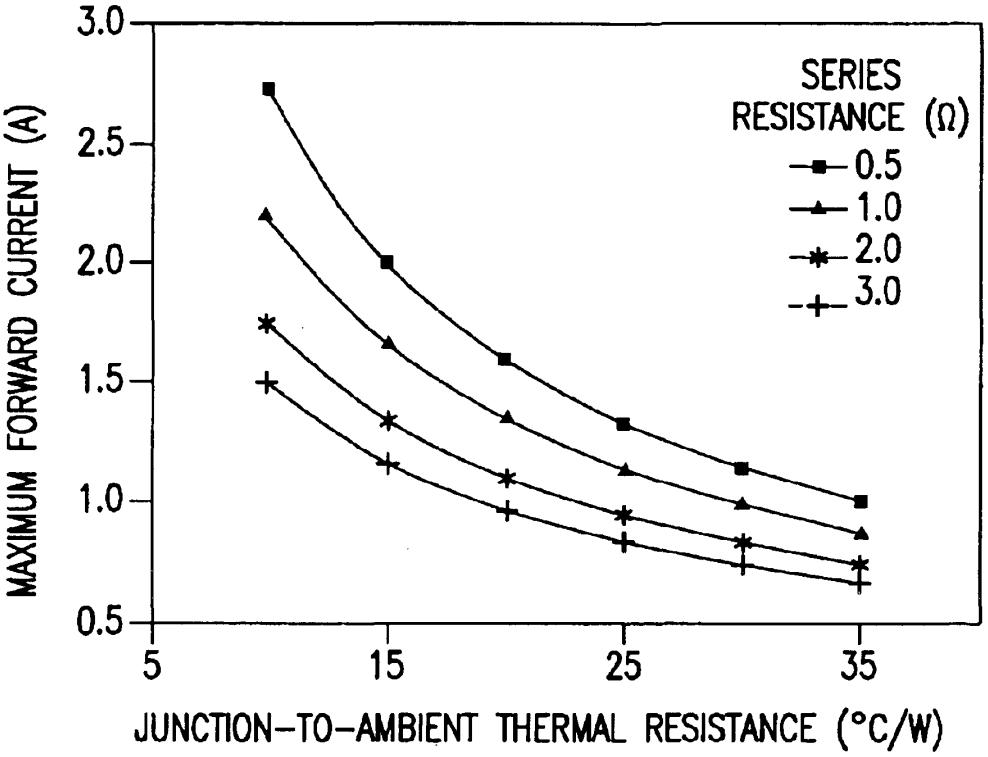

FIG.3

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