

A thermally - stable and highly - reflective AgAl alloy for GaN flip - chip light - emitting diodes

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Flip-chip structures have been used in GaN-based light emitting diodes (LEDs) to improve the light extraction efficiency and thermal management of LEDs⁽¹⁾. In general, Ag has been widely used for flip-chip LEDs (FCLEDs) due to their high reflectance in visible light and reasonable ohmic behaviors⁽²⁾. In this study, we investigated a AgAl alloy reflector layer on p-GaN without the use of a transparent interlayer for high efficiency GaN FCLEDs. The AgAl layer showed good adhesion and thermally stable properties compared to a Ag layer on p-GaN. The InGaN/GaN multiquantum well light-emitting diode with the annealed AgAl layer showed good I-V characteristic and an enhanced optical output power compared to that with an annealed Ag layer due to the high reflectivity and good ohmic property of AgAl.

[참고문헌]

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