

Low applied bias for p-GaN electroluminescent devices

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Schottky and ohmic contacts using Ag and Ni were fabricated on Mg-doped p-GaN films. Light emission has been obtained from these thin film electroluminescent devices (ELDs). These ELDs were operated under direct current (DC) bias. Two Schottky contacts used as cathode and anode were employed in these investigations. Alternatively, Schottky and ohmic contacts could be probed as cathode and anode. Both ELDs were able to emit light. However, optical and electrical differences could be observed from two different probing methods. ELDs started to emit light under forward bias of 3 V and 10 mA at room temperature in a dark environment. The change of light color from green, blue to violet could be observed when the potential between the electrodes was increased gradually. The light intensity emitted increased with the applied bias, followed by a trend toward saturation. Electrical and optical properties of these ELDs were characterized by current-voltage (I-V) system and opto-probe station.

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