

p형 Si 기판위에 성장된 ZnO 다층형복합구조의 이중접합구조 LED 제작

김동찬, 공보현, 한원석, 최미경, 조형균, 이종훈*, 김홍승*

성균관대학교, 한국해양대학교*

Multidimensional ZnO light-emitting diode structures grown by metal organic chemical vapor deposition on p-Si

Dong Chan Kim, Bo Hyun Kong, Won Suk Han, Mi Kyung Choi, Hyung Koun Cho, Jong Hun Lee*, Hong Seung Kim*
Sungkyunkwan Univ. *Korea Maritime Univ.

Abstract : A multidimensional ZnO light-emitting diode LEDstructure comprising film/nanorods/substrate was fabricated on a p-type Si substrate using metal organic chemical vapor deposition at relatively low growth temperature. The filmlike top layer used for the metal contact was continuously formed on the ZnO nanorods by varying the growth conditions and the resulting structure allowed us to utilize the nanorods with intense emission as an active layer. We investigated the performance of the resulting multidimensional LED. An extremely high breakdown voltage and low reverse leakage current as well as typical rectification behavior were observed in the I-V characteristics.

Key Words : p-Si, LEDs, ZnO