

Schottky barrier effects in GaN nanowire field effect transistor

Hyunjin Ji, Daehyun Kim, Eungseok Park, Gyutae Kim

Department of Electrical Engineering, Korea University

Abstract : GaN nanowire field effect transistors fabricated by dispersing nanowires on a substrate and forming metal electrodes on a single individual nanowire were measured by two-probe method and it showed an n-type in the gate dependence. Because the smaller FET contributes more contact effects on the electrical properties, the relative portion of contacts and bulk property should be confirmed, which were done by comparing the two probe clarified measurements with four-probe measurements. A net current-voltage characteristics of contacts were drawn by manipulating two-probe results with four-probe results, showing a representative tunneling barriers at the electrical contacts.

Key Words : GaN nanowire, contact resistance, Schottky barrier