Modeling and characterization of the Schottky diodes based on GaN

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Abstract :

The III-nitrided semiconductors have made considerable great strides for these last years. They present interesting properties for micro-electronics and optoelectronics like broad a gap direct and a great mobility.

Among these semiconductors, we are interested more particularly in gallium niride (GaN). This semiconductor with its large band prohibited, is an excellent candidate for the applications advanced into microphone-nano-electronic.

The analysis of the characteristics voltage of the Schottky structures containing GaN enabled us to highlight the various observable mechanisms of conduction, which mainly is the thermionic current.

The results obtained on the GaN Schottky diodes, enable us to better apprehend the physical phenomena intervening in the operation of the electronic and optoelectronic devices, and to include the comprehension of the growth conditions on the formation of defects at the beginning of technological operations.

Keywords:

Gallium nitride; Schottky diodes; Electrical characterization