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The Electrical Properties of Schottky Barrier Diode Structures Based on HVPE Grown Sn Dopped Ga_2O_3 Layers

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Abstract. We report on the analysis of the electrical properties of Schottky barrier diode structures based on gallium oxide (Ga_2O_3). Ga_2O_3 has been grown by chloride-hydride vapor phase epitaxy on Al_2O_3 substrate. Samples with different amounts of Sn impurity are experimentally characterized. Surface and cross-sectional scanning electron microscopy images, X-ray diffraction patterns and current-voltage characteristics of Ga_2O_3 layers both with and without contact pads are presented. The value of the Ga_2O_3 optimal doping is determined and the parameters of the surface treatment that is performed before the contact pads deposition are established.

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