Supplemental

Electrical Characterization of High-k ALD TiO_2 on AlGaN/GaN HEMT Structures

N. Nepal, J.G. Champlain, V.J. Gokhale, P.M. Litwin, B.P. Downey and V.D. Wheeler

U.S. Naval Research Laboratory, Washington, DC 20375, USA

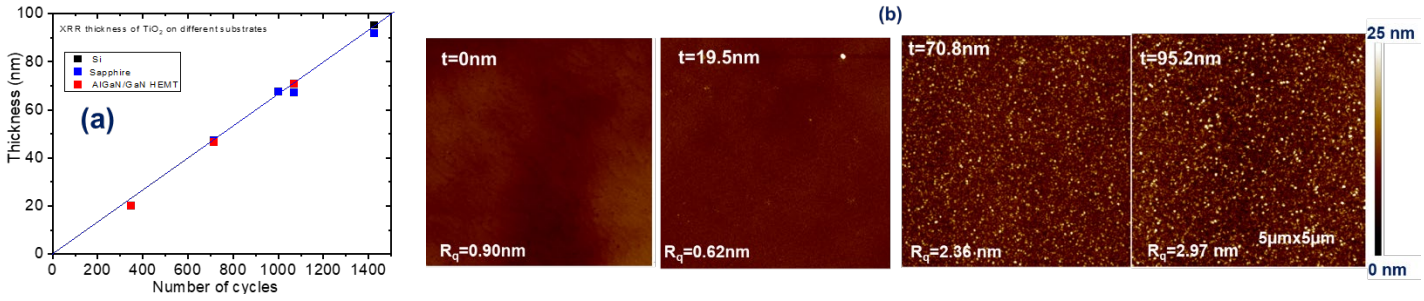

Fig. 1 (a) Thickness vs number of ALD growth cycles of TiO_2 on different substrates. (b) AFM images of $Al_{0.25}Ga_{0.75}N$/GaN HEMT structure with different TiO_2 thicknesses.

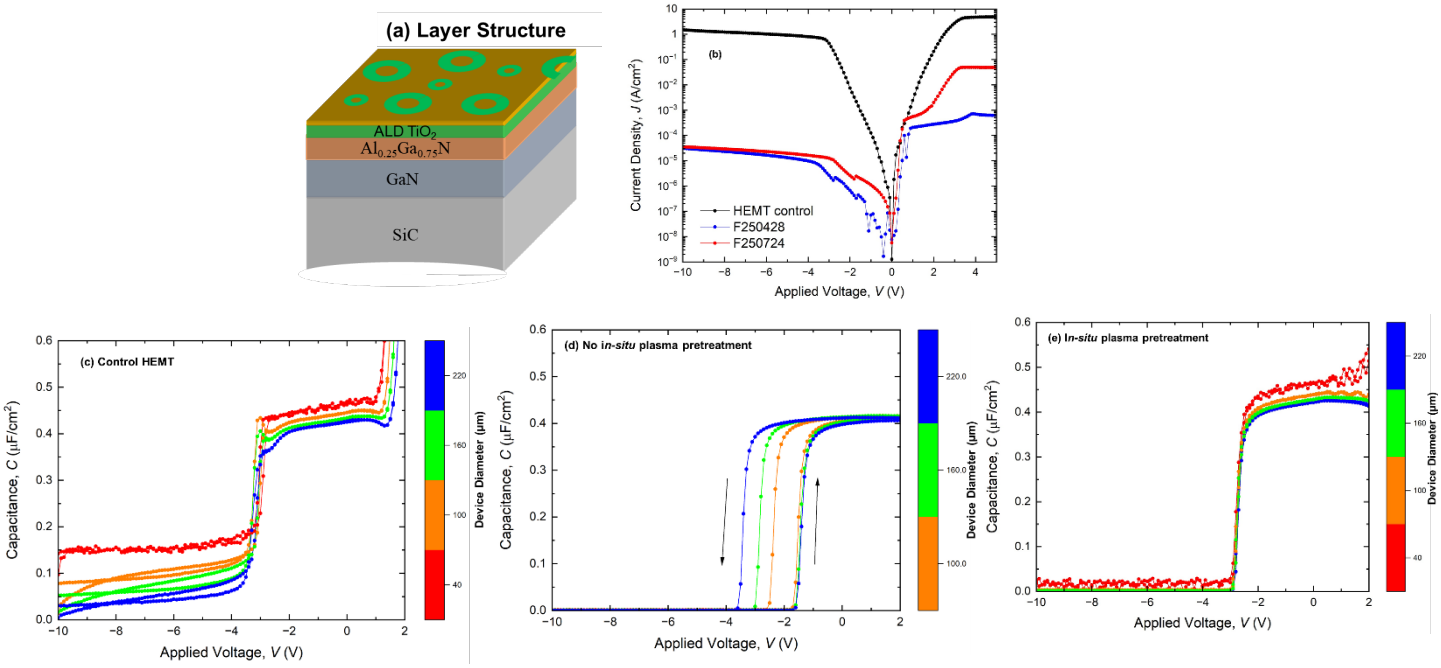

Fig. 2 (a) Layer structure of process CV-dots on TiO_2/$Al_{0.25}Ga_{0.75}N$/GaN/SiC. (b) I-V characteristics of $Al_{0.25}Ga_{0.75}N$ HEMT structure with Schottky contact (black line) compared to HEMT structures with ALD TiO_2 (colored lines). C-V of control and with and without *in-situ* plasma treatments. (c), (d) and (e) are CV characteristics of different size CV-dots on control, ALD TiO_2 on $Al_{0.25}Ga_{0.75}N$ /GaN HEMT without and with *in-situ* plasma treatments, respectively.