materials

MDPI

Supplementary Materials

Low Temperature Thermal Atomic Layer Deposition of Aluminum Nitride Using Hydrazine as the Nitrogen Source

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In the case of AlN film deposited at 225 °C, we noticed a high amount of oxygen impurities (more than 30 at.%) after 4 min of Ar sputtering. Therefore, we deposited a 4 nm-thick SiN_x capping layer after AlN film was grown at 225 °C without breaking the vacuum (in the same reactor) for XPS analysis. Figure S1a shows that the SiN_x capping layer provided effective barriers to oxidation of AlN surfaces. As shown in Figure S1b, for the deposition done at 300 °C, the oxidation was comparable to deposition at 225 °C with a capping layer. Hence, there was no need to deposit a capping layer.

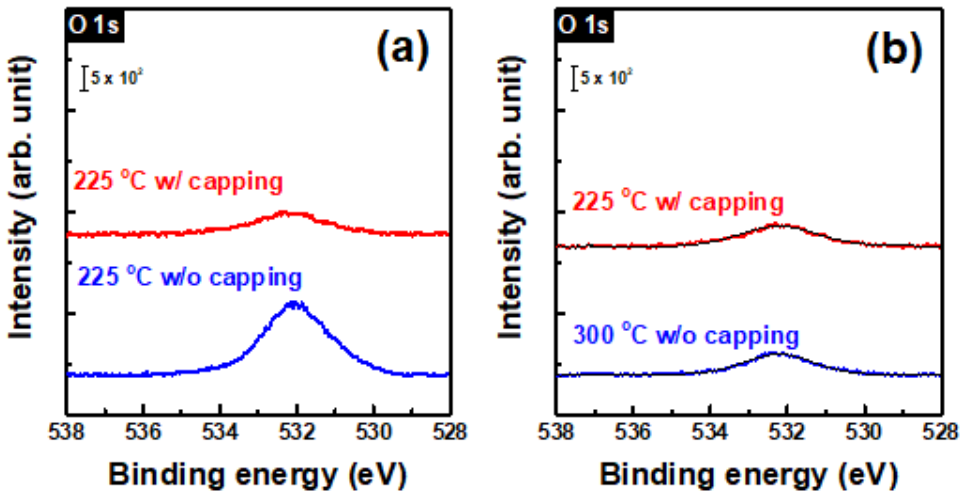

Figure S1. High resolution O 1s XPS spectra of (**a**) AlN deposited at 225 °C w/ and w/o capping layer and (**b**) AlN deposited at 225 °C w/ capping layer and deposited at 300 °C w/o capping layer.