Supplemental Information

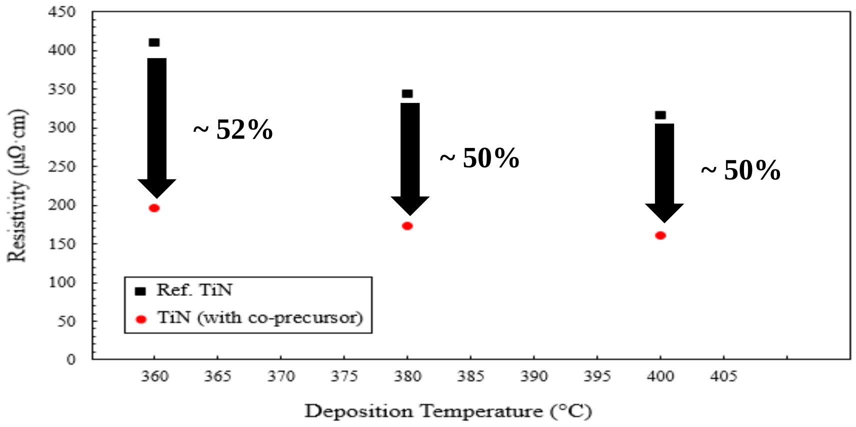
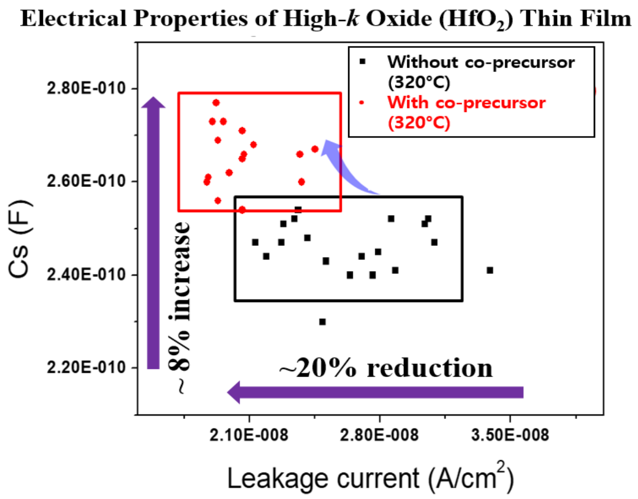


Fig. 1: Electrical resistivity of Ref. TiN (without co-precursor) and TiN (with co-precursor) at different deposition temperatures



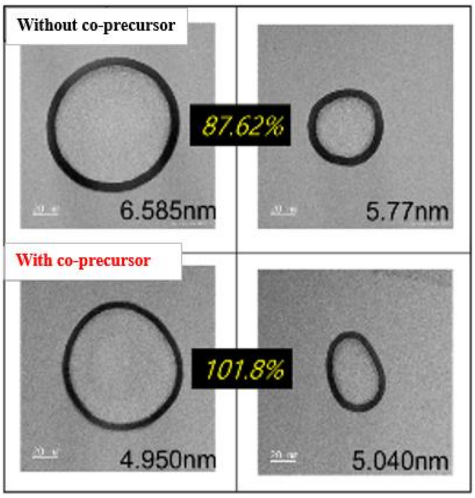


Fig. 2a: Comparison of the electrical performances (capacitance, Cs and leakage current) of HfO_2 film (with and without co-precursor)

Fig. 2b: Comparison of the step coverage of HfO_2 in 22.6:1 aspect ratio (A/R) feature (with and without co-precursor)

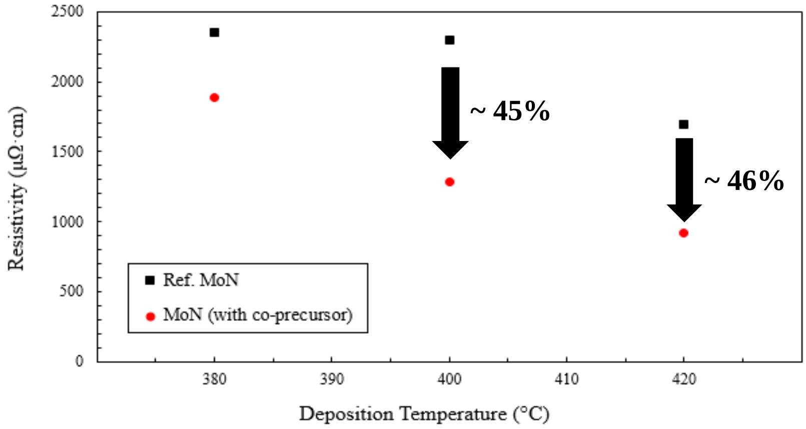


Fig. 3: Electrical resistivity of Ref. MoN_x (without co-precursor) and MoN_x (with co-precursor) at 380°C, 400°C and 420°C