

Electronic Supplementary Material (ESI) for Journal of Materials Chemistry C This journal is The Royal Society of Chemistry 2013



Fig. S1 XPS survey peaks of HfO2 thin films annealed at 150 - 400 °C for 1 h.



Fig. S2 Projection and cross-section SEM images of HfO₂ films annealed at 150 - 400 °C for 1 h. Scale bars indicates 100nm, and legends shows thickness of 100 nm, 84.4 nm, 79.5 nm, and 76.9 nm for 150, 200, 300, and 400 °C annealed films.



Fig. S3 AFM images for HfO₂ film surfaces annealed at 150 °C - 400 °C for 1 h.



Fig. S4 Thickness of HfO₂ thin films coated from aqueous solution and from 2-methoxyethanol solution as a function of annealing temperature. Significant shrinkage of HfO₂ thin film coated from 2-methoxyethanol solution indicates HfCl₄ sublimation and large amount of residual precursor intermediates.



Fig. S5 Representative current–voltage characteristics for HfO2 films that is coated from 2-methoxyethanol solution and annealed in air for 1 h with various annealing temperatures.