Supporting Information

Role of Electron Donation of TiO_2 Gate Interface for Developing Solution Processed High-Performance One-volt Metal Oxide Thin Film Transistor Using Ion-conducting Gate Dielectric

Anand Sharma[a], Nitesh K.Chourasia[a], Nila Pal[a], Sajal Biring[b] and Bhola N. Pal[a,b*]

[a]*School of Materials Science and Technology, Indian Institute of Technology (Banaras Hindu University), Varanasi-221005, India,*

[b]*Organic Electronics Research Center and Department of Electronic Engineering, Ming Chi University of Technology, New Taipei City, Taiwan 243*

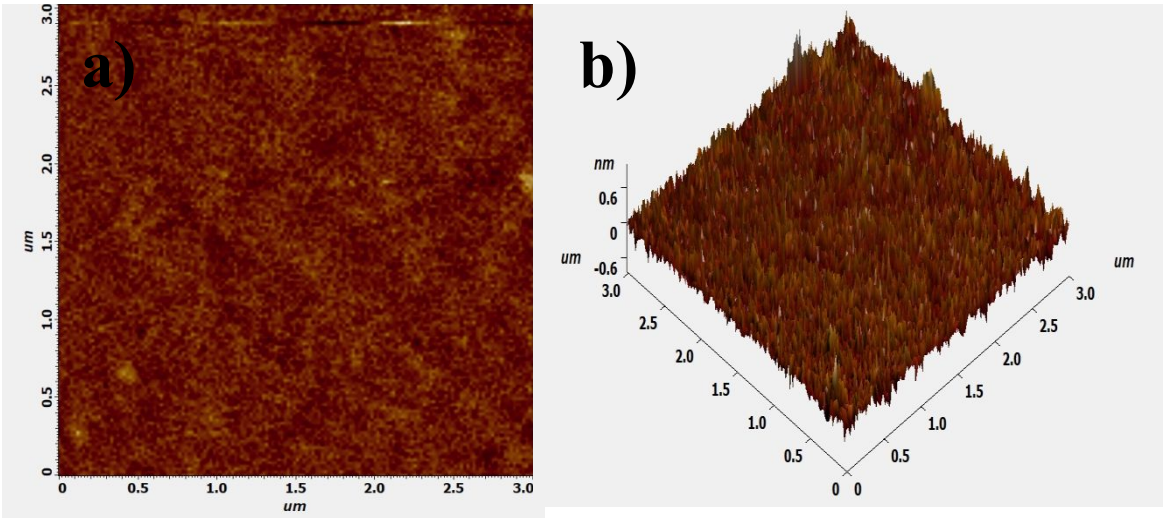

Figure S1: Surface morpholgies of spin coated thin films of various single layer dielectrics **a)** 2D-Al_2O_3 **b)** 3D-Al_2O_3

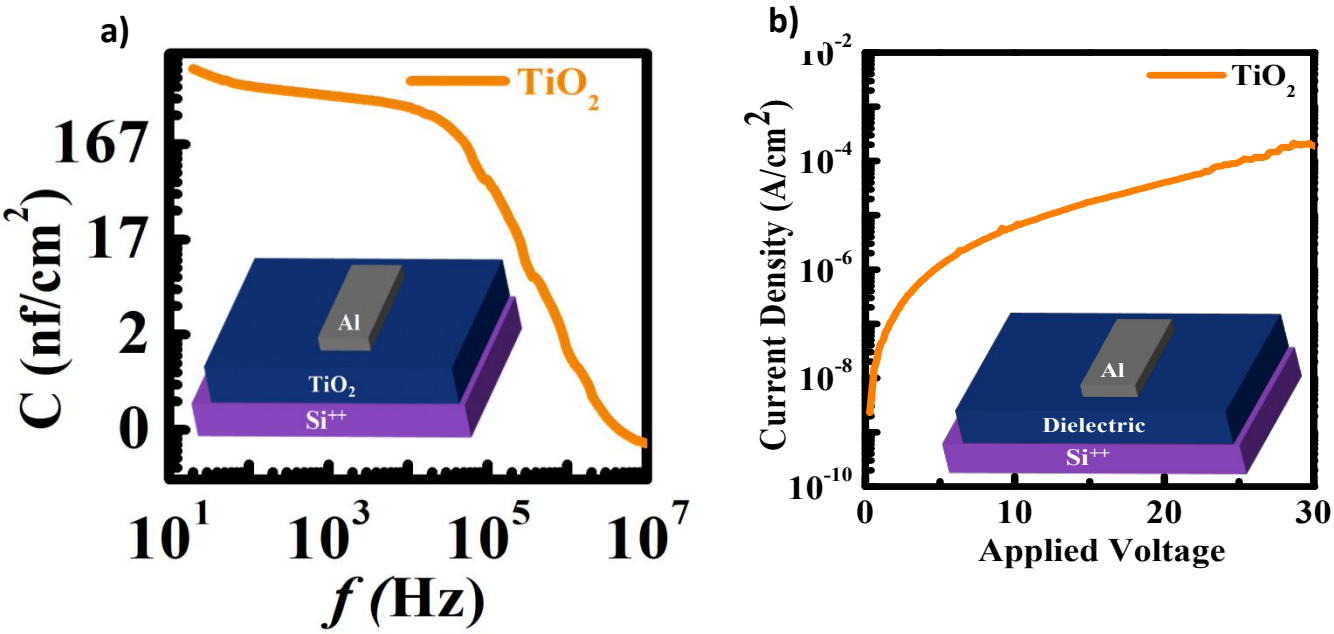

Figure S2:a) Capacitance vs frequency curve and **b)** Leakage current density vs applied voltage of sol- gel derived TiO_2 thin film.

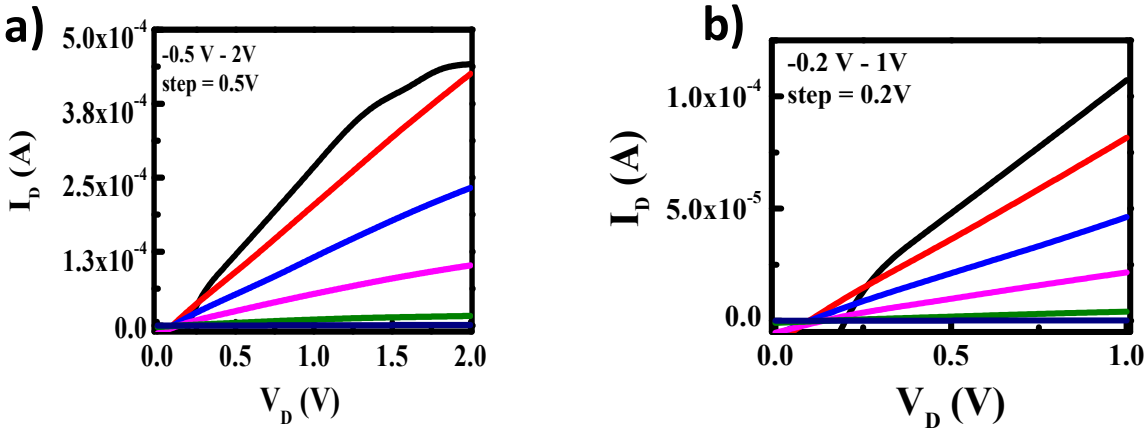

Figure S3: Output characteristics of single layer Al_2O_2/IZO TFT under the different bias **a)** 2V **b)** 1V.

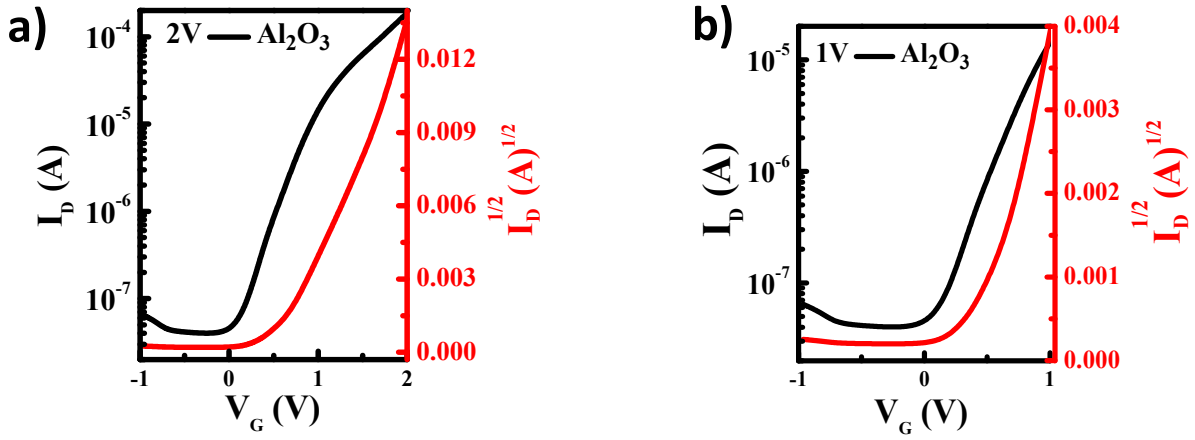

Figure S4: Transfer characteristics of single layer Al_2O_2/IZO TFT under the different bias **a)** 2V **b)** 1V.

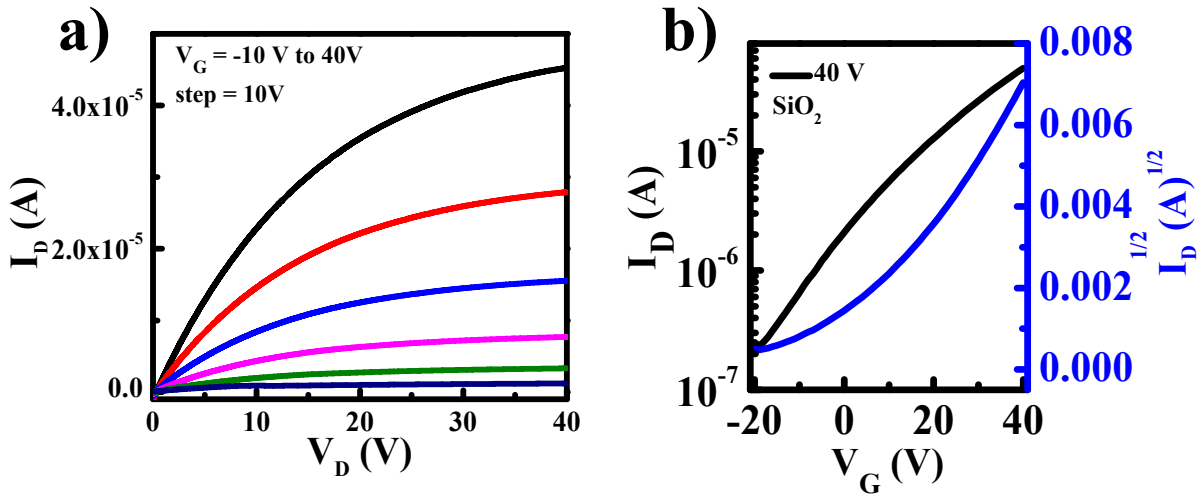

Figure S5: a) Output b) transfer characteristics, of SiO_2/IZO TFT

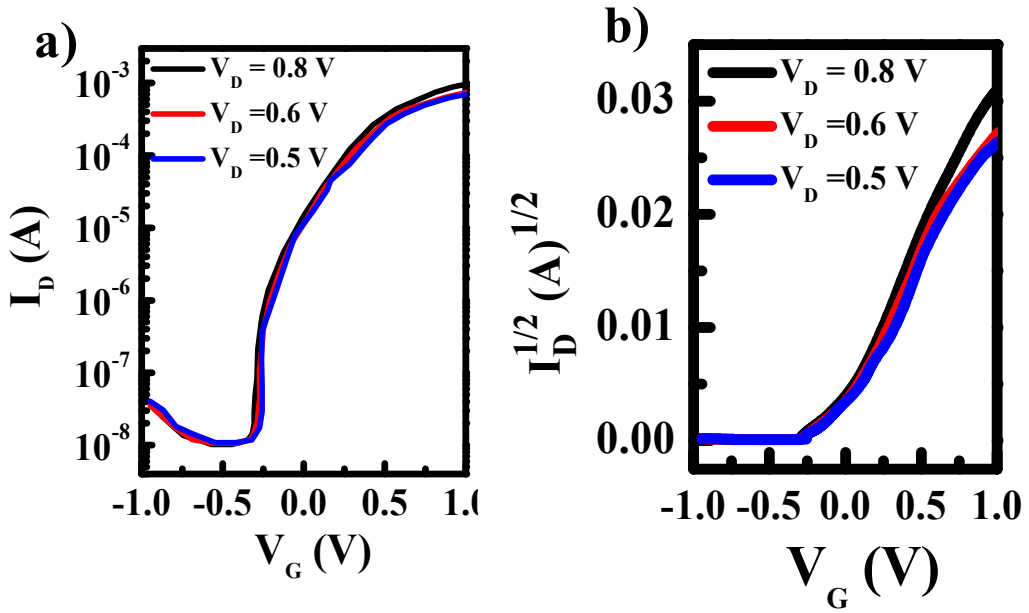

Figure S6: a) Transfer characteristics of device-4 with the various V_D under the V_G = 1V and b) I_D vs V_G plot.

Table S1: The summary of different parameters of SiO_2/IZO transistor

Device	C (nF/cm^2)	V_{Th} (V)	ON/OFF ratio	Subthreshold swing (SS) (mV/decade)	Saturation Mobility (μ) (cm^2 V^{-1} sec^{-1})
SiO_2/IZO	10	-5V	10^3	400	0.5

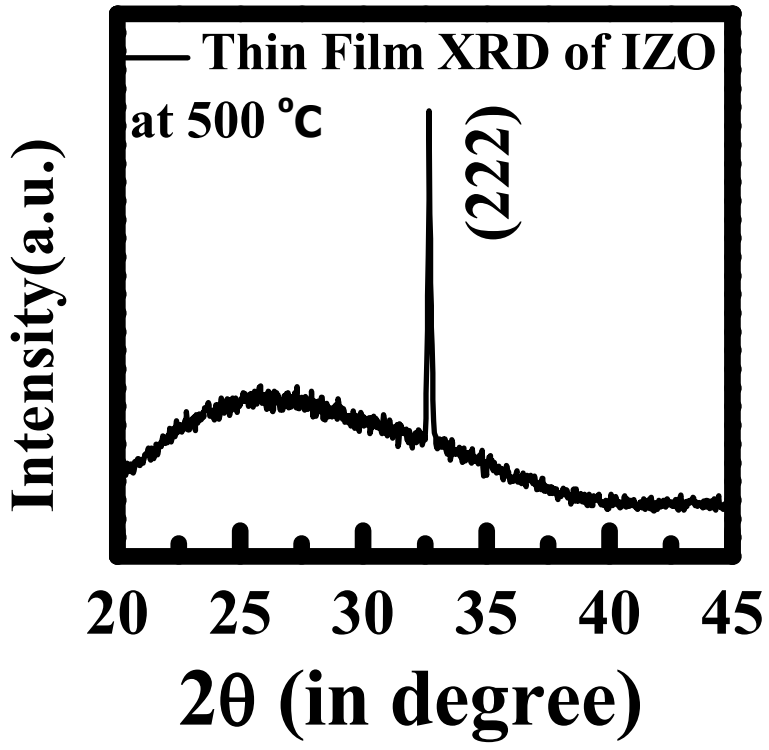

Figure S7: Thin film XRD of sol-gel coated IZO thin film at 500 °C.