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Supplementary Information

Solution-processed indium-free ZnO/SnO_2 bilayer heterostructures as a low-temperature route to high-performance metal oxide thin-film transistors with excellent stabilities

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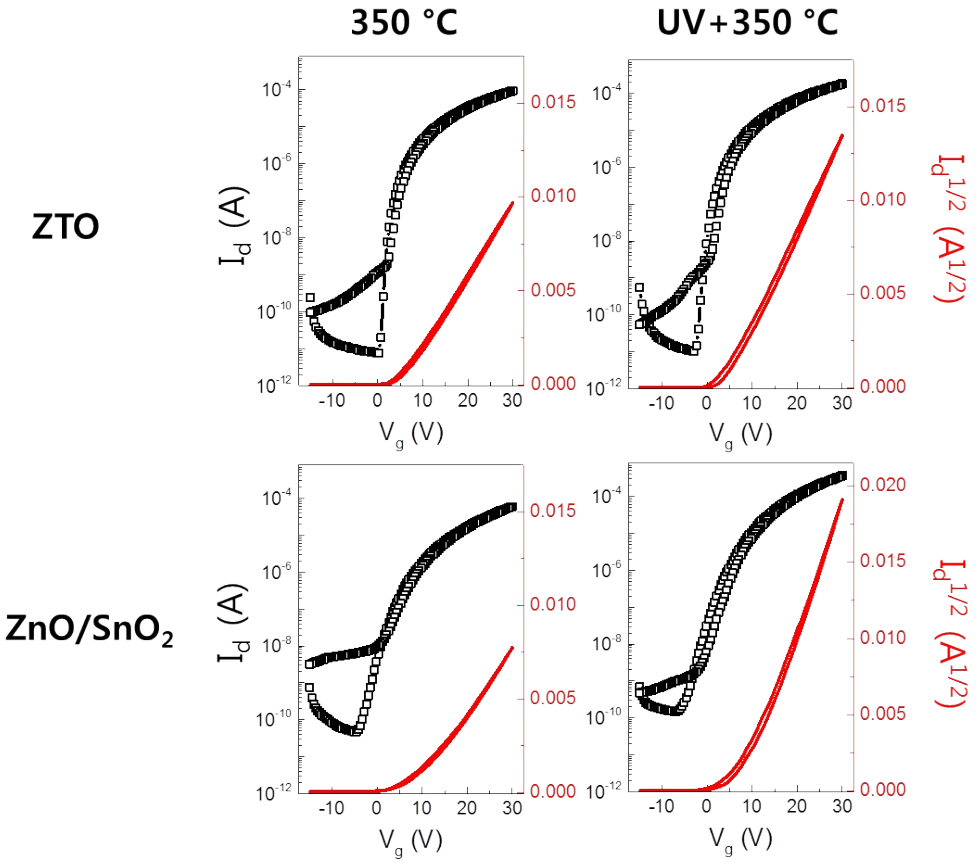

Fig. S1 A comparison of the device characteristics measured from single layer ZTO and ZnO/SnO_2 bilayer TFTs annealed at 350°C with or without UV treatment prior to thermal treatment. The average μ measured from the ZTO TFTs prepared with or without UV treatment were found to be 1.8 $cm^2 V^{-1} s^{-1}$ or 3.4 $cm^2 V^{-1} s^{-1}$, respectively. The average μ measured from the ZnO/SnO_2 TFTs prepared with or without UV treatment were found to be 2.2 $cm^2 V^{-1} s^{-1}$ or 10.4 $cm^2 V^{-1} s^{-1}$, respectively.

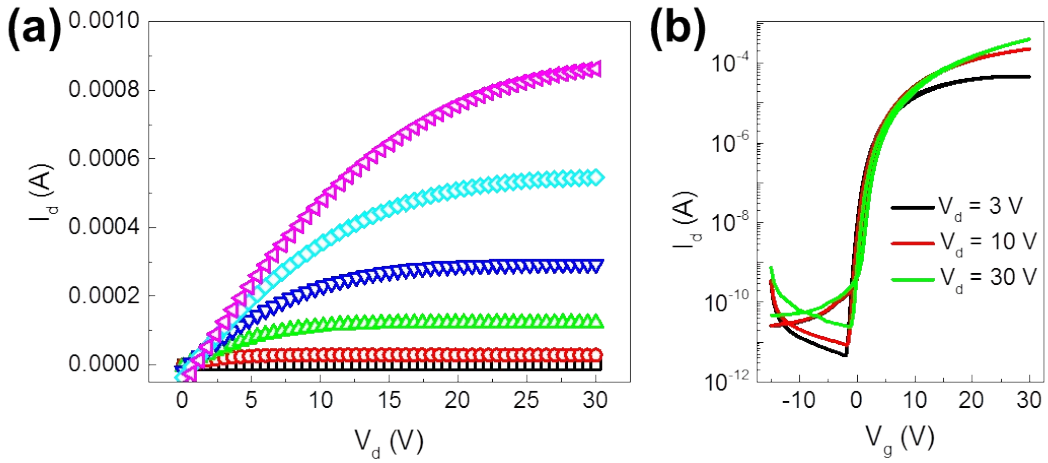

Fig. S2 Output characteristics and transfer characteristics at different drain voltages applied to the ZnO/SnO_2 TFTs annealed at 300°C

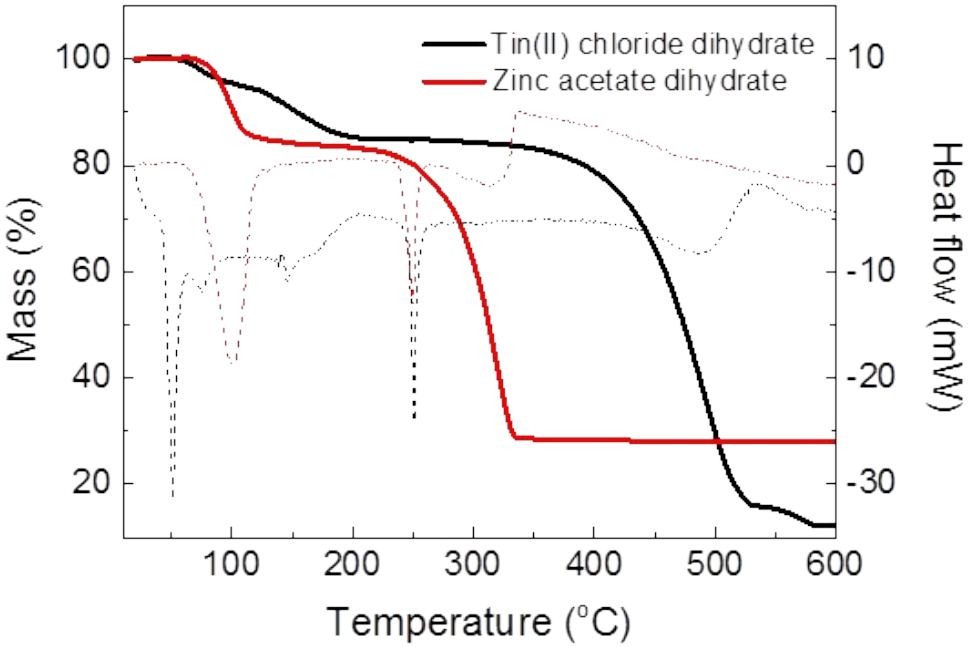

Fig. S3 Thermogravimetric analysis (TGA) and differential scanning calorimetry (DSC) measurements obtained from the Sn and Zn precursors.

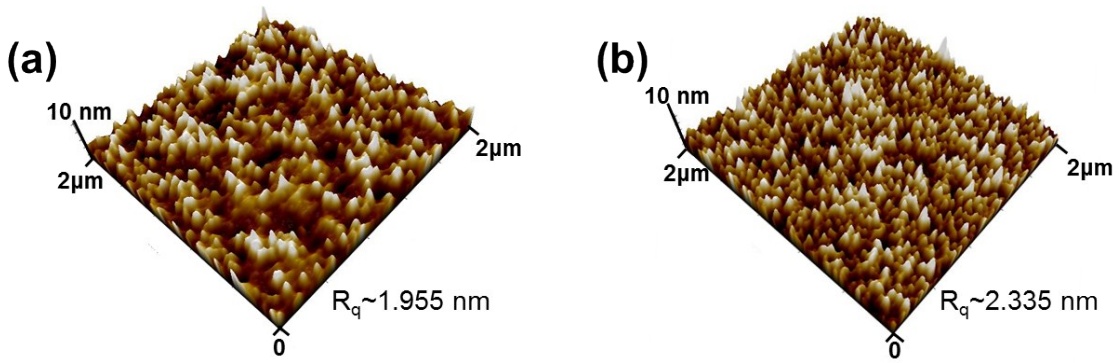

Fig. S4 Atomic force microscopy (AFM) images obtained from the (a) ZTO and (b) ZnO/SnO_2 films.