Supporting Information

Microstructural Modulation of Organic Passivation Layers for Metal Oxide Semiconductors to Achieve High Bias Stability

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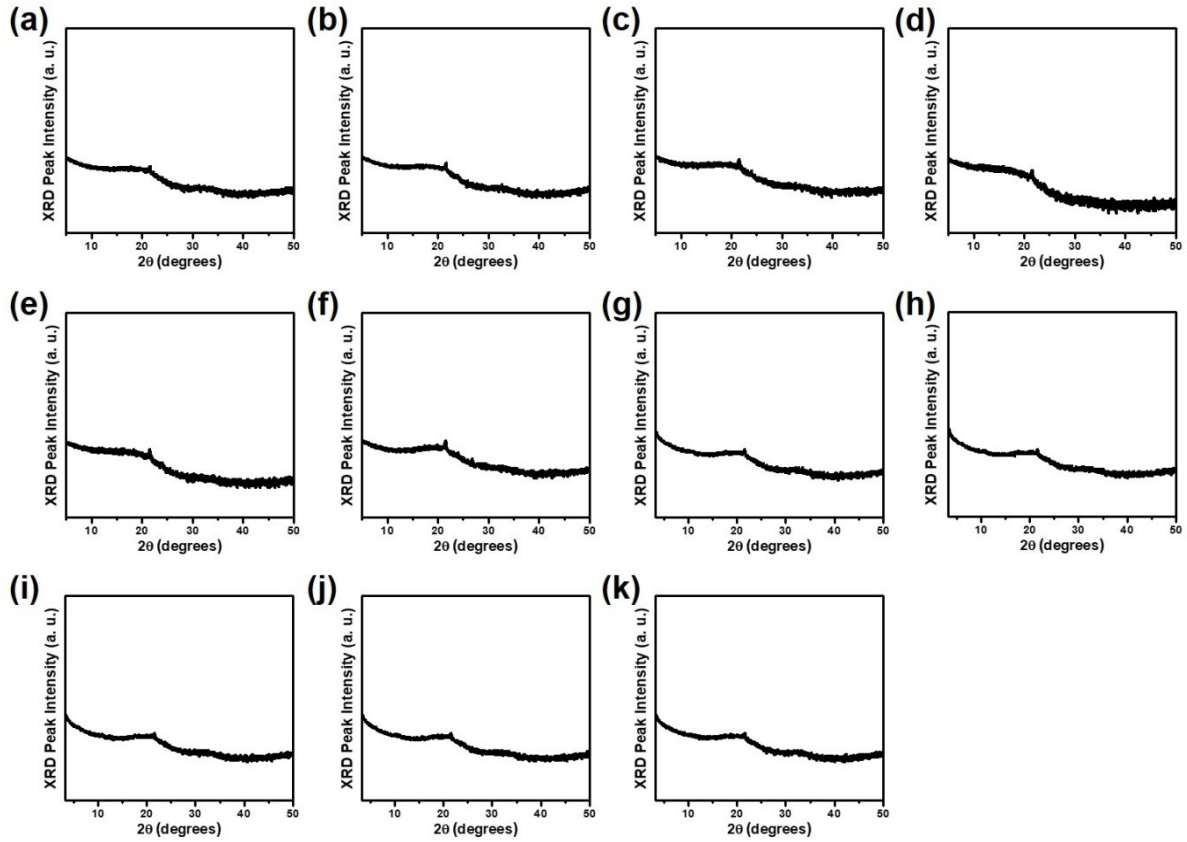

Fig. S1 θ-2θ XRD scans of thin films of (a) *a*-IGZO, (b) *a*-IGZO (390 °C), (c) *a*-IGZO/C_8 PA, (d) *a*-IGZO/C_{12} PA, (e) *a*-IGZO/C_{18} PA, (f) *a*-IGZO (390 °C)/C_{12} PA, (g) *a*-IGZO/C_{60}, (h) *a*-IGZO/C_8 PA/C_{60}, (i) *a*-IGZO/C_{12} PA/C_{60}, (j) *a*-IGZO/C_{18} PA/C_{60}, and (k) *a*-IGZO (390 °C)/C_{12} PA/C_{60}.

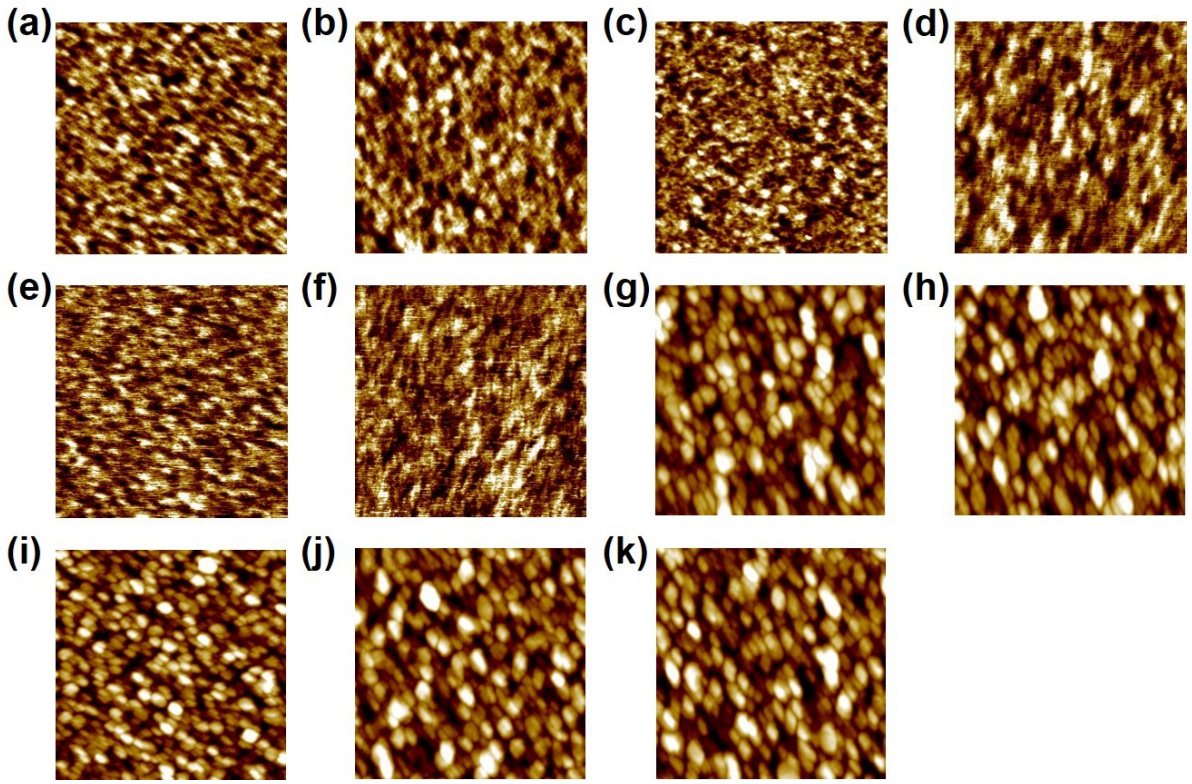

Fig. S2 AFM images (1 μm × 1 μm) of thin films of (a) *a*-IGZO, (b) *a*-IGZO (390 °C), (c) *a*-IGZO/C_8 PA, (d) *a*-IGZO/C_{12} PA, (e) *a*-IGZO/C_{18} PA, (f) *a*-IGZO (390 °C)/C_{12} PA, (g) *a*-IGZO/C_{60}, (h) *a*-IGZO/C_8 PA/C_{60}, (i) *a*-IGZO/C_{12} PA/C_{60}, (j) *a*-IGZO/C_{18} PA/C_{60}, and (k) *a*-IGZO (390 °C)/C_{12} PA/C_{60}.

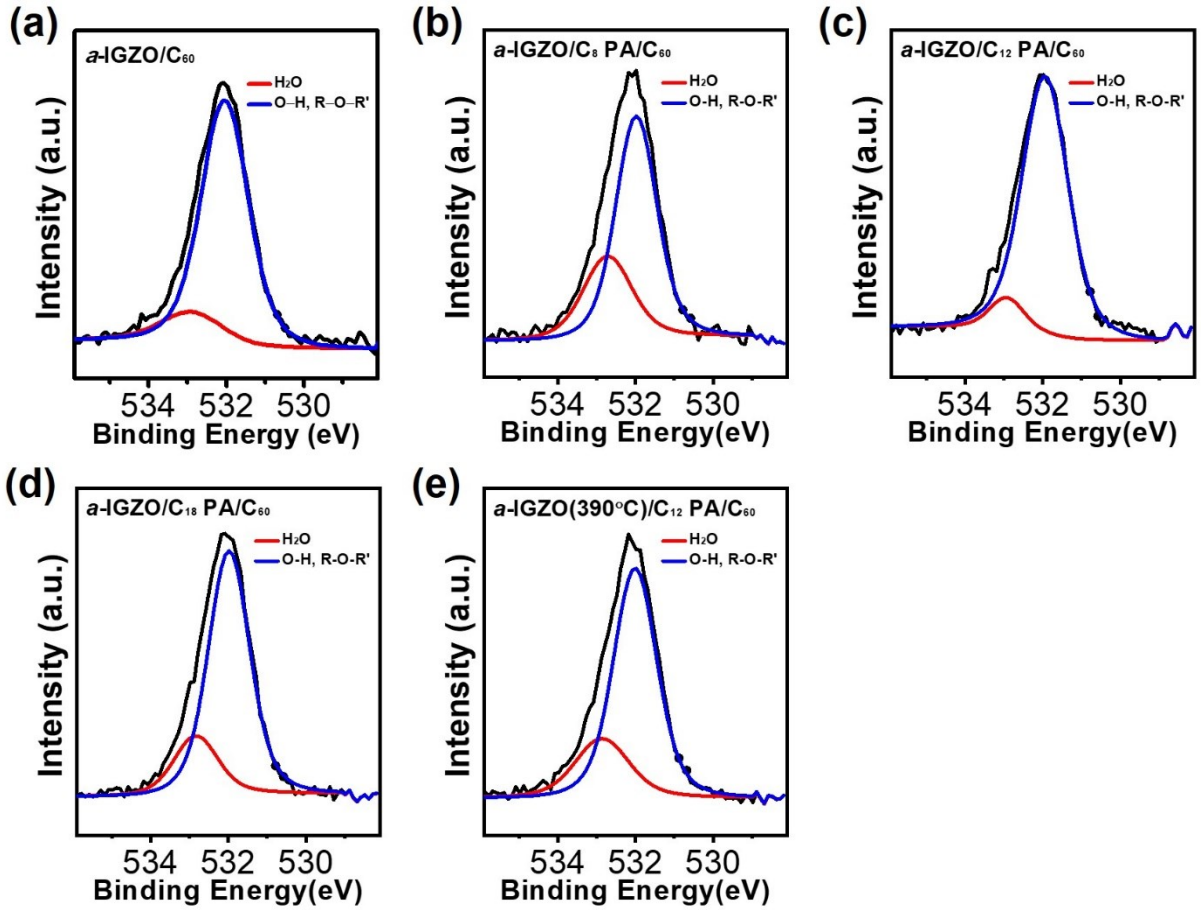

Fig. S3 O 1s XPS spectra of (a) *a*-IGZO/C_{60}, (b) *a*-IGZO/C_8 PA/C_{60}, (c) *a*-IGZO/C_{12} PA/C_{60}, (d) *a*-IGZO/C_{18} PA/C_{60}, and (e) *a*-IGZO (390 °C)/C_{12} PA films.

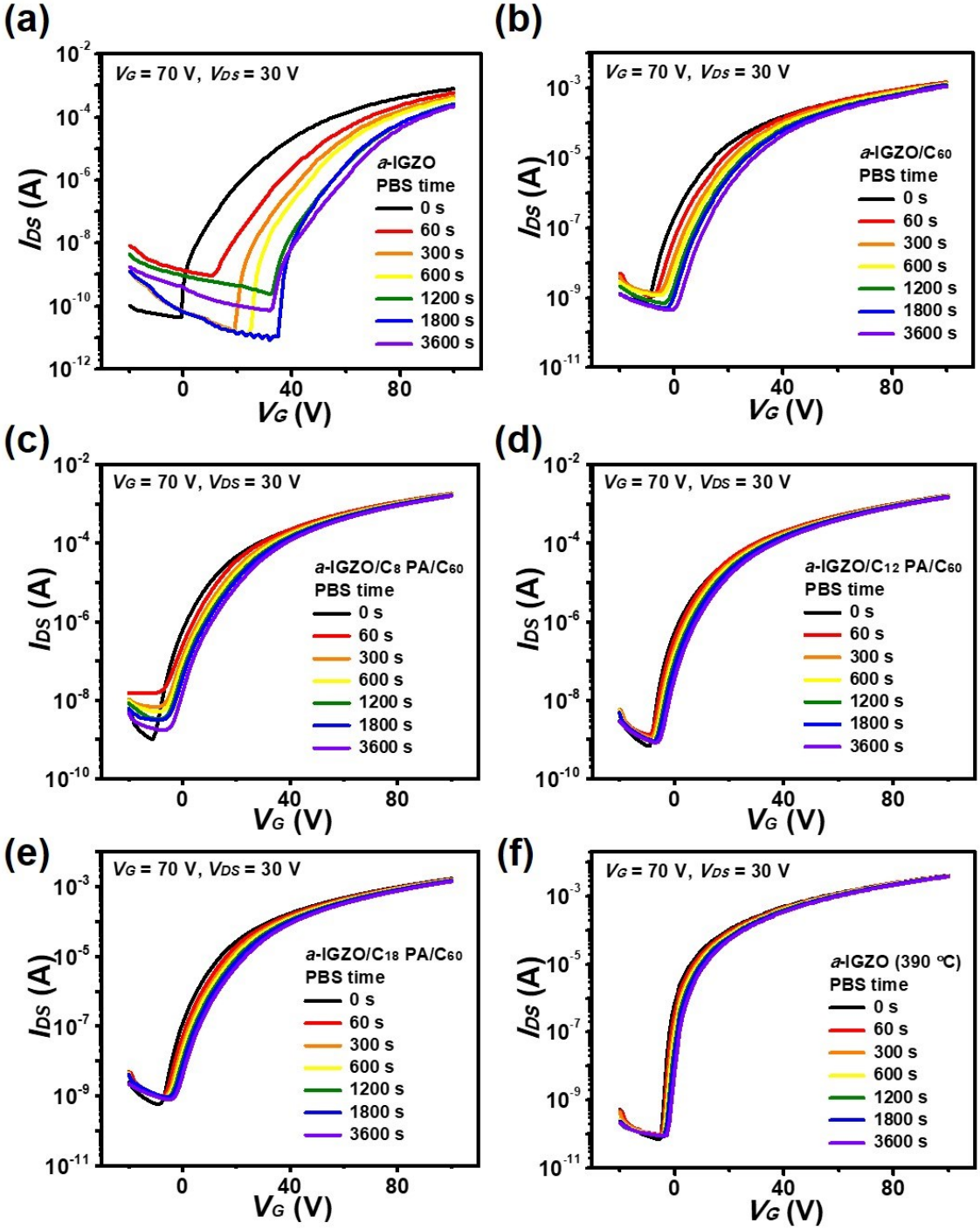

Fig. S4 Transfer curve shifts during PBS test of (a) *a*-IGZO, (b) *a*-IGZO/C_{60}, (c) *a*-IGZO/C_8 PA/C_{60}, (d) *a*-IGZO/C_{12} PA/C_{60}, (e) *a*-IGZO/C_{18} PA/C_{60} , and (f) *a*-IGZO (390 °C) devices.

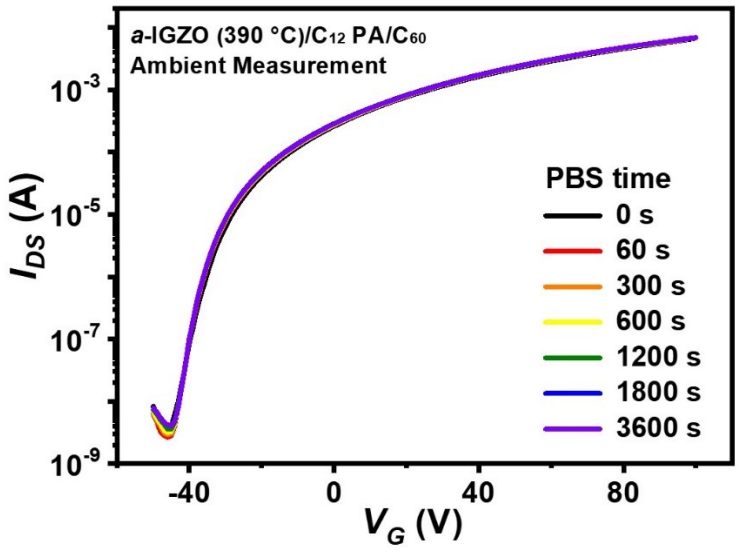

Fig. S5 Transfer curve shifts during PBS test of ambient measured *a*-IGZO (390 °C)/ C_{12} PA/C_{60}

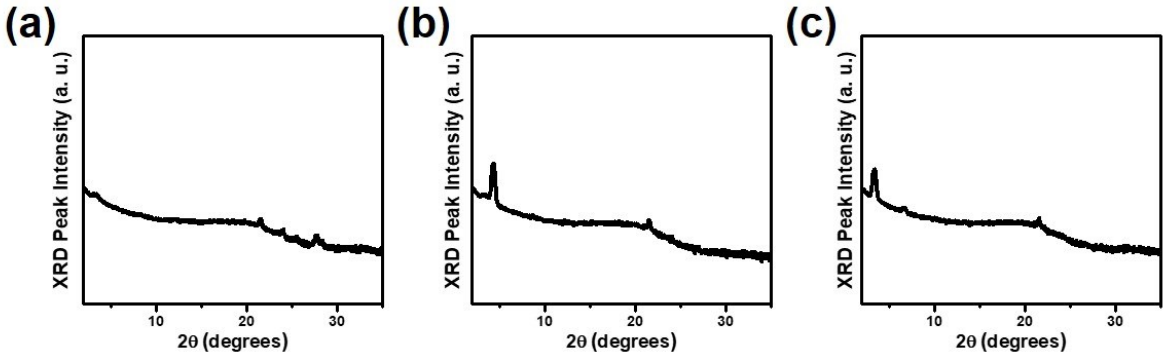

Fig. S6 XRD scans of thin films of (a) PTCDI-C1, (b) PTCDI-C8, and (c) PTCDI-C13.