Supporting Information

Highly Transparent and Flexible Biobased Polyimide/TiO_2 and ZrO_2 Hybrid Films with Tunable Refractive Index, Abbe Number, and Memory Properties

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List of Contents for Supplementary Material:

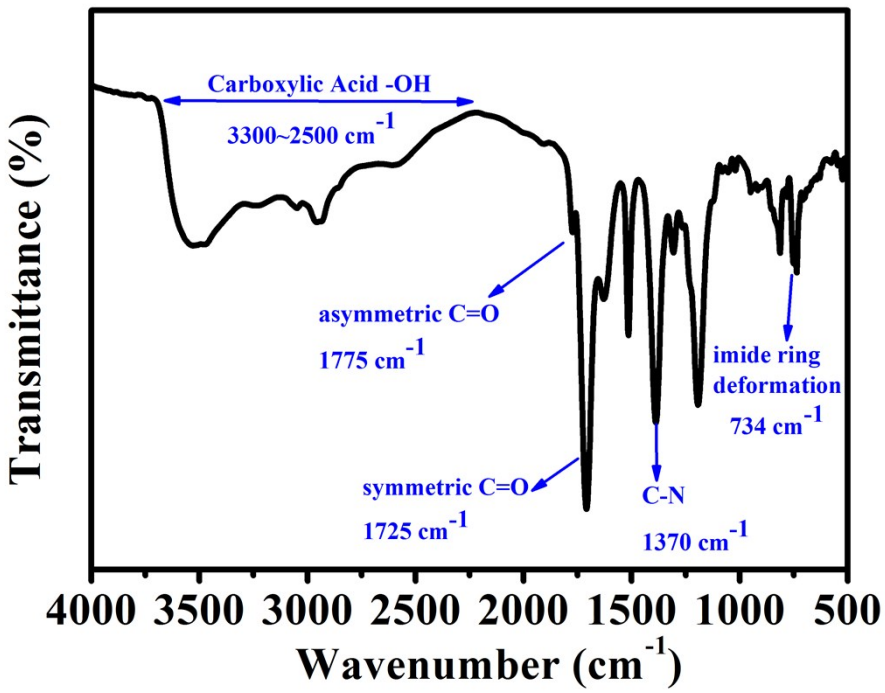

Fig. S1. IR spectrum of **4ATA-PI** film.

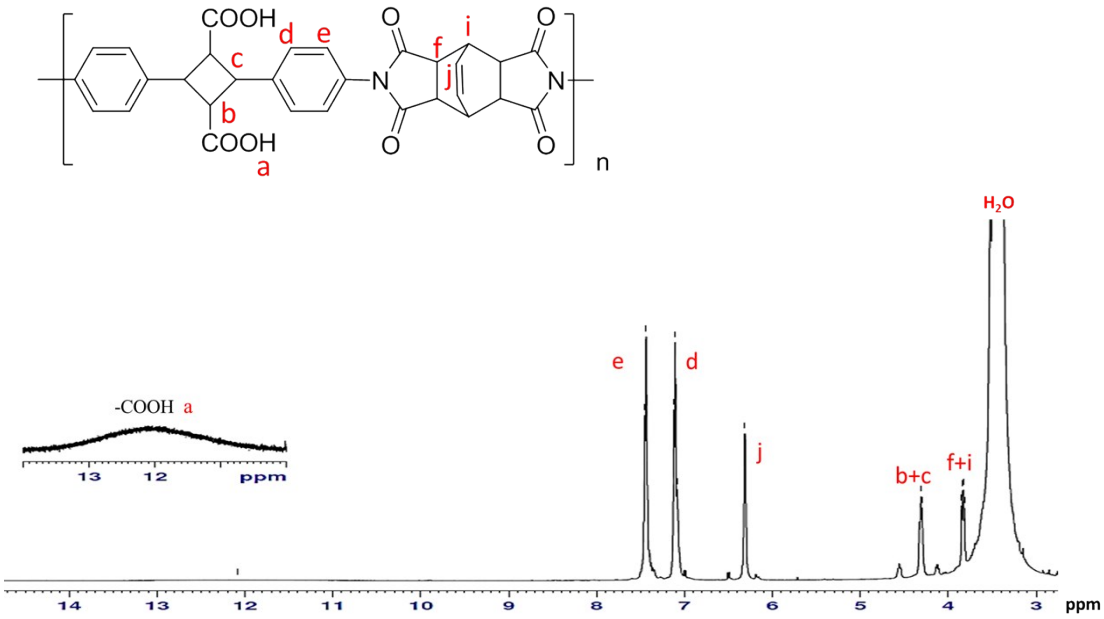

Fig. S2. ^{1}H NMR spectra of **4ATA-PI** in DMSO-d_6.

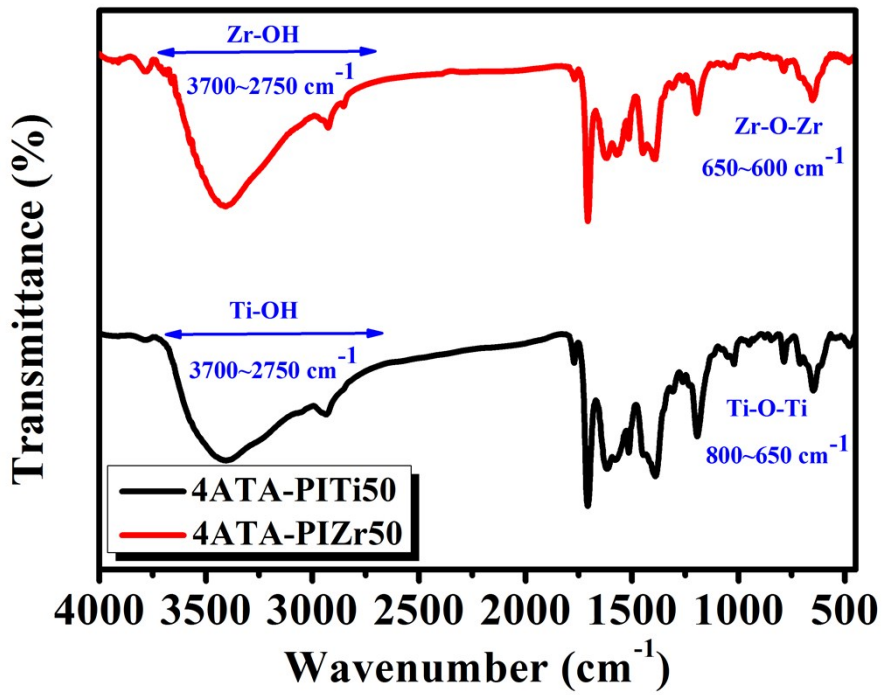

Fig. S3. IR spectra of **4ATA-PITi50** and **4ATA-PIZr50** hybrid materials.

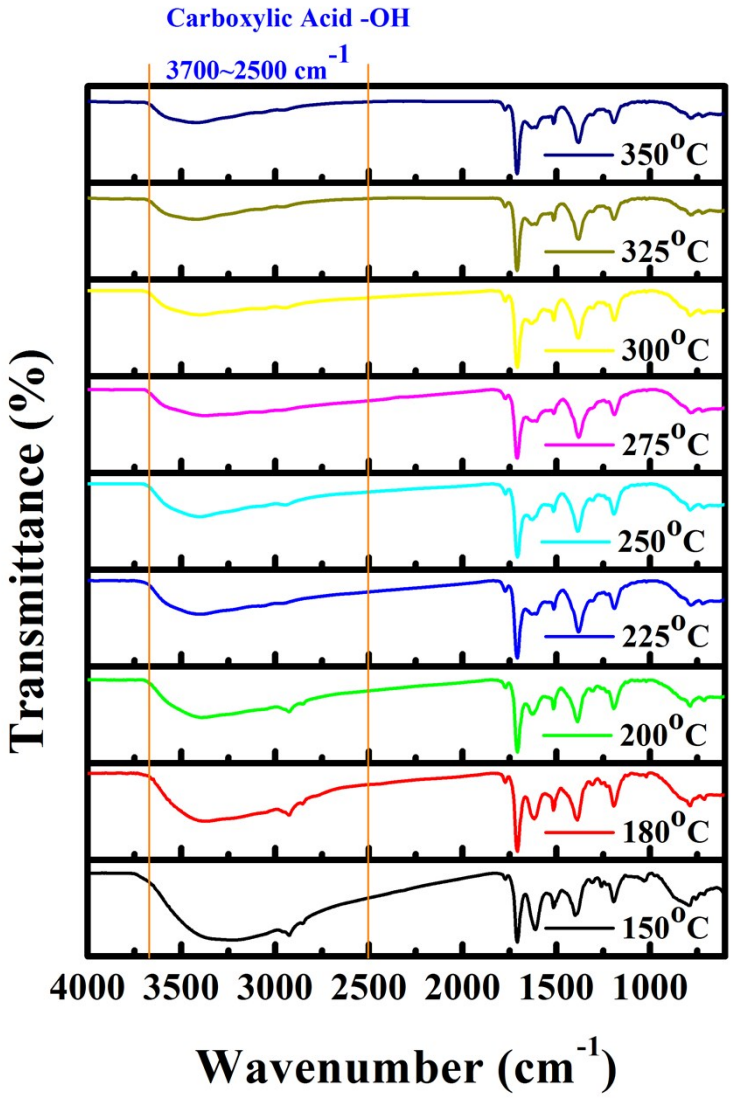

Fig. S4. IR spectrum of **4ATA-PITi30** at different curing temperatures.

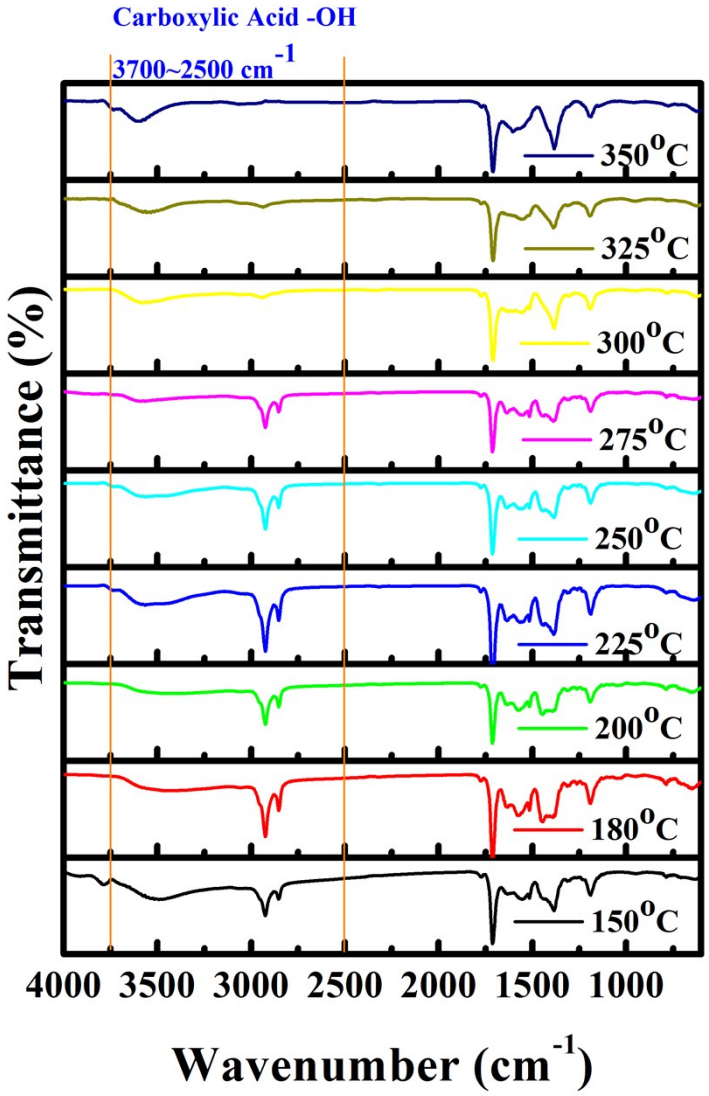

Fig. S5. IR spectrum of **4ATA-PIZr30** at different curing temperatures.

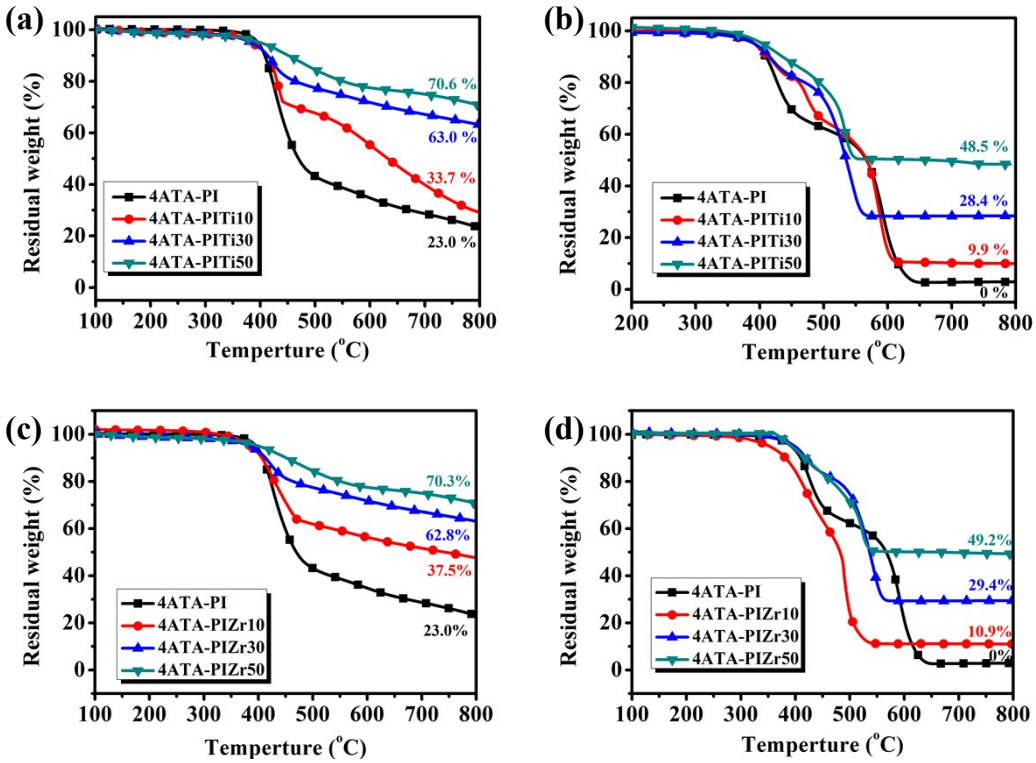

Fig. S6. TGA traces of **4ATA-PI/TiO_2** and **4ATA-PI/ZrO_2** hybrid materials (a) and (c) in N_2, (b) and (d) in air.

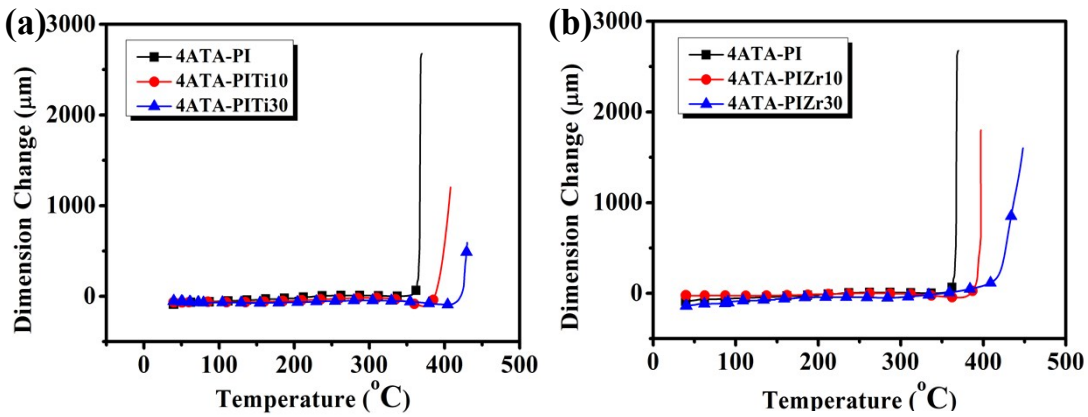

Fig. S7. TMA curves of (a) **4ATA-PI/TiO_2** and (b) **4ATA-PI/ZrO_2** hybrid films with the heating rate of 10 °C/min.

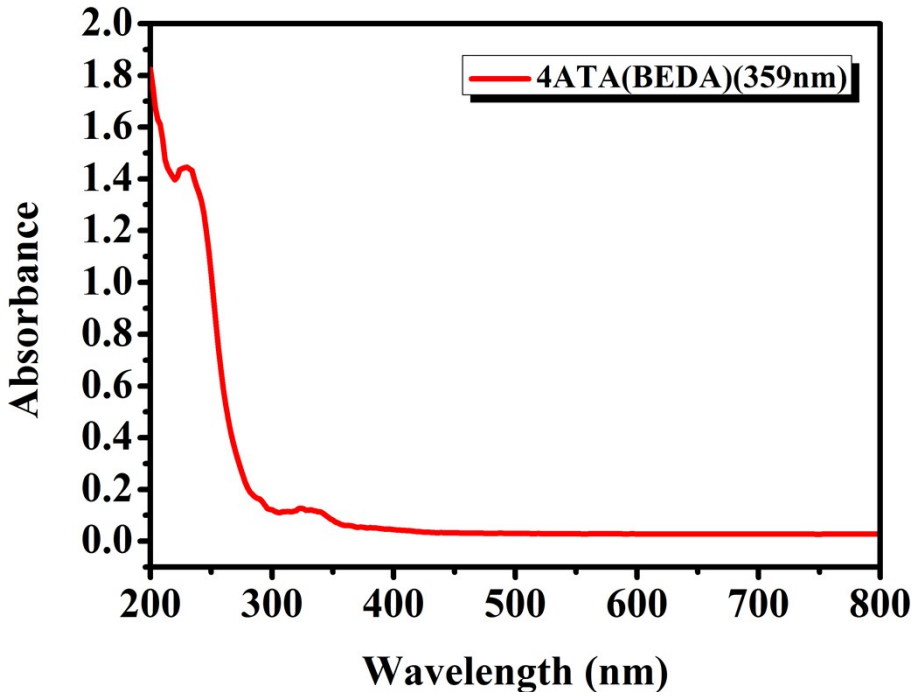

Fig. S8. UV-vis absorption spectrum of **4ATA-PI** film.

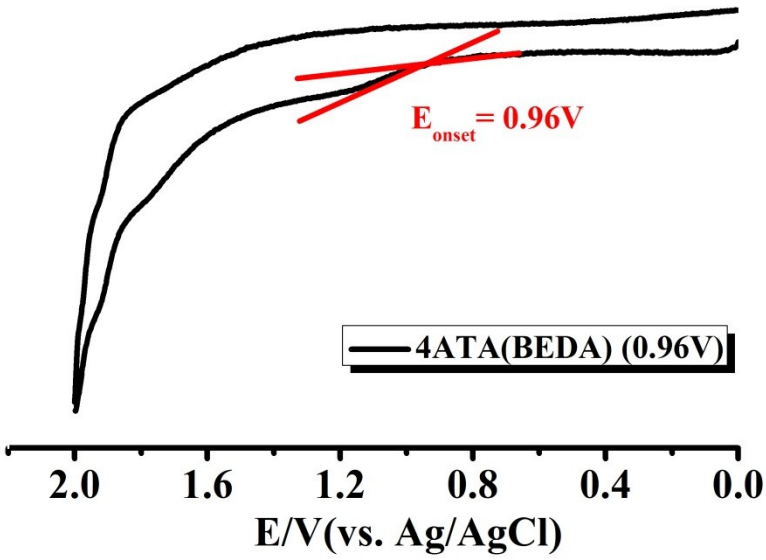

Fig. S9. Cyclic voltammetric diagram of the **4ATA-PI** film on an ITO-coated glass substrate.

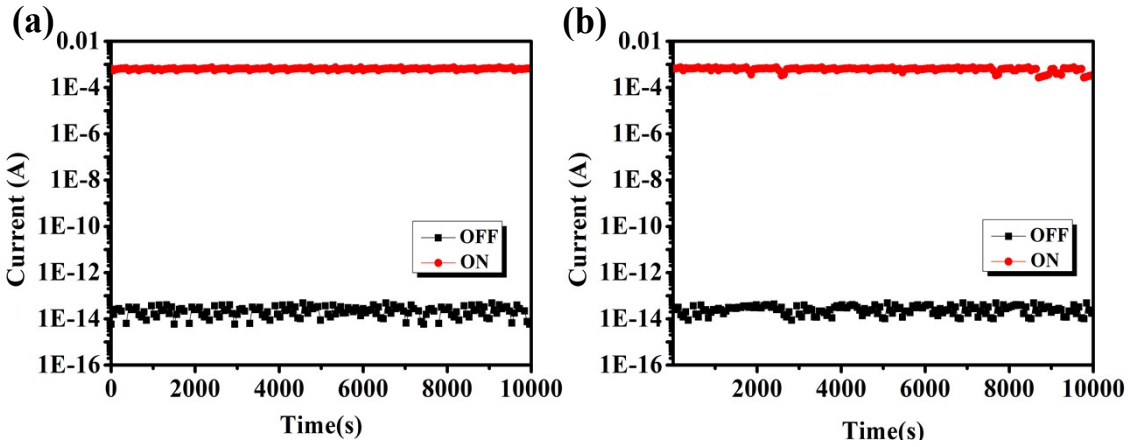

Fig. S10. The stability of memory devices in the ON and OFF states of the ITO/**4ATA-PI** hybrid materials (50 ± 3nm)/Al devices (a) **4ATA-PITi30** and (b) **4ATA-PIZr30**.