Electronic Supplementary Material (ESI) for Journal of Materials Chemistry C.

Supporting Information

Study of the influences of molecular planarity and aluminium evaporation rate on the performances of electrical memory devices

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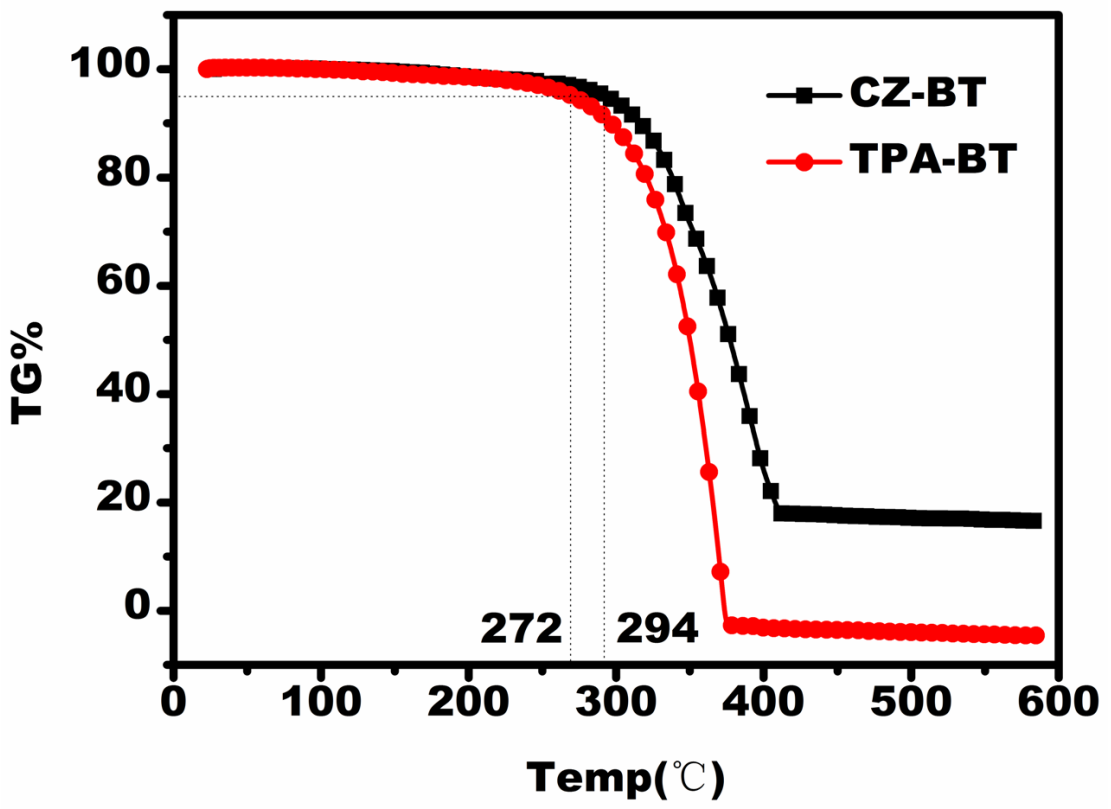


Fig. S1 TGA curves of two compounds measured in nitrogen atmosphere at a heating rate of 10 $^{o}C \cdot min^{-1}$.

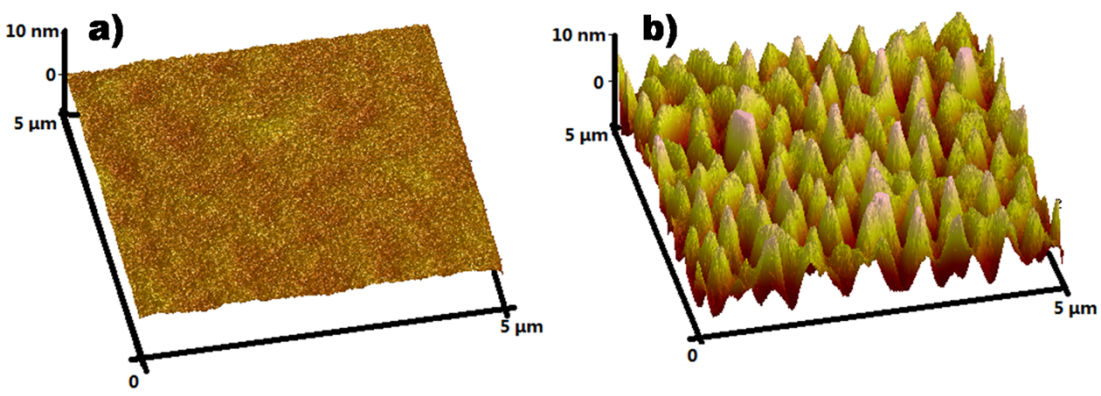


Fig. S2 3D AFM images of compounds thin film vacuum-deposited onto ITO at room temperature: (a) **CZ-BT**; (b) **TPA-BT**.

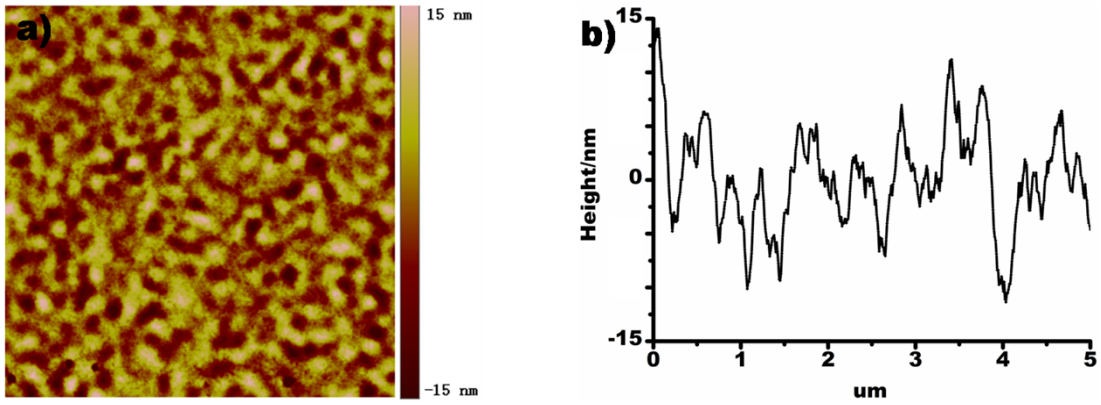


Fig. S3 Tapping-mode height (a) and a typical cross section profile (b) of AFM topographic images of TPA-BT film vacuum-deposited onto ITO using a heated substrate (about 60 °C).

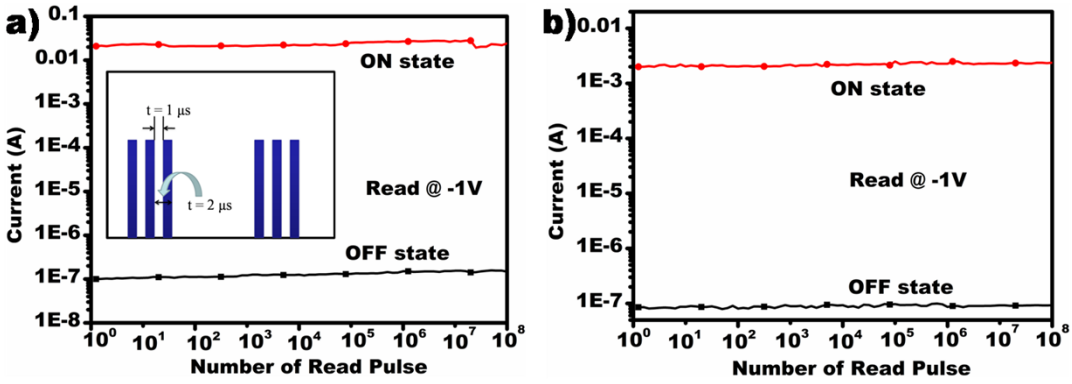


Fig. S4 Stimulus effect of read cycles on two states under a stress of voltage of -1V: (a) **CZ-BT**; (b) **TPA-BT**. The inset shows the pulse used for the measurement.

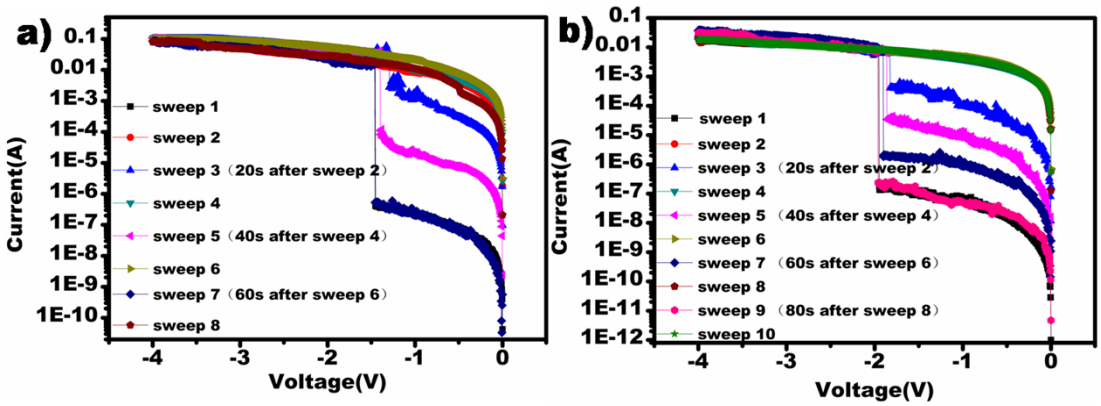
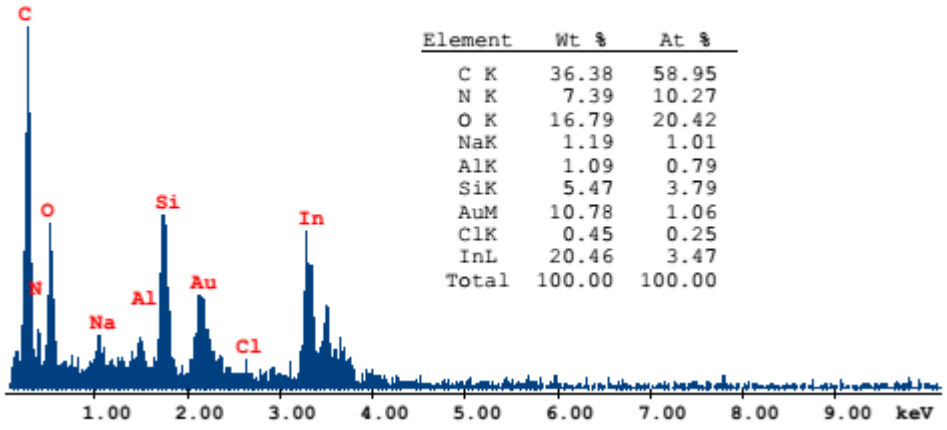


Fig. S5 The retention time test of the two compounds based device: (a) **CZ-BT**; (b) **TPA-BT**.



Element	Wt %	At %
C K	36.38	58.95
N K	7.39	10.27
O K	16.79	20.42
NaK	1.19	1.01
AlK	1.09	0.79
SiK	5.47	3.79
AuM	10.78	1.06
ClK	0.45	0.25
InL	20.46	3.47
Total	100.00	100.00

Fig. S6 The elements components and detail wt% data of the tested cross section of the TPA-BT based device (the evaporation rate of the aluminum electrode is 5 Å/s).

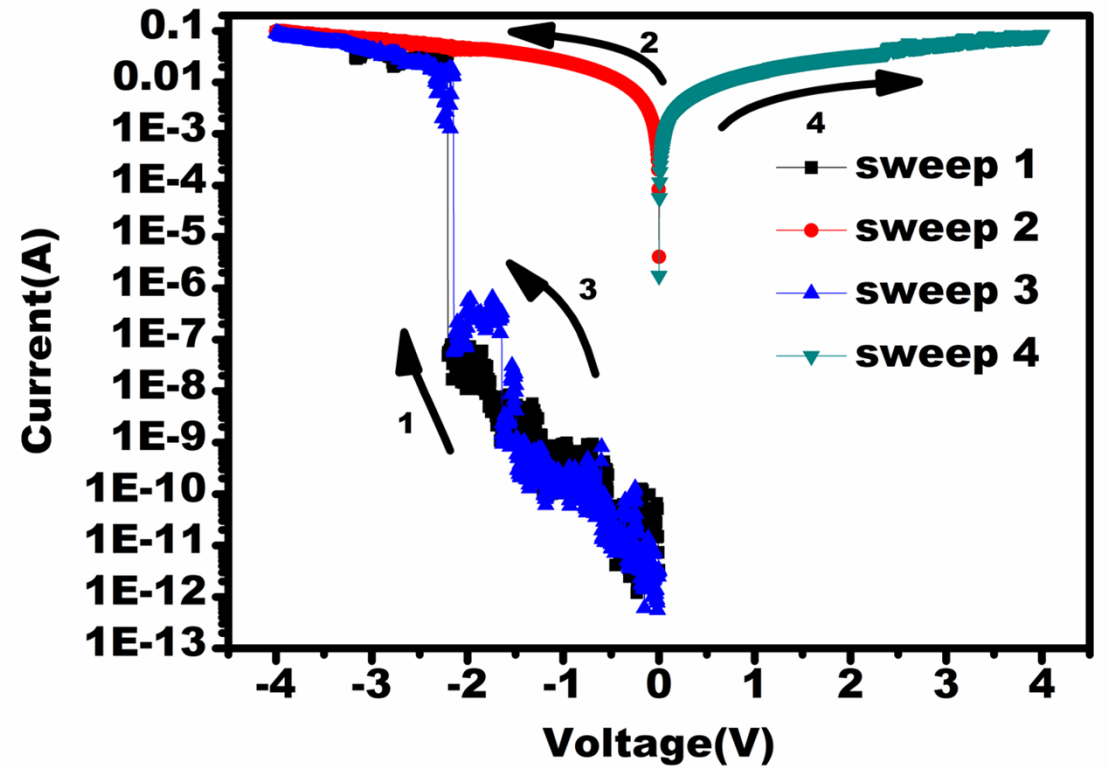


Fig. S7 Current-voltage (I-V) characteristics of the memory device with the structure of ITO/**TPA-BT**/LiF/Al. (the evaporation rate of aluminum is 5 Å/s)

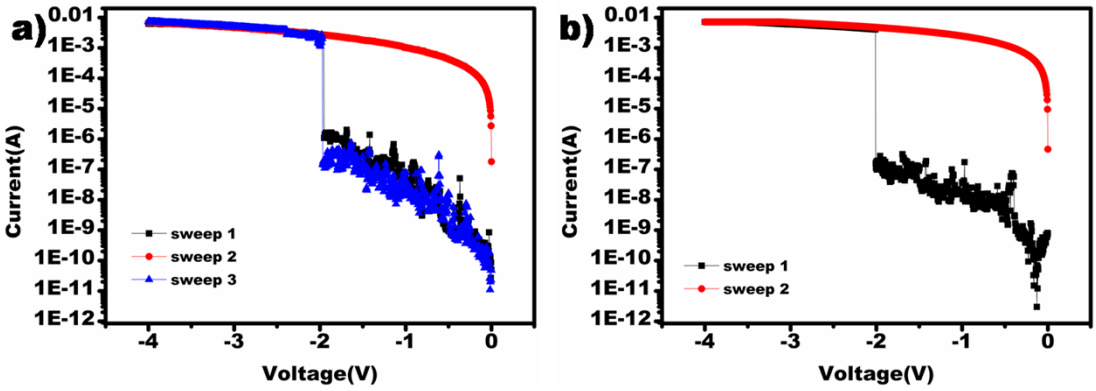


Fig. S8 Current-voltage (I-V) characteristics of the memory device with the structure of ITO/**TPA-BT**/Ag: (a) The evaporation rate of Ag electrode is about 0.5 Å/s; (b) The evaporation rate of Ag electrode is 5 Å/s.