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

Electronic Supplementary Information

Effects of Terminal Electron Acceptor Strength on Film Morphology and Ternary Memory Performance of Triphenylamine Donor Based Devices

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1. NMR Spectra

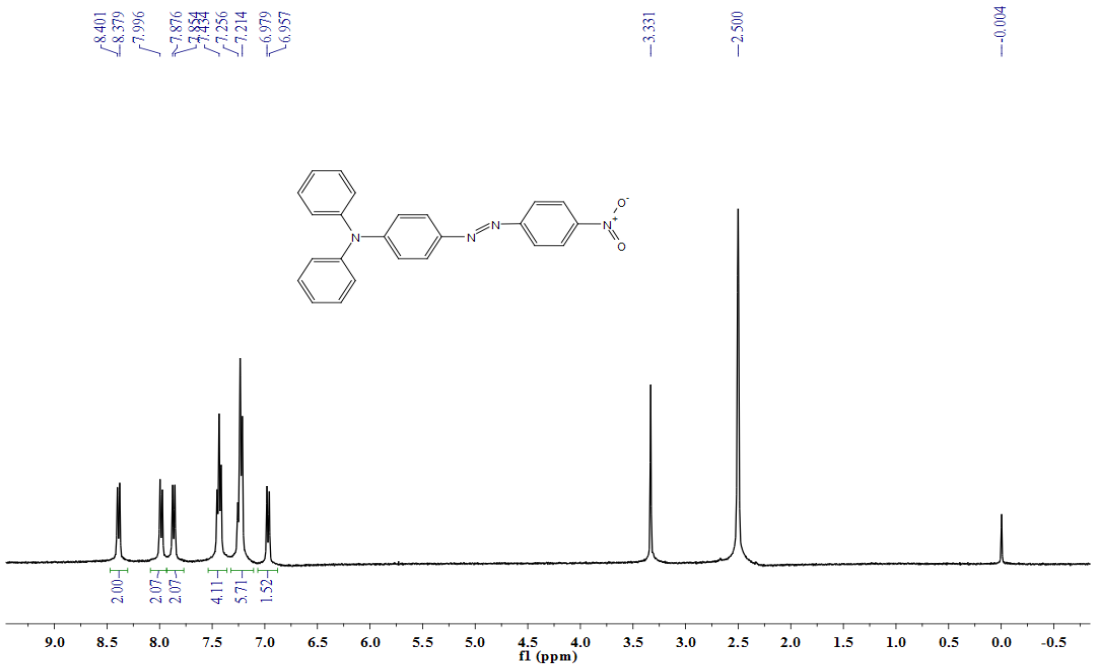

Figure S1. ^{1}H NMR spectrum of TPA-NAP in DMSO-d_6.

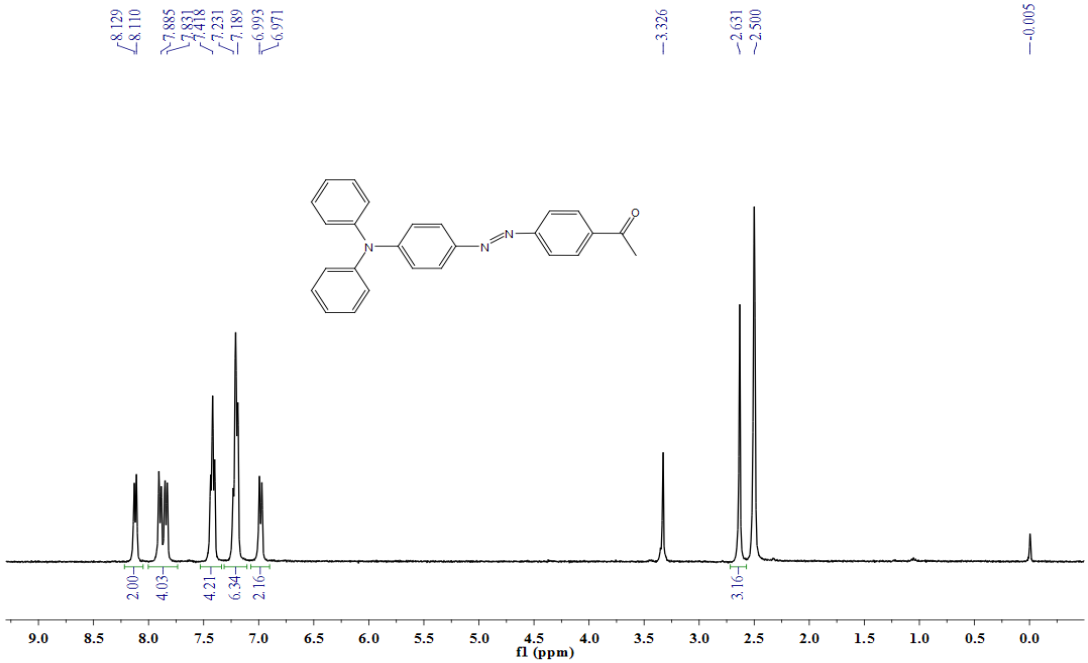

Figure S2. ^{1}H NMR spectrum of TPA-AAP in DMSO-d_6.

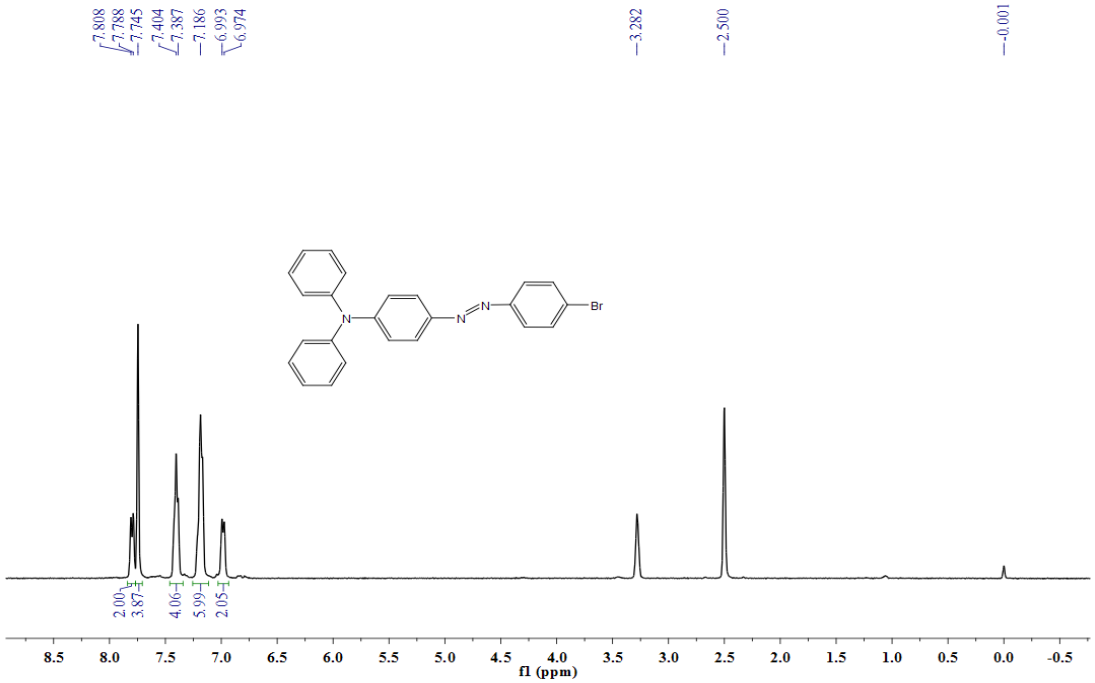

Figure S3. ^{1}H NMR spectrum of TPA-BAP in DMSO-d_6.

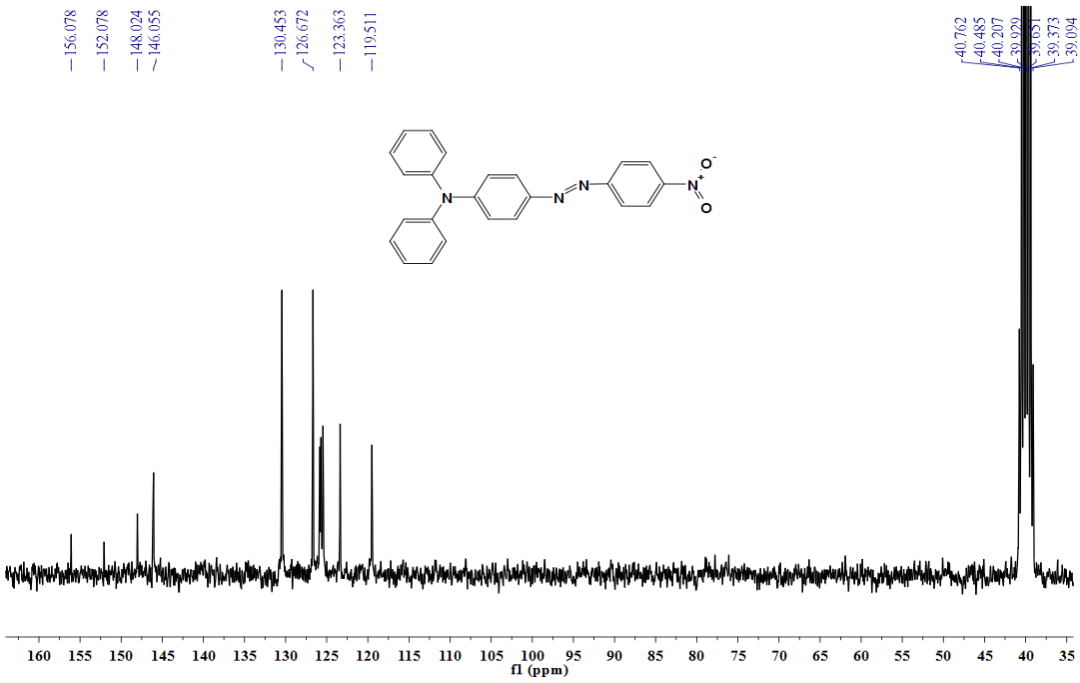

Figure S4. ^{13}C NMR spectrum of TPA-NAP in DMSO-d_6.

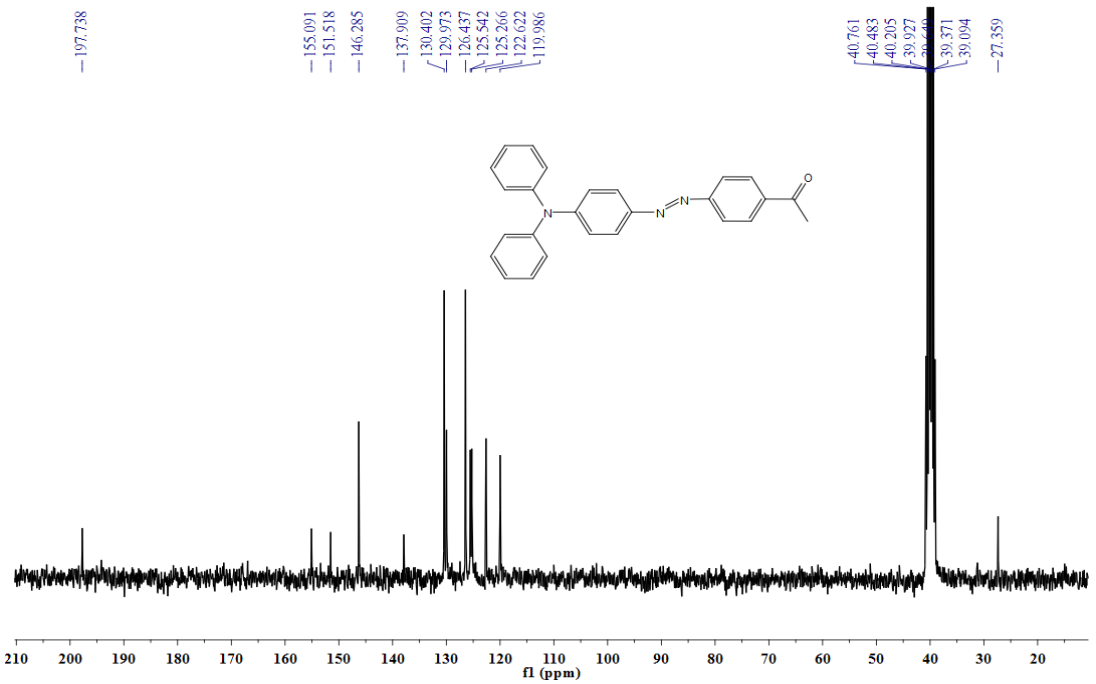

Figure S5. ^{13}C NMR spectrum of TPA-AAP in DMSO-d_6.

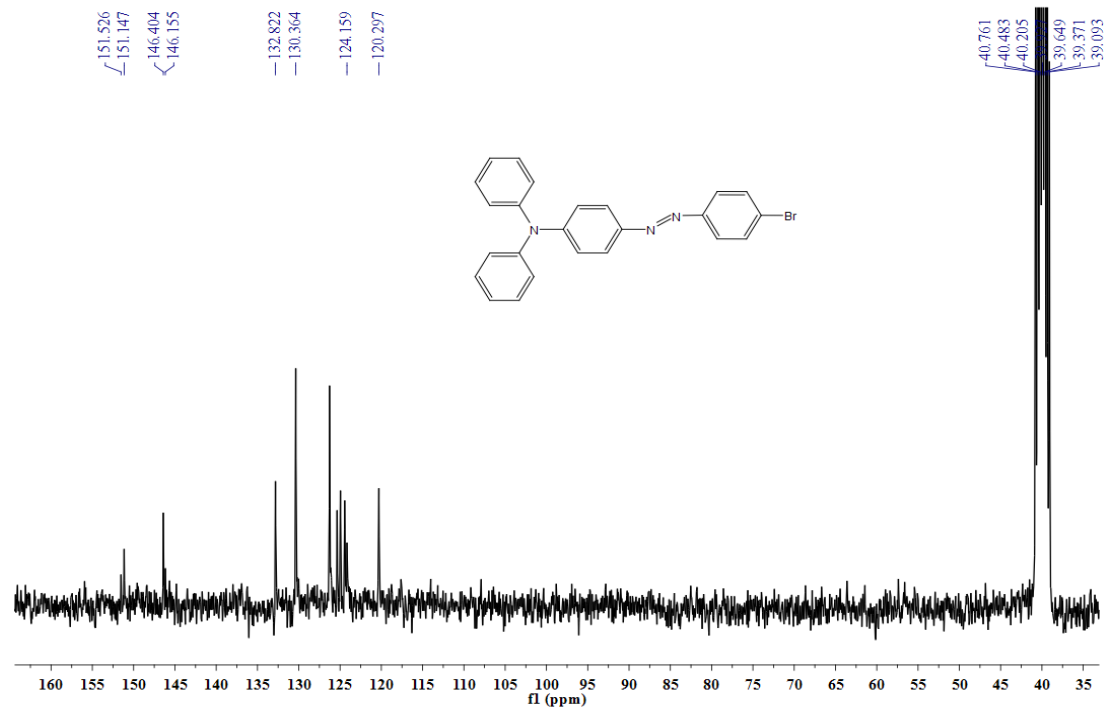

Figure S6. ^{13}C NMR spectrum of TPA-BAP in DMSO-d_6.

2. Optical Absorption Spectra of the Small Molecules

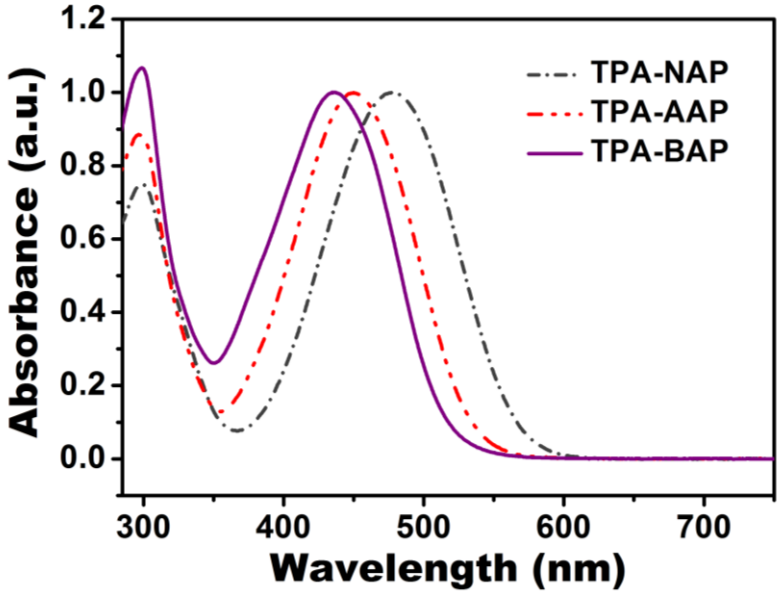

Figure S7. the UV-vis absorption of TPA-NAP, TPA-AAP and TPA-BAP in THF solution.

3. Cyclic Voltammogram of 4-bromo-N,N-diphenylaniline

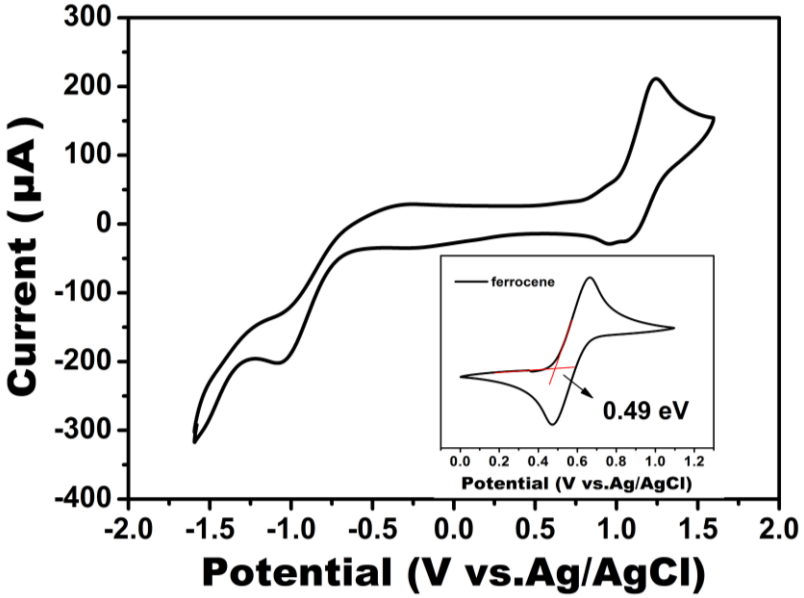

Figure S8. Cyclic voltammogram of 4-bromo-N,N-diphenylaniline in acetonitrile solution. The scan rate was 100 mVs^{-1}. Here the reference onset oxidation potential of ferrocene is 0.49 V.

4. 3D-AFM Topography Images of the Thin Films.

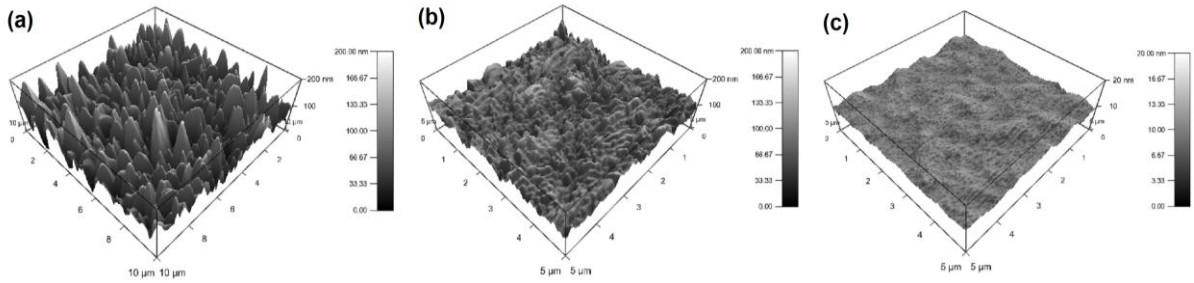

Figure S9. X 3D-AFM topography images of the three small-molecule films: (a) TPA-NAP; (b) TPA-AAP; (c) TPA-BAP.

5. Atomic Force Microscopy (AFM) of the TPA-NAP Film with Prolonged Annealing Time.

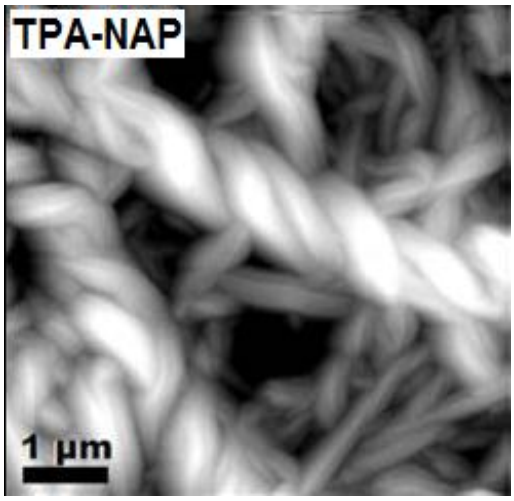

Figure S10. Topography of TPA-NAP nanofilm on ITO substrate after annealing at 80 ^{o}C for 12-h.

6. X-ray Diffraction Patterns of the Annealed Films.

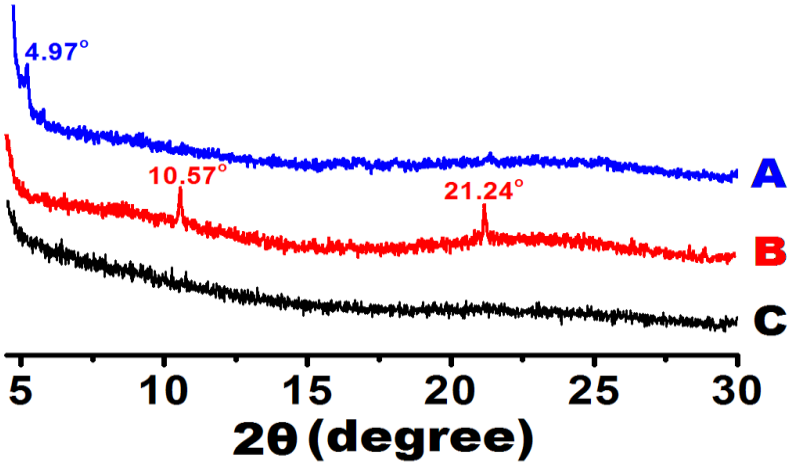

Figure S11. XRD patterns of the films annealed at 80 °C: A) TPA-NAP; B) TPA-AAP; C) TPA-BAP.

7. *I-V* Curves of ITO/TPA-NAP/Al Sandwich Device with Various Film Thicknesses.

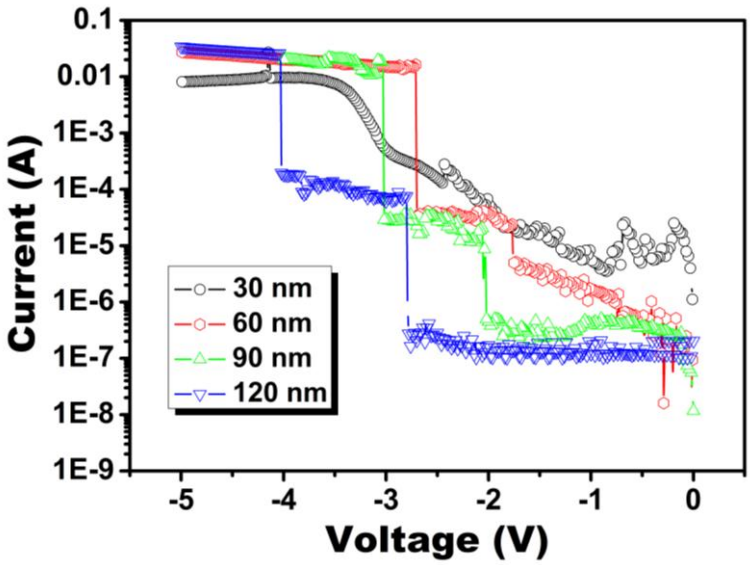

Figure S12. The *I-V* characteristics of the ITO/TPA-NAP/Al sandwich memory devices with various film thicknesses.

8. *I-V* Characteristic Based on the ITO/TPA-BAP/Al Sandwich Device.

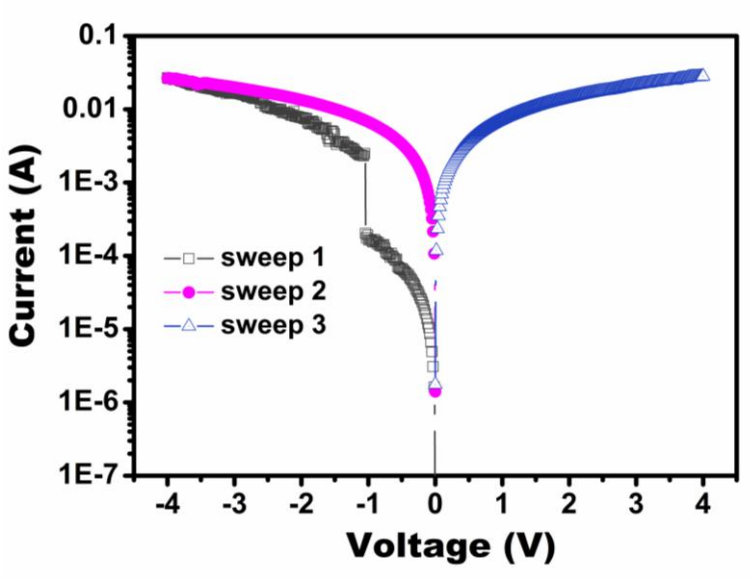

Figure S13. *I-V* curve of the memory device based on TPA-BAP as the active material.