Electronic Supplementary Information

Donor-Acceptor Conjugated Polymers of Arylene Vinylene with Pendent

Phenanthro[9,10-d]imidazole for High-Performance

Flexible Resistor-type Memory Applications

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Fig. S1. ¹H NMR Spectra of (a) **PVT-PI** and (b) **PVTPA-PI** in CD_2Cl_2 . (x: CD_2Cl_2 , y: H_2O).



Fig. S2. (a) TGA and (b) DSC curves of the studied polymers at a heating rate of 10 °C min⁻¹ under a nitrogen atmosphere.



Fig. S3. Optimized backbone geometry of dimers of (a) **PVC-PI**, (b) **PVT-PI**, and (c) **PVTPA-PI**. The side chains were replaced with the methyl groups to simplify the calculation.



Fig. S4. PL spectra of vinylene-based D-A polymers in thin film state.



PVTPA-PI (48.9 nm) that were exhibited from the scanning profiles of Microfigure Measuring Instrument.



Fig. S6. Variation of current density and threshold voltage with different bending radii of the flexible **PVTPA-PI** devices.



Fig. S7. Mechanical endurance of the of the flexible PVTPA-PI devices.