Supporting Information

Electrically Bistable Memory Devices Based on Conjugated Block

Copolythiophenes and Their PCBM composite films

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Figure S1.¹H NMR spectra of (A) **P3HT**₅₂-*b*-**P3PT**₃₉, (B) **P3HT**₁₀₂-*b*-**P3PT**₃₇, and (C) **P3HT**₈₉-*b*-**P3PT**₂₃ in CDCl₃.



Figure S2. Cyclic voltammogram of P3HT, **P3HT**₅₂-*b*-**P3PT**₃₉, **P3HT**₁₀₂-*b*-**P3PT**₃₇, and **P3HT**₈₉-*b*-**P3PT**₂₃ thin film on ITO glass at a scanning rate of 0.1Vs⁻¹ in 0.1 M TBAPF₆ acetonitrile solution.



Figure S3. Current-voltage (I-V) characteristics of P3HT₅₂-*b*-P3PT₃₉ memory device.







Figure S4. Current-voltage (I-V) characteristics of (a) 5 wt% PCBM:
P3HT₈₉-b-P3PT₂₃, (b) 5 wt% PCBM: P3HT₅₂-b-P3PT₃₉, (c) 10 wt%
PCBM: P3HT₈₉-b-P3PT₂₃, (d) 10 wt% PCBM: P3HT₁₀₂-b-P3PT₃₇, and (e) 10 wt% PCBM: P3HT₅₂-b-P3PT₃₉ memory device.



Figure S5. Energy level diagram for ITO/ PCBM: **P3HT**-*b*-**P3PT**/Al device.



Figure S6. The TEM images of 5 wt% PCBM: **P3HT**₁₀₂-*b*-**P3PT**₃₇ spin-cast films.







Figure S7. AFM height images of (a) **P3HT**₁₀₂-*b*-**P3PT**₃₇, (b) 5 wt% PCBM: **P3HT**₁₀₂-*b*-**P3PT**₃₇, and (c) 10 wt% PCBM: **P3HT**₁₀₂-*b*-**P3PT**₃₇ spin-cast films. The image sizes are all 3 μ m × 3 μ m.