

## Electronic Supplementary Information

### Electrically bistable and non-volatile memory devices based on *p*-toluenesulfonic doped poly(triphenylamine)

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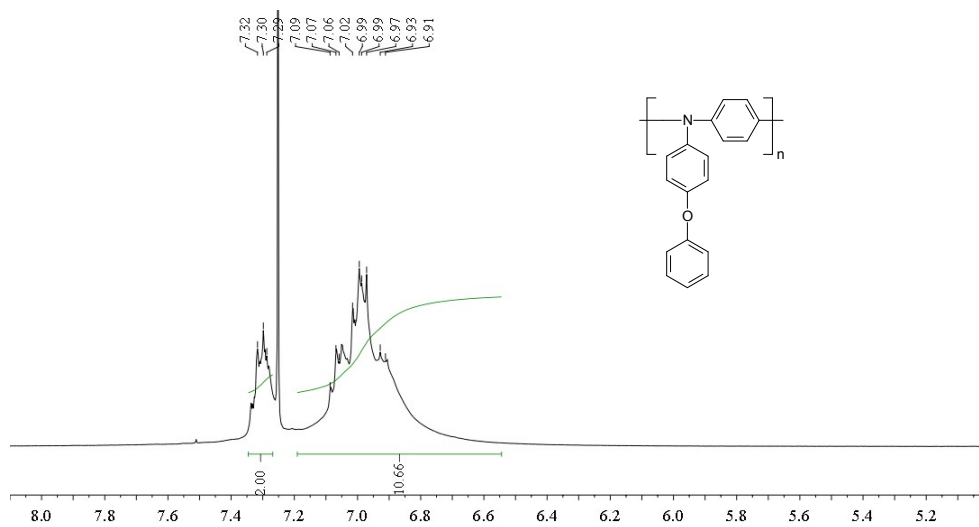
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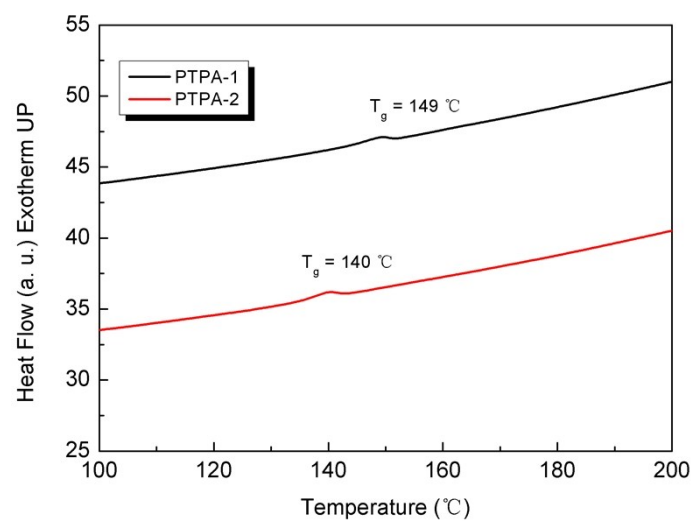
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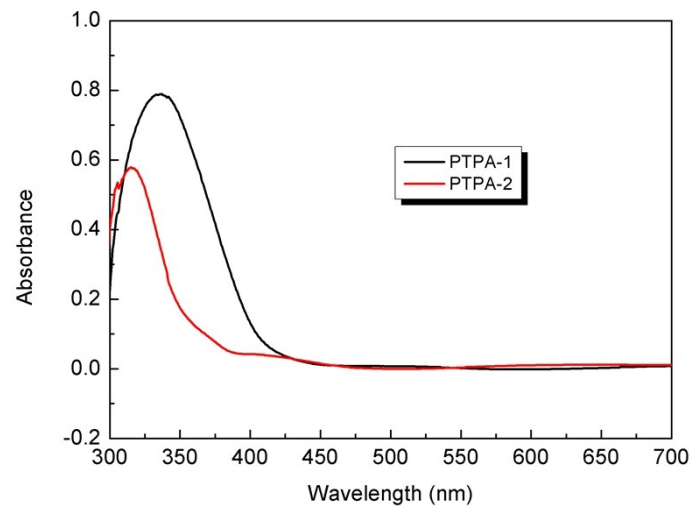
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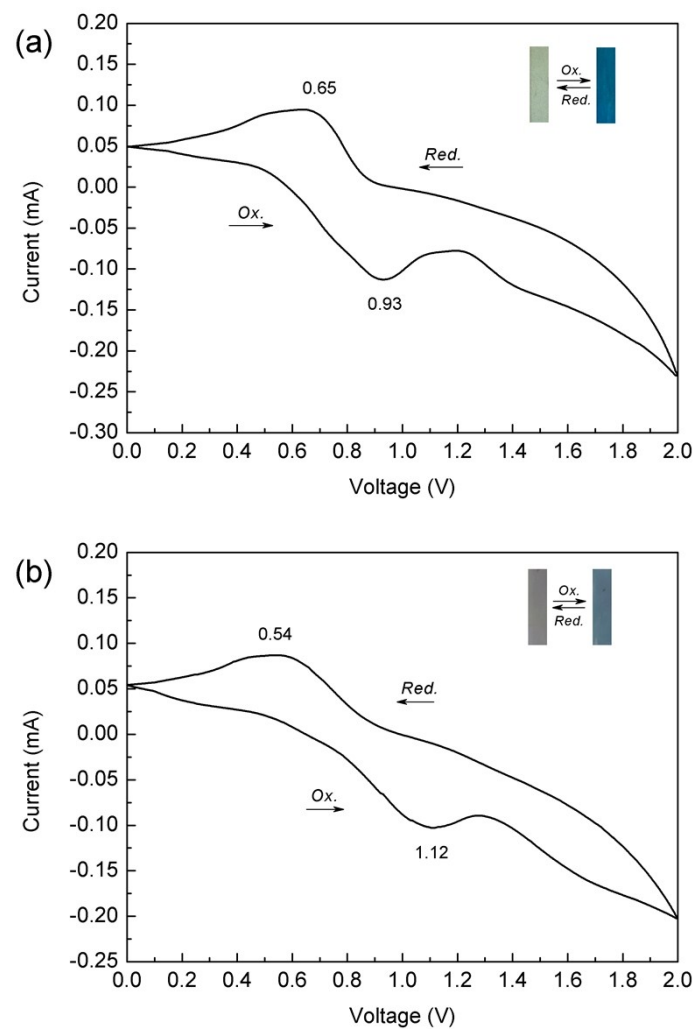
**Fig. S1**  $^1\text{H}$  NMR spectrum of PTPA-1



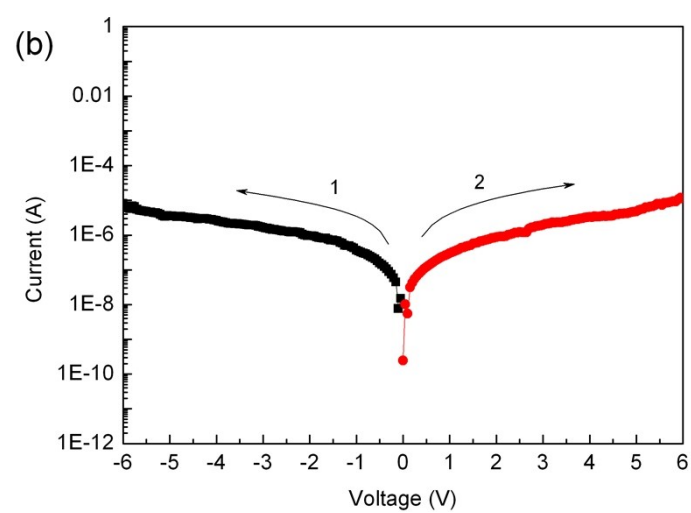
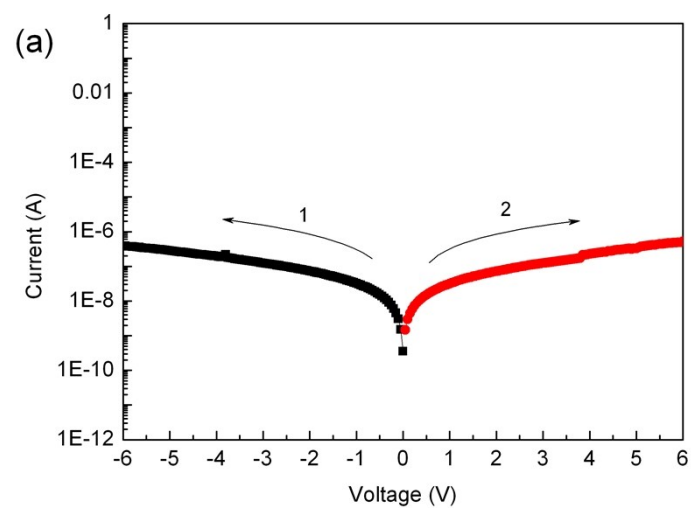
**Fig. S2** DSC traces of PTPA with a heating rate of 20 °C min<sup>-1</sup> in nitrogen



**Fig. S3** UV-vis absorption spectra of PTPA films



**Fig. S4** CV diagrams of (a) PTPA-1-TsOH and (b) PTPA-2-TsOH film



**Fig. S5**  $I$ - $V$  results of (a) pristine PTPA-1 and (b) PTPA-2