Supporting Information

Main Chain Copolysiloxane with Terthiophene and Perylenediimide Units: Synthesis, Characterization and Electrical Memory

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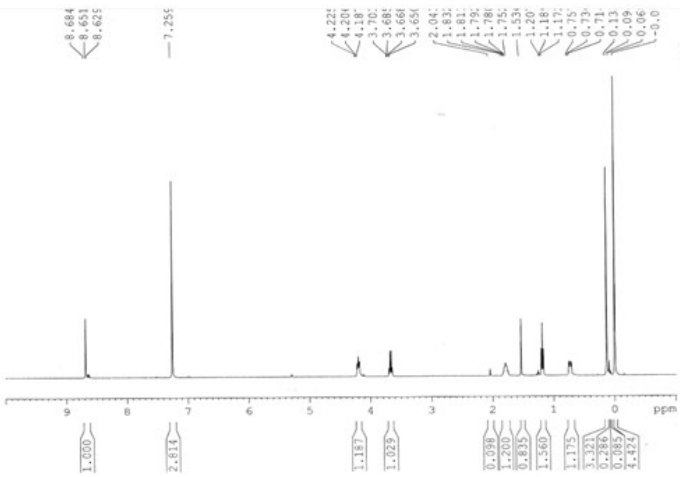

Figure S1. [1]HNMR of 1,6,7,12-tetrachloro-N,N'-bis(ethoxyldimethylsilyl)propyl-perylene-3,4,9,10-tetracarboxylic acid diimide.

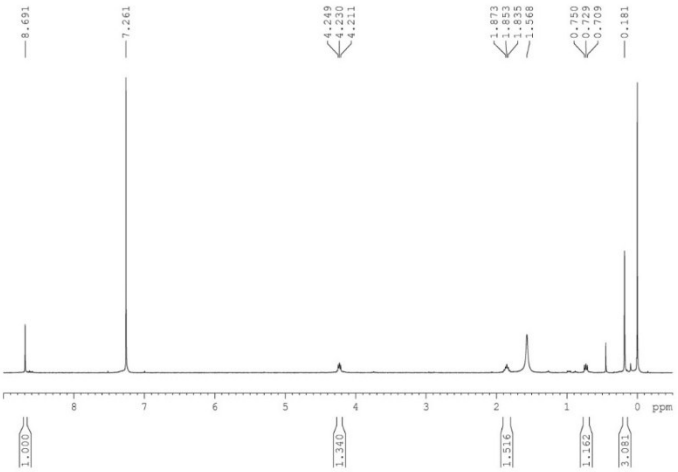

Figure S2. [1]HNMR of 1,6,7,12-tetrachloro-N,N'-bis(hydroxyldimethylsilyl)propyl-perylene-3,4,9,10-tetracarboxylic acid diimide.

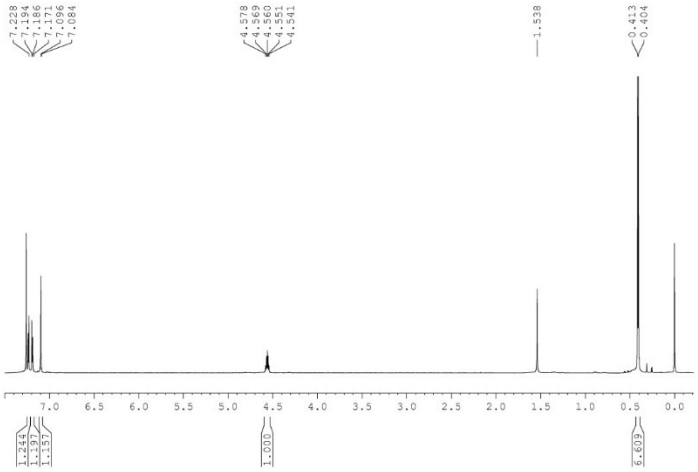

Figure S3. [1]HNMR of of 5,5”-bis(dimethylsilyl)-2,2’:5’,2”-terthiophene.

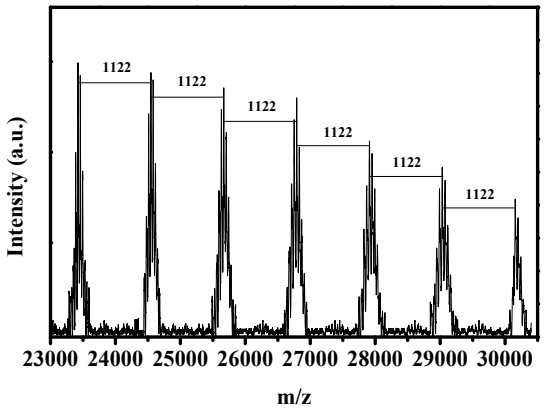

Figure S4. MALDI-TOF MS of PBIClSi-alt-PTSi.

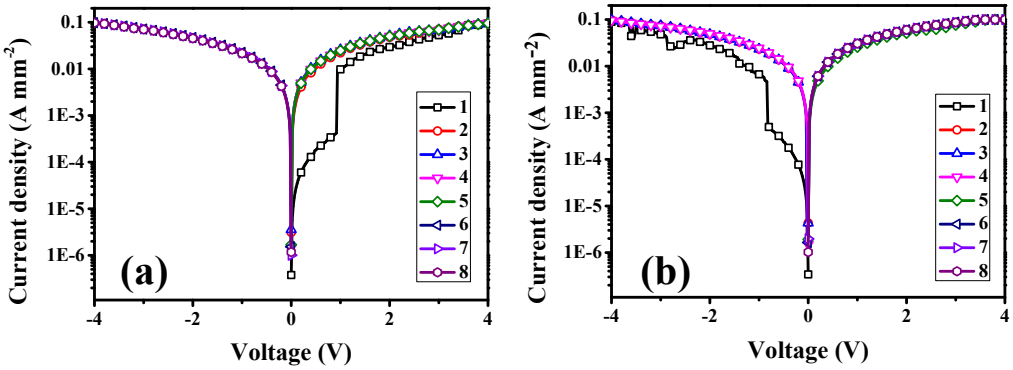

Figure S5 *J-V* curves of the ITO/ PBIClSi-alt-PTSi (50 nm) /Al memory. (a) positive sweep for the first time; (b) negative sweep for the first time.

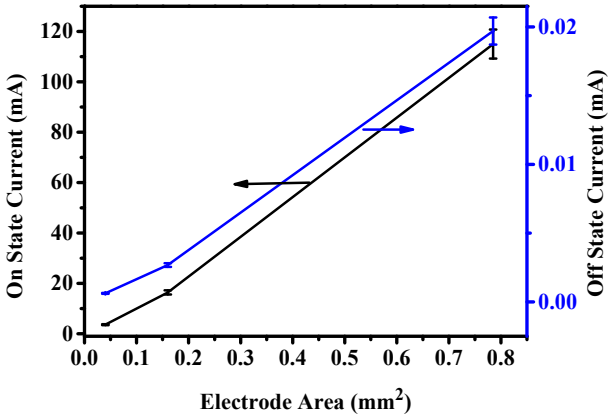

Figure S6. The On and Off state current as a functiona of device area.

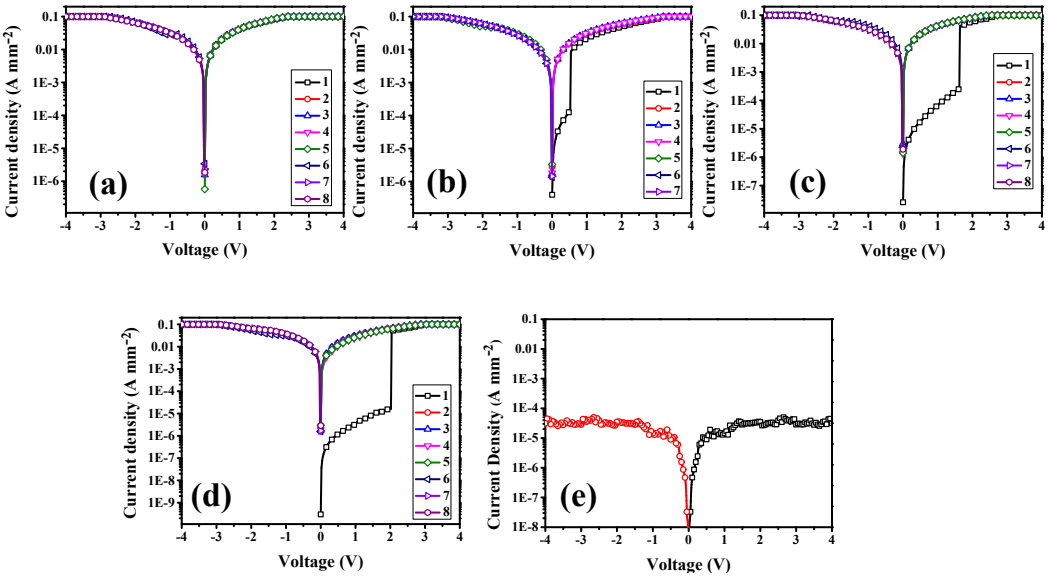

Figure S7. *J-V* characteristics of the memory device of ITO/ PBIClSi-alt-PTSi /Au with different film thicknesses. (a) 18 nm; (b) 30 nm; (c) 80 nm; (d) 120 nm; (e) 180 nm.

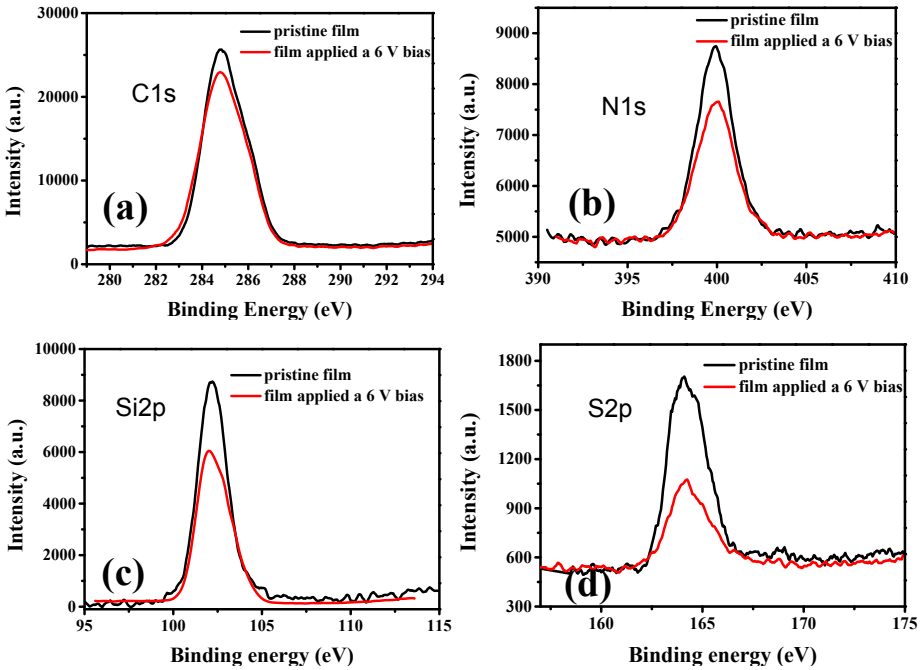

Figure S8. XPS spectra of PBIClSi-alt-PTSi film with applied 6 V bias and without bias: (a) C1s, (b) N1s, (c) Si2p, (d) S2p.

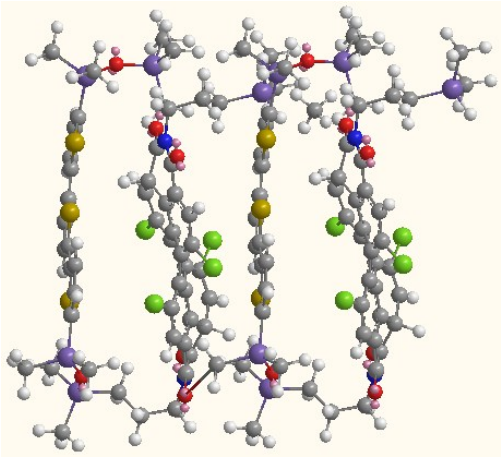

Figure S9. Configuration of PBIClSi-alt-PTSi with four units optimized by materials studio.