Supporting Information

Well-Defined Block Copolymers with Triphenylamine and Isocyanate Moieties Synthesized via Living Anionic Polymerization for Polymer-Based Resistive Memory Applications: Effect of Morphological Structures on Nonvolatile Memory Performances

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Detailed Explanation of Block Copolymerization. As shown in Figure S1, the block copolymerization was carried out under high vacuum conditions in a sealed glass tubes equipped with break-seals.

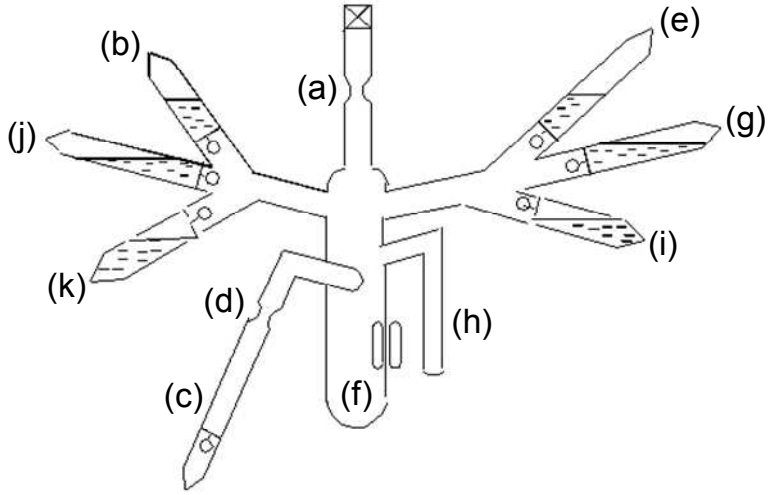

Figure S1. Glass apparatus for block copolymerization.

The apparatus was connected to the vacuum line followed by checking for pinholes and baking, and then it was sealed at constriction (a). The purging was conducted with washing solution (b). The washing solution was collected into the receiver (c) and removed from the apparatus by sealing at constriction (d). Then, the reactor was cooled down to –78 °C (acetone/dry ice) after initiator (e) was introduced into the reactor (f). The ampule containing monomer **A** (g) was also cooled prior to introducing monomer **A** into the initiator solution. The break-seal at (g) was broken and monomer **A** was then introduced into (f). The reactor was shaken well to mix initiator and monomer **A** homogeneously. Homo polymerization of monomer **A** was completed and then very small amount of living poly(**A**) solution was sampled in (h) to measure molecular weight of poly(**A**). When the reactor was cooled down to –98 °C (methanol/dry ice), additive (i) was introduced into (f). After a few minutes, monomer **B** (j) was next introduced into (f). The solutions of poly(**A**) and block

copolymer terminated with terminator (k) were poured into large amount of methanol to obtain poly(**A**) and block copolymer. The polymers were precipitated, filtered and dried. Precipitation was repeated to obtain highly pure polymer samples. These polymer samples were dissolved again in benzene and freeze-dried for characterization.

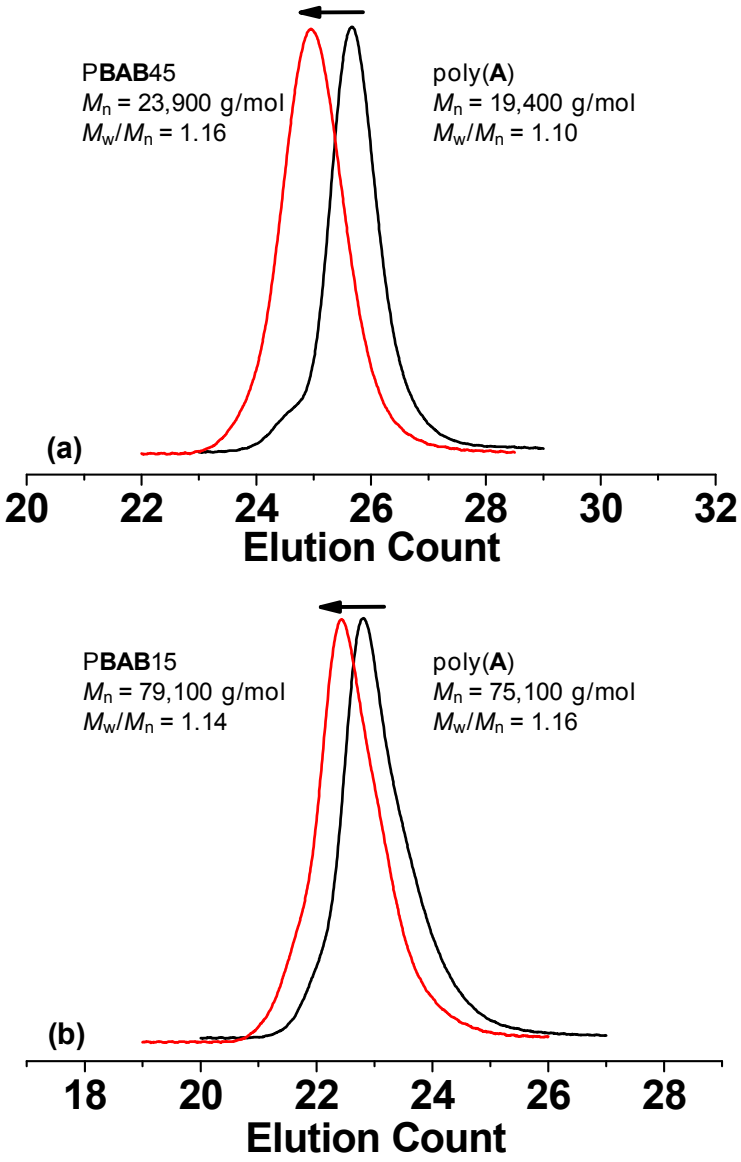

Figure S2. SEC curves of (a) P**BAB**45 and (b) P**BAB**15.

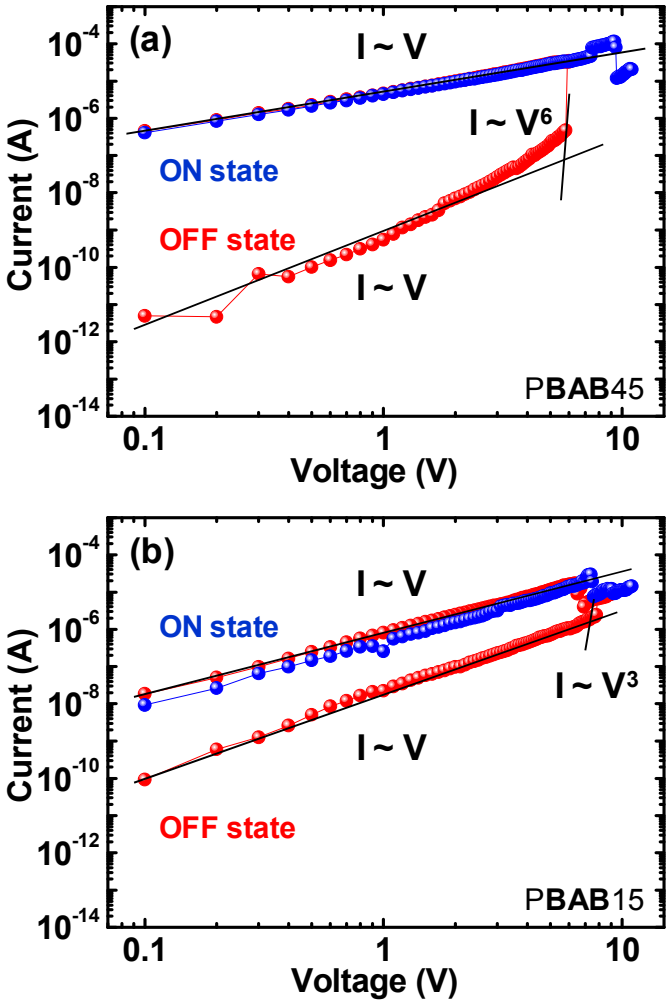

Figure S3. A double-log I–V plot analysis of (a) P**BAB**45 and (b) P**BAB**15 memory devices.