Supporting Information

Benzothiazole derivatives containing different electron acceptors exhibiting totally different data-storage performances

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**Fig. S1** TGA curve of BTVCz (a) and BTVCz-NO$_2$ (b) measured in nitrogen atmosphere at a heating rate of 10°C/min.

**Fig. S2** (a) Stability of the device made from BTVCz-NO$_2$ films in three states under a constant “read” voltage of −1 V; (b) Effect of read cycles on three states under a stress of voltage of −1 V. The inset shows the pulse shapes in the measurement.

**Fig. S3** (a) Stability of the device made from BTVCz films in three states under a constant “read” voltage of −1 V; (b) Effect of read cycles on three states under a stress of voltage of −1 V. The inset shows the pulse shapes in the measurement.
Fig. S4 Retention characteristics of molecule BTVCz-NO$_2$.

Fig. S5 Retention characteristics of molecule BTVCz.

Fig. S6 I-V curves of BTVCz device at intervals of 0, 10, 20, 30, 40, 50 and 60 s.
Fig. S7 I-V curves of BTVCz-NO$_2$ device at intervals of 0s, 10s, 1min, 10 min and 60

Fig. S8 $^1$H NMR of molecule BTVCz-NO$_2$. 
Fig. S9 $^1$H NMR of molecule BTVCz.

Fig. S10 $^{13}$C NMR of molecule 9-hexyl-9H-carbazole.

Fig. S11 $^{13}$C NMR of molecule 9-hexyl-9H-carbazole-3-carbaldehyde.
**Fig. S12** $^{13}$C NMR of molecule 9-hexyl-6-nitro-9H-carbazole-3-carbaldehyde

**Fig. S13** $^{13}$C NMR of molecule 2-p-tolylbenzo[d]thiazole

**Fig. S14** $^{13}$C NMR of molecule 2-(4-(bromomethyl)phenyl)benzo[d]thiazole
Fig. S15 $^{13}$C NMR of molecule BTVCz.

Fig. S16 $^{13}$C NMR of molecule BTVCz.

Fig. S17 Infrared spectrum of molecule BTVCz.
Fig. S18 Infrared spectrum of molecule BTVCz-NO$_2$