

*Nanoscale*

**Supporting Information**

**Title:**

**Influence of TiN diffusion barrier on the leakage current and ferroelectricity in Al-doped HfO<sub>x</sub> ferroelectric memristor and its application to neuromorphic computing**

**Authors:**

Eunjin Lim<sup>1†</sup>, Euncho Seo<sup>1</sup> and Sungjun Kim<sup>1\*</sup>

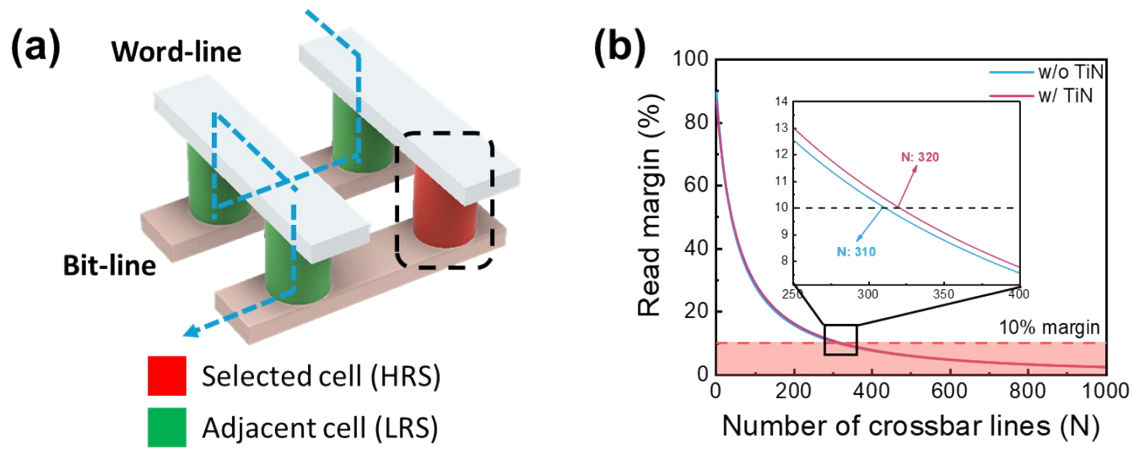
**Affiliations:**

<sup>1</sup>Division of Electronics and Electrical Engineering, Dongguk University, Seoul 04620, South Korea

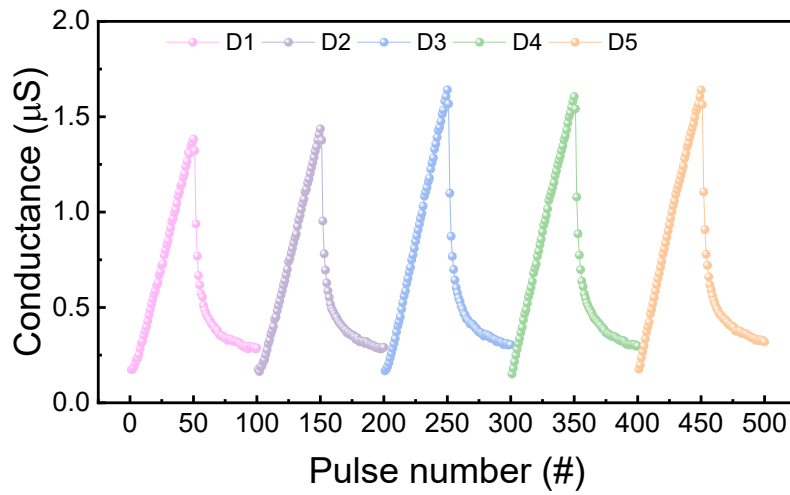
**\* Corresponding author:**

Sungjun Kim (Email: [sungjun@dongguk.edu](mailto:sungjun@dongguk.edu))

Supplementary figures



**Figure S1.** (a) Schematic of worst case in the array structure. (b) Estimation of the crossbar array read margin with application of the V/2 scheme.



**Figure S2.** The conductance change of potentiation and depression of different five devices.