Electronic Supplementary Material (ESI) for Nanoscale.

Supplementary Information

Current-Limit and Self-rectification Functionalities in TiO_2/HfO_2 Resistive Switching Material System

*Jung Ho Yoon, Dae Eun Kwon, Yumin Kim, Young Jae Kwon, Kyung Jean Yoon, Tae Hyung Park, Xing Long Shao, and Cheol Seong Hwang**

Department of Materials Science and Engineering and Inter-University Semiconductor Research Center, Seoul National University, Seoul 151-744, Republic of Korea

*E-mail: cheolsh@snu.ac.kr

Supplementary Information 1.

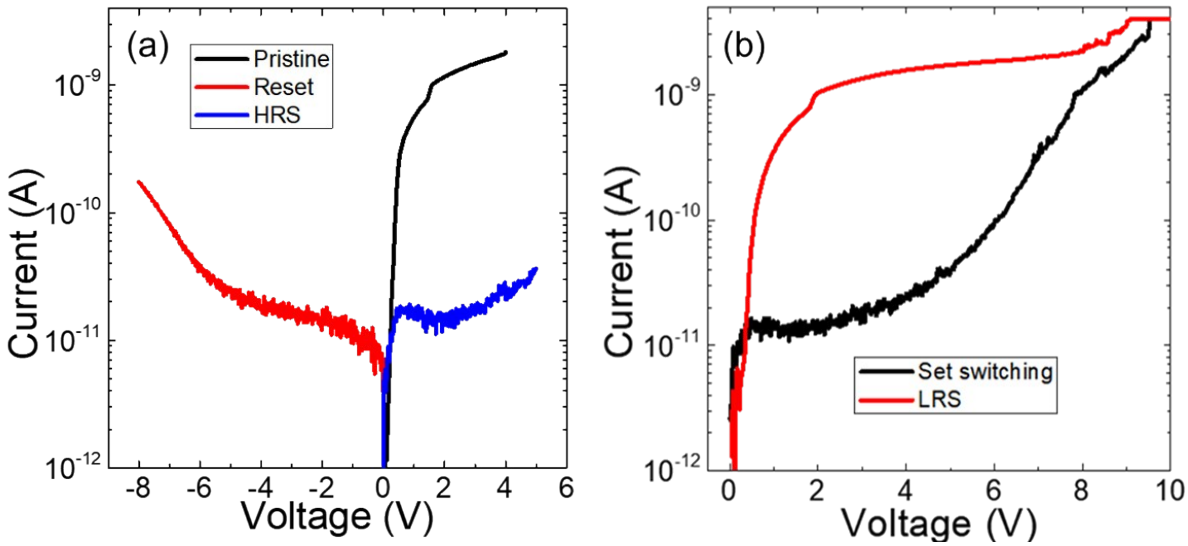

Figure S1. (a) Reset switching and (b) Set switching I – V curves of eBRS-Ti system.

Supplementary Information 2.

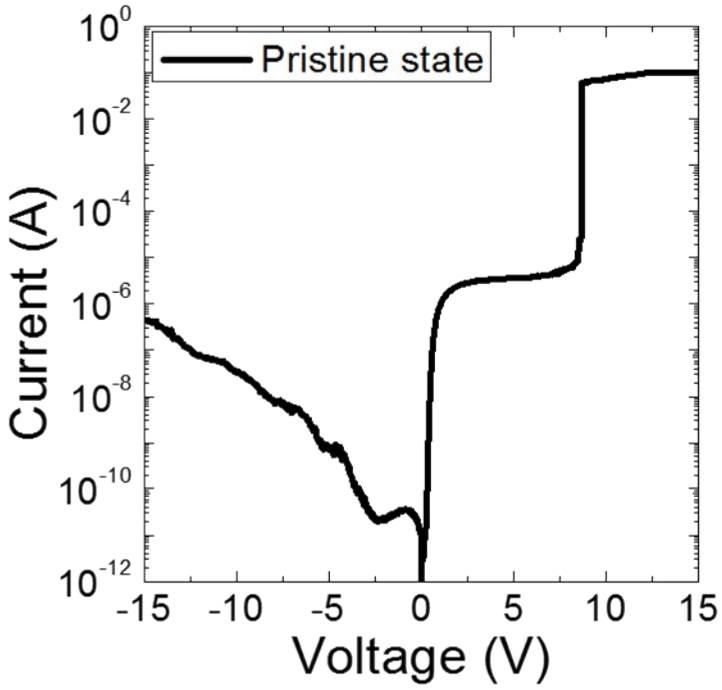

Figure S2. The I – V curves in pristine state of Pt/TiO_2(40nm)/HfO_2(10nm)/TiN. TiO_2 is deposited on the HfO_2 using plasma enhance ALD system with the $Ti(O(C_3H_7))_4$ and plasma-enhanced O_2 using a different ALD tool, while the HfO_2 layer was grown by the identical ALD process as in the main text.

Supplementary Information 3.

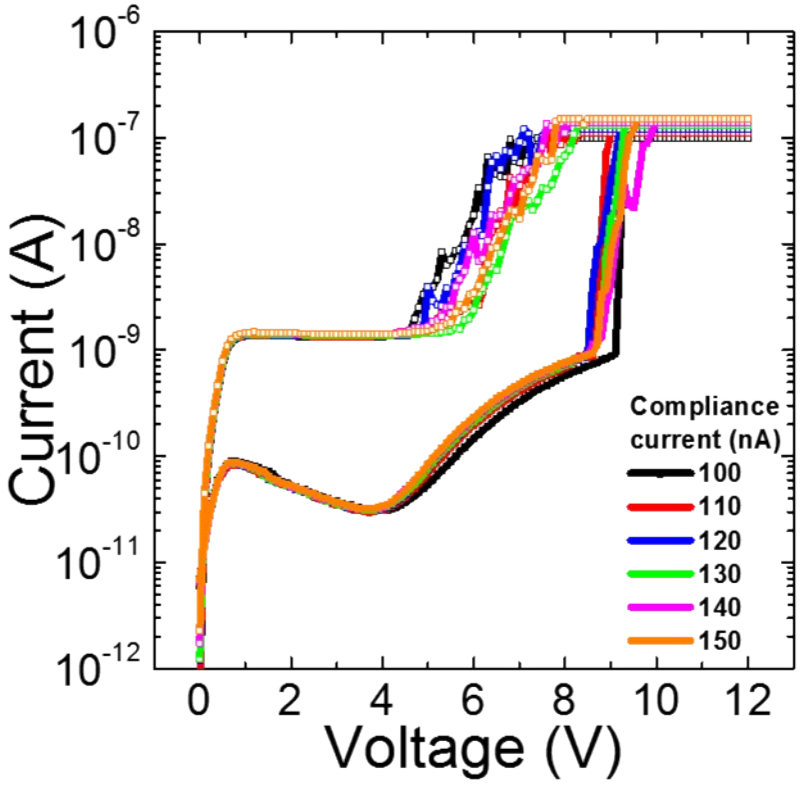

Figure S3. The I – V curves of set switching and in LRS with different I_{cc}.