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Low power dual ion beam sputtered high endurance resistive switch with memristive behavior

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The memory effects in a memristor can be realized through the switching behavior between two distinct resistance states, low resistance state (LRS) and high resistance state (HRS) driven by low pulse voltages. ZnO-based thin films such as undoped ZnO, Mg-doped ZnO, Na-doped ZnO and Mn-doped ZnO have attracted considerable interest as

promising resistive switching materials. Gallium doping electrically modulates the behavior of ZnO to suit low power switching behavior. Non-lattice oxygen ions and oxygen vacancies as detected by XPS are found to play important role in imparting forming-free resistive switching behavior.

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