Resistance switching in the Ni/HfOx/Ni nonvolatile memory device with interfacial layer by mixed CF4/O2 plasma treatment

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Abstract

Resistance random access memory (ReRAM) is a promising candidate for nonvolatile memories applications due to its adventages, such as simple structure, rapid operation and high density integration. However, for ReRAM device, the stable resistance changes according to the applied bias voltage are very important. The ON/OFF ratio is significant enhanced by reducing leakage current under high resistance state (HRS), preventing false data information [1-3]. This study examined the resistance switching in the Ni/HfOx/Ni nonvolatile memory device with interfacial layer by mixed CF4/O2 plasma treatment. Considering various memory parameters, CF4/O2 ratios should be carefully performed and optimized.

Keyword：Resistance switching ,plasma treatment