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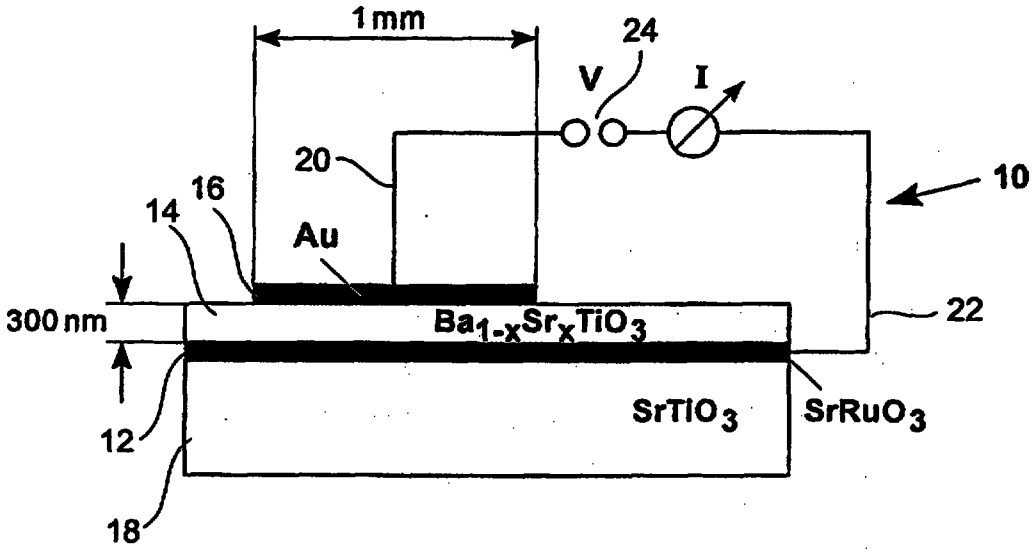
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(54) Title: MICROELECTRONIC DEVICE FOR STORING INFORMATION AND METHOD THEREOF



(57) Abstract

The basic discovery underlying the present invention concerns a plurality of oxide substances, i.e., materials for use in microelectronic and in electronic circuits and particularly semiconductor chips which combine both a switching phenomenon in resistance and a built–in memory. One preferred member of that plurality is $Ba_xSr_{1-x}TiO_3$ with $0 \leq x \leq 0.7$ and having a dopant of Chromium between 0 % and 5 %, preferably between 0 % and 1 %, even more preferably about 0.2 %. When said substance is used for example as a dielectric layer in a capacitor–like structure it stays switched in either a high or a low conductivity state depending on the voltage pulse being applied to it. Thus it is possible to store digital information by different values of resistance, i.e., by associating a high resistance state with a logic "0" and a low resistance state with a logic "1". Such stored information can be read out by measuring the leakage current. Even multi–level switching is realizable.