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SPIN TUNNEL MAGNETO-RESISTANCE EFFECT TYPE MAGNETIC SENSOR AND PRODUCTION METHOD THEREOF

ABSTRACT OF THE DISCLOSURE

A magnetic sensor utilizing a spin tunnel magneto-resistance effect (TMR), comprising a tunnel insulating film, a first magnetic layer formed on one of the planes of the tunnel insulating film, a second magnetic layer formed on the other plane of the tunnel insulating film, a third magnetic layer containing an anti-ferromagnetic substance for fixing magnetization of the second magnetic layer, a second insulating film formed on at least one of the first and third magnetic layers and having an opening in a predetermined region, a first electrode electrically connected to one of the first and third magnetic layers only in the opening of the second insulating film, and a second electrode for causing a current to flow between the first electrode and itself through at least the first and second magnetic layers and the first insulating layer.

Figure 2

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