ANTIPARALLEL PINNED SPIN VALVE WITH READ SIGNAL SYMMETRY

ABSTRACT

A thin film magnetoresistive (MR) spin valve read sensor (53a) has positive and negative read signal symmetry about a zero bias point of a transfer curve, upon sensing positive and negative magnetic incursions of equal magnitude from a moving magnetic medium, the sensor including: a ferromagnetic free layer (110) having a magnetic moment free to rotate in first and second directions from a position corresponding to the zero bias point upon sensing positive and negative magnetic incursions respectively, an antiparallel pinned layer (112), an antiferromagnetic layer (122) adjacent the antiparallel pinned layer which pins the magnetic moment of the antiparallel pinned layer along a pinned direction, an electrically conductive nonmagnetic spacer layer (114) between the free layer and the antiparallel pinned layer so that the sensor produces positive and negative read signal symmetry about the zero bias point.

Fig. 8

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