

15 JAN 2004



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GIANT MAGNETORESISTIVE SENSOR WITH AN AP-COUPLED LOW H_K FREE LAYER

ABSTRACT OF THE DISCLOSURE

A spin valve (SV) magnetoresistive sensor (600) is provided having an AP-pinned layer (622), an AP-coupled free layer (632) and a non-magnetic electrically conductive spacer layer (630) sandwiched between the AP-pinned layer (622) and the free layer (632). The AP-pinned layer (622) comprises first (625) and second (629) ferromagnetic layers separated by an antiparallel coupling (APC) layer (626). The AP-coupled free layer (632) comprises a third ferromagnetic layer (633) of Co-Fe adjacent to the spacer layer, a fourth ferromagnetic layer (637) of Co-Fe-Hf-O and an APC layer (635) sandwiched between the third (633) and fourth (637) ferromagnetic layers.

FIG. 6