DISK DRIVE WITH A THERMAL ASPERITY REDUCTION CIRCUITRY USING A SPIN VALVE SENSOR

ABSTRACT

A disk drive system having a spin valve (SV) magnetoresistive (MR) sensor (400) having four leads, two leads for providing sense current to an SV element and two leads for providing current to an asperity compensation layer (ACL) (456). The SV element as well as the hard bias layers (442, 444) are electrically insulated from the ACL by an antiferromagnetic layer (454) made of an insulating material. The voltages developed across the SV element (voltages due to the presence of thermal asperities and voltages due to the presence of data fields) and the ACL (456) (voltages due to the presence of thermal asperities) are applied to the inputs of a differential amplifier for substantial elimination of the thermal asperity signal.

Fig. 4A