

## **Magnetic Anisotropy Adjusted Laminated Magnetic Thin Films for Magnetic Recording**

### **5 Abstract**

Multiple embodiments of the invention are described which include at least two laminated ferromagnetic layers with differing magnetic anisotropy. The independent magnetic layer farther away from the recording head is selected to have a lower magnetic anisotropy to allow magnetic switching of the multiple magnetic layers to occur at approximately the same head write current even though the recording head field is reduced with increased distance from the head. The improved switching yields improved magnetic recording performance. Laminated magnetic media according to the invention can have a single peak in the normalized DC erase noise vs. head write current plot indicating that the magnetic transitions in the non-slave magnetic layers are written at the same head write current. As a result the magnetic pulse width ( $PW_{50}$ ) is reduced, overwrite ( $OW$ ) is improved and media signal-to-noise ratio ( $S_oNR$ ) is improved. Alternatively one or both of the laminated ferromagnetic layers can be replaced with an antiferromagnetically (AF) coupled layer structure that has an AFC-master and an AFC-slave layer separated by a spacer layer selected to antiferromagnetically couple the AFC-master and AFC-slave layers.

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