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(54) Title: **QUAD-LAYER GMR SANDWICH**

(57) Abstract

A magnetoresistive (GMR) sensor includes a substrate and a first trilayer disposed on the substrate. A first spacer layer is disposed on the first trilayer. A first magnetic layer is disposed on the first spacer. A second spacer layer is disposed on the first magnetic layer. A second magnetic layer is disposed on the second spacer layer. A third spacer layer is disposed on the second magnetic layer. A second trilayer is disposed on the third spacer layer and a cap layer is disposed on the second trilayer. The first and second trilayers include, a first ferromagnetic layer, a second ferromagnetic layer and an anti-parallel coupling layer disposed between and in contact with the first and second ferromagnetic layers.



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