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(54) Title: SPIN TORQUE TRANSFER MEMORY CELL STRUCTURES AND METHODS

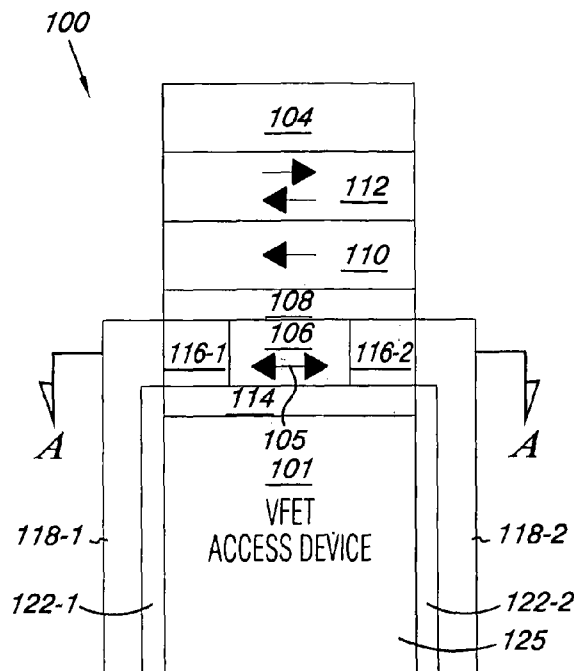


Fig. 1A

(57) Abstract: Spin Torque Transfer (STT) memory cell structures and methods are described herein. One or more STT memory cell structures comprise a STT stack including: a pinned ferromagnetic material in contact with an antiferromagnetic material; a tunneling barrier material positioned between a ferromagnetic storage material and the pinned ferromagnetic material; a multiferroic material in contact with the ferromagnetic storage material; and a first electrode and a second electrode, wherein the antiferromagnetic material, the pinned ferromagnetic material, the ferromagnetic storage material are located between the first electrode and the second electrode. The STT memory cell structure can include a third electrode and a fourth electrode, wherein at least a first portion of the multiferroic material is located between the third and the fourth electrode.



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