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

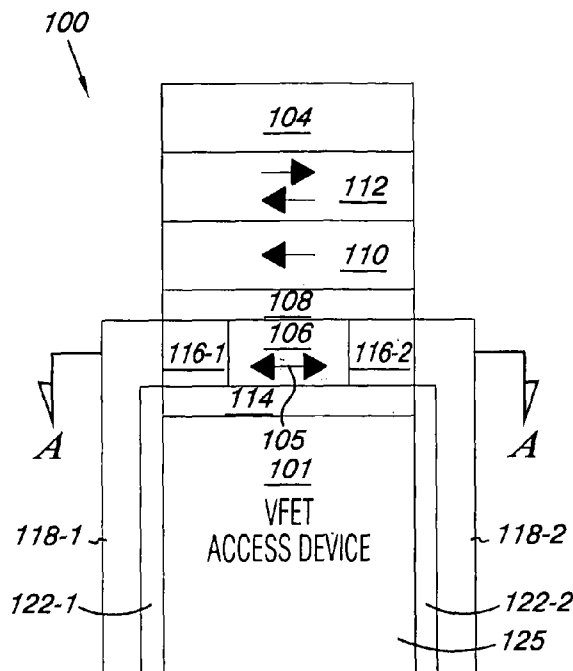


Fig. 1A

(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 anti-ferromagnetic 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 anti-ferromagnetic material, the pinned ferromagnetic material, and 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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