

NON-VOLATILE MAGNETIC MEMORY CELL AND DEVICES

ABSTRACT

A magnetic tunneling junction cell is formed with a first ferromagnetic layer (302), a second ferromagnetic layer (304), and an insulating layer (306) interposed between said first (302) and second (304) ferromagnetic layers to form a magnetic tunnel junction element (200). The cell further includes a write conductor which has a first conductor segment (206) aligned in a first direction and located proximate to the first ferromagnetic layer (302) and a second conductor segment (208) aligned in a second direction, substantially orthogonal to the first direction and located proximate to the second ferromagnetic layer (304). The write conductor is terminated by a capacitive structure (210) which allows a bidirectional current to be established in the write conductor using a monopolar write voltage and only a single port write terminal (214). The bidirectional current writes a high impedance state into the cell in a first current direction and a low impedance state into the cell in a second current direction.

FIG.3

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