US 20240215262A1

(54) **METHODS OF WRITING AND FORMING MEMORY DEVICE**

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(57) **ABSTRACT**

Provided are a memory device and a method of forming the same. The memory device includes: a selector; a magnetic tunnel junction (MTJ) structure, disposed on the selector; a spin orbit torque (SOT) layer, disposed between the selector and the MTJ structure, wherein the SOT layer has a sidewall aligned with a sidewall of the selector; a transistor, wherein the transistor has a drain electrically coupled to the MTJ structure; a word line, electrically coupled to a gate of the transistor; a bit line, electrically coupled to the SOT layer; a first source line, electrically coupled to a source of the transistor; and a second source line, electrically coupled to the selector, wherein the transistor is configured to control a write signal flowing between the bit line and the second source line, and control a read signal flowing between the bit line and the first source line.