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(54) **MAGNETIC DOMAIN WALL MOVING ELEMENT, MAGNETIC ARRAY, AND NEUROMORPHIC DEVICE**

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(57) **ABSTRACT**

A magnetic domain wall moving layer, reference layer, non-magnetic layer, a first, second, and third electrode. Magnetic domain wall moving layer includes first area wherein an orientation direction of magnetization is fixed, second area wherein orientation direction of magnetization is fixed in direction different from that of first area, and third area sandwiched between first and second areas wherein orientation direction of magnetization is changeable. First electrode is connected to first area. Second electrode is connected to second area. In magnetic domain wall moving element, a read current flows between second and third electrodes. In first direction, a center of third area in first direction is between center of first connection surface of third electrode and reference layer in first direction and center of second connection surface of second electrode and magnetic domain wall moving layer in first direction.