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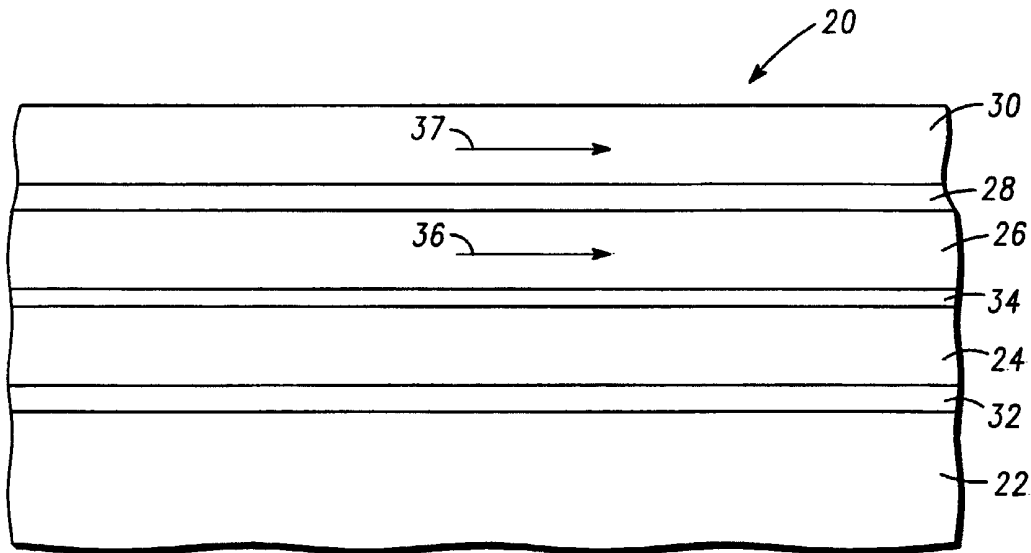
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[Continued on next page]

(54) Title: SPIN VALVE STRUCTURE



(57) Abstract: A high GMR spin valve structure having multiple layers of a ferromagnetic material (26,30) and a conductive non-magnetic material (28) can be monolithically integrated with silicon circuits (50) by first growing an accommodating buffer layer (24) on a silicon wafer (22). The accommodating buffer layer is a layer of monocrystalline oxide spaced apart from the silicon wafer by an amorphous oxide layer (32) of silicon oxide. The amorphous oxide layer dissipates strain and permits the growth of a high quality monocrystalline oxide accommodating buffer layer. The accommodating buffer layer is lattice matched to both the underlying silicon wafer and the overlying ferromagnetic layer. Any lattice mismatch between the accommodating buffer layer and the underlying silicon substrate is taken care of by the amorphous oxide layer.



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INTERNATIONAL SEARCH REPORT

International Application No

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A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 H01F10/32 H01L43/12 G11C11/16 H01F41/30 H01L43/08
H01L27/01

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 H01F H01L G11C

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

PAJ, EPO-Internal, WPI Data, INSPEC

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category ^o	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	PATENT ABSTRACTS OF JAPAN vol. 2000, no. 03, 30 March 2000 (2000-03-30) & JP 11 340542 A (SANYO ELECTRIC CO LTD), 10 December 1999 (1999-12-10) abstract	1,8
A	ZHANG W ET AL: "STRESS EFFECT AND ENHANCED MAGNETORESISTANCE IN LAO.67CAO.33MNO3-DELTA FILMS" PHYSICAL REVIEW, B. CONDENSED MATTER, AMERICAN INSTITUTE OF PHYSICS. NEW YORK, US, vol. 58, no. 21, PART 1, 1 December 1998 (1998-12-01), pages 14143-14146, XP000822984 ISSN: 0163-1829 page 14143, column 2 -page 14146, column 2	1,4,6,8, 9

Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>LI X W ET AL: "EPITAXIAL LA0.67SR0.33MNO3 MAGNETIC TUNNEL JUNCTIONS" JOURNAL OF APPLIED PHYSICS, AMERICAN INSTITUTE OF PHYSICS. NEW YORK, US, vol. 81, no. 8, PART 2B, 15 April 1997 (1997-04-15), pages 5509-5511, XP000701274 ISSN: 0021-8979 page 5509; figure 1</p>	<p>1,8,9, 27,30</p>
A	<p>DAUGHTON J M ET AL: "APPLICATIONS OF SPIN DEPENDENT TRANSPORT MATERIALS" JOURNAL OF PHYSICS D. APPLIED PHYSICS, IOP PUBLISHING, BRISTOL, GB, vol. 32, no. 22, 21 November 1999 (1999-11-21), pages R169-R177, XP000947410 ISSN: 0022-3727 page R171, column 2, paragraph 2 -page R172, column 1, paragraph 1</p>	<p>1,5,22, 33</p>

INTERNATIONAL SEARCH REPORT

Information on patent family members

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
JP 11340542	A	NONE	
