Title: SEMICONDUCTOR MEMORY DEVICE AND METHOD OF OPERATING SAME

Abstract: There are many inventions described and illustrated herein. In a first aspect, the present invention is directed to a memory device and technique of reading data from and writing data into memory cells of the memory device. In this regard, in one embodiment of this aspect of the invention, the memory device and technique for operating that device that minimizes, reduces and/or eliminates the debilitating effects of the charge pumping phenomenon. This embodiment of the present invention employs control signals that minimize, reduce and/or eliminate transitions of the amplitudes and/or polarities. In another embodiment, the present invention is a semiconductor memory device including a memory array comprising a plurality of semiconductor dynamic random access memory cells arranged in a matrix of rows and columns. Each semiconductor dynamic random access memory cell includes a transistor having a source region, a drain region, an electrically floating body region disposed between and adjacent to the source region and the drain region, and a gate spaced apart from, and capacitively coupled to, the body region. Each transistor includes a first state representative of a first charge in the body region, and a second state representative of a second charge in the body region. Further, each row of semiconductor dynamic random access memory cells includes an associated source line which is connected to only the semiconductor dynamic random access memory cells of the associated row.
Declarations under Rule 4.17:

— as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for the following designations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, LU, LV, MA, MD, MG, MN, MW, MX, MZ, NA, NL, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SI, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)


Published:
— with international search report
— before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

(88) Date of publication of the international search report: 7 April 2005

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.
INTERNATIONAL SEARCH REPORT

International application No.
PCT/US04/14691

A. CLASSIFICATION OF SUBJECT MATTER
IPC(7) : G11C 11/00
US CL : 365/154

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)
U.S. : 365/154,63,185.05,185.18,181,230.03

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
NONE

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
Please See Continuation Sheet

C. DOCUMENTS CONSIDERED TO BE RELEVANT

<table>
<thead>
<tr>
<th>Category</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to claim No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td>US 6,714,436 B1 (BURNETT et al.) 30 March 2004 (30.03.2004), see entire document.</td>
<td>1-3, 10-14</td>
</tr>
<tr>
<td>A</td>
<td>US 6,476,441 B2 (GEUSIC et al.) 05 November 2002 (05.11.2002), see entire document.</td>
<td>1-20</td>
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- Further documents are listed in the continuation of Box C.
- See patent family annex.

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Date of the actual completion of the international search: 14 January 2005 (14.01.2005)
Date of mailing of the international search report: 27 JAN 2005

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Authorized officer: SHARM J. HAPPE
Telephone No. 571-272-1569
Continuation of B. FIELDS SEARCHED Item 3:
USPAT, EPO, JPO, DERWENT, USOCR search terms: (random adj access) and (body adj region), (((random adj access) and body adj region)) and drain, (((random adj access) and (body adj region)) and drain) and source, (((random adj access) and (body adj region)) and drain) and source) and transistor