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(54) Title: FERROELECTRIC DEVICES INCLUDING A LAYER HAVING TWO OR MORE STABLE CONFIGURATIONS

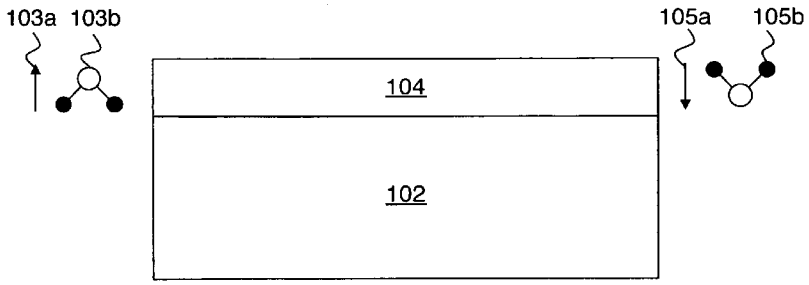

Fig. 1a

(57) Abstract: Ferroelectric semiconductor devices are provided by including a ferroelectric layer in the device that is made of a material that is not ferroelectric in bulk. Such layers can be disposed at interfaces to promote ferroelectric switching in a semiconductor device. Switching of conduction in the semiconductor is effected by the polarization of a mechanically bi-stable material. This material is not ferroelectric in bulk but can be considered to be when the thickness is sufficiently reduced down to a few atomic layers. Devices including such ferroelectric layers are suitable for various applications, such as transistors and memory cells (both volatile and non-volatile).

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2010/002642

A. CLASSIFICATION OF SUBJECT MATTER

H01L 27/105(2006.01)i, H01L 27/10(2006.01)i

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)

H01L 27/105; H01H 47/18; H01L 29/94; G11C 11/22; H01L 31/119; H01L 29/76; H01L 21/8238; H01L 21/00; H01L 27/10

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

Korean utility models and applications for utility models
Japanese utility models and applications for utility models

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

eKOMPASS(KIPO internal) & Keywords: ferroelectric, polarization, bulk

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2003-0094638 A1 (LEONARD FORBES et al.) 22 May 2003 See paragraphs [0030]-[0031], claims 1,6, and figures 1-2	1-15
A	US 2002-0117702 A1 (REINHARD STENGL et al.) 29 August 2002 See the abstract and figure 1	1-15
A	US 2002-0021544 A1 (HAG-JU CHO et al.) 21 February 2002 See claims 1,32,42,57-58,68,71-72 and figures 1,4	1-15
A	US 2008-0025063 A1 (HEE BOK KANG) 31 January 2008 See claims 1-3,11,33-52 and figure 1	1-15
A	US 2006-0091434 A1 (CHANG-BEOM EOM et al.) 04 May 2006 See paragraph [0023] and figures 1,6	1-15
A	US 2003-0119242 A1 (TINGKAI LI et al.) 26 June 2003 See paragraph [0006] and figures 5-10,14	1-15

☐ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

* Special categories of cited documents:
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"&" document member of the same patent family

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INTERNATIONAL SEARCH REPORT

Information on patent family members

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