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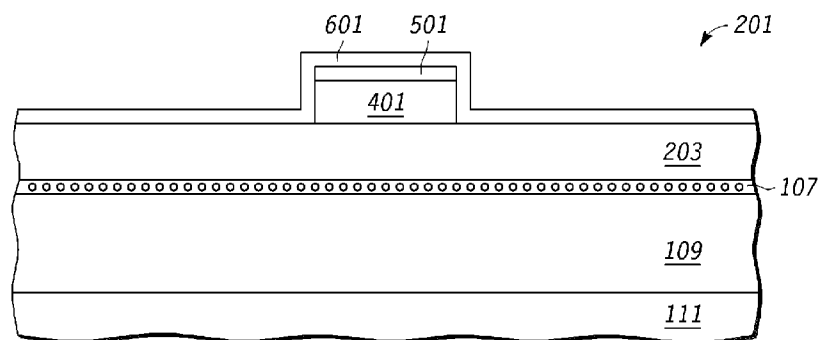
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(54) Title: BACK-GATED SEMICONDUCTOR DEVICE WITH A STORAGE LAYER



(57) Abstract: Providing a first wafer (103) and a second wafer (101) having a first side and a second side, the second wafer (101) including a semiconductor substrate (105), a storage layer (107), and a layer of gate material (109). The storage layer (107) may be located between the semiconductor structure (105) and the layer of the gate material (109) and the storage layer (107) may be located closer to the first side of the second wafer (101) than the semiconductor structure (105). The method further includes bonding the first side of the second wafer (101) to the first wafer (103), removing a first portion of the semiconductor structure (105) to leave a layer of the semiconductor structure (105) after the bonding, and forming a transistor having a channel region (203), wherein at least a portion of the channel region (203) is formed from the layer of the semiconductor structure.

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A. CLASSIFICATION OF SUBJECT MATTER

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USPC - 438/459

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)

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IPC(8) - H01L 21/30 (2008.04)

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

USPC - 438/459

IPC(8) - H01L 21/30 (2008.04) (text search)

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

West: US Pre-Grant Publication Full-Text; US Patents Full-Text; EPO Abstracts; JPO Abstracts; Google Scholar

Terms: Semiconductor, SOI, nonvolatile memory device, storage layer, gate layer, dielectric material, source, drain, nanocrystals, sidewall spacer, polysilicon, monocrystalline, silicide layer

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 2005/0101072 A1 (Bryant et al.) 12 May 2005 (12.05.2005), Figures , para [0024]-[0028], [0033]-[0041], [0062]	1-20
Y	US 2004/0108537 A1 (Tiwari) 10 June 2004 (10.06.2004), Fig. 15a, para [0046], [0062]	1-20
Y	US 4,894,693 A (Tigelaar et al.) 16 January 1990 (16.01.1990), Fig. 6; col 1, ln 59-61; col 4, ln 48-52; col 5, ln 47-51	7-20
Y	US 6,943,084 B2 (Lee et al.) 13 September 2005 (13.09.1005), Fig. 1; col 5, ln 1-5; col 5, ln 37; col 10, ln 15-18	13, 18
Y	US 6,888,198 B1 (Krivokapic) 03 May 2005 (03.05.2005), col 8, lns 3-6	13

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