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(54) Title: COMPOSITION AND PROCESS FOR SELECTIVELY ETCHING METAL NITRIDES

(57) Abstract: A removal composition and process for selectively removing a first metal gate material (e.g., titanium nitride) relative to a second metal gate material (e.g., tantalum nitride) from a microelectronic device having said material thereon. The removal composition can include fluoride or alternatively be substantially devoid of fluoride. The substrate preferably comprises a high-k/metal gate integration scheme.

INTERNATIONAL SEARCH REPORT

International application No.
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A. CLASSIFICATION OF SUBJECT MATTER		
<i>C23F 1/02(2006.01)i, C23F 1/44(2006.01)i</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) C23F 1/02; C23F 1/44; H01L 21/302; B05D 5/12; H01L 21/336; H01L 21/306; G02F 1/1368; H01L 21/02; B44C 1/22; B23C 15/00		
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 practicable, search terms used) eKOMPASS(KIPO internal) & Keywords: selective, etch, gate, titanium, tantalum, nitride		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	JP 2004-200378 A (SEMICONDUCTOR ENERGY LAB CO LTD) 15 July 2004 See figure 1; paragraphs 15, 16, 28-34, 40-43; and claim 5.	1-4
A	US 6531404 B1 (NALLAN, P. & ZHANG, T.) 11 March 2003 See the whole document.	1-4
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A	US 2010/0206841 A2 (KO, A. et al.) 19 August 2010 See the whole document.	1-4
A	JP 2008-512862 A (SEZ AG) 24 April 2008 See the whole document.	1-4
<input type="checkbox"/> Further documents are listed in the continuation of Box C. <input checked="" type="checkbox"/> See patent family annex.		
* Special categories of cited documents: "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier application or patent but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art "&" document member of the same patent family		
Date of the actual completion of the international search 07 MAY 2012 (07.05.2012)		Date of mailing of the international search report 08 MAY 2012 (08.05.2012)
Name and mailing address of the ISA/KR  Korean Intellectual Property Office Government Complex-Daejeon, 189 Cheongsu-ro, Seo-gu, Daejeon 302-701, Republic of Korea Facsimile No. 82-42-472-7140		Authorized officer Kim, Sang Joon Telephone No. 82-42-481-8490 

INTERNATIONAL SEARCH REPORT

Information on patent family members

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