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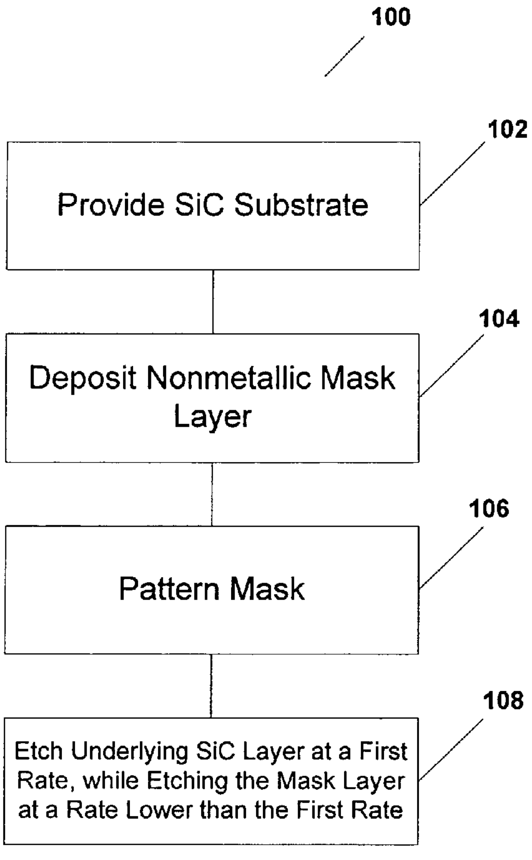
(54) Title: SELECTIVE ETCHING OF SILICON CARBIDE FILMS



(57) **Abstract:** A method of etching silicon carbide using a nonmetallic mask layer. The method includes providing a silicon carbide substrate; forming a non-metallic mask layer by applying a layer of material on the substrate; patterning the mask layer to expose underlying areas of the substrate; and etching the underlying areas of the substrate with a plasma at a first rate, while etching the mask layer at a rate lower than the first rate.

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A. CLASSIFICATION OF SUBJECT MATTER
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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 H01L

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)

EPO-Internal, INSPEC, IBM-TDB, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	GAO DI ET AL: "High-selectivity etching of polycrystalline 3C-SiC films using HBr-based transformer coupled plasma" APPLIED PHYSICS LETTERS, AMERICAN INSTITUTE OF PHYSICS. NEW YORK, US, vol. 82, no. 11, 17 March 2003 (2003-03-17), pages 1742-1744, XP012033536 ISSN: 0003-6951 the whole document	1-13, 17-33
Y	-----	14-16

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☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

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"A" document defining the general state of the art which is not considered to be of particular relevance

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Date of the actual completion of the international search 11 January 2005	Date of mailing of the international search report 25/01/2005
Name and mailing address of the ISA European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Authorized officer Ekoué, A

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	DI GAO ET AL: "High modulus polycrystalline 3c-sic technology for rf mems" THE 12TH INTERNATIONAL CONFERENCE ON SOLID STATE SENSORS, ACTUATORS AND MICROSYSTEMS, vol. 2, 9 June 2003 (2003-06-09), pages 1160-1163, XP010647606 page 1160, left-hand column, paragraph 3 page 1160, right-hand column; figure 1 page 1161, left-hand column, paragraph 2	1-10, 22-33
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Y	US 5 336 365 A (ASAHINA YASUTOSHI ET AL) 9 August 1994 (1994-08-09) column 3, lines 51-53	14,15
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A	ZHAO G ET AL: "Silicon shallow trench etch using HBr/Cl2/He-O2 chemistry" PROCEEDINGS OF THE INTERNATIONAL SYMPOSIUM ON PLASMA PROCESSING, XX, XX, vol. 96, no. 12, 5 May 1996 (1996-05-05), pages 410-415, XP002119407 page 412, paragraph 2 page 413, lines 14,15, paragraph 2	1,13-16

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		JP 5243188 A	21-09-1993