



(51) International Patent Classification:  
*H01L 21/3065* (2006.01) *B44C 1/22* (2006.01)  
*G03F 7/42* (2006.01)

(21) International Application Number:  
PCT/US2010/045056

(22) International Filing Date:  
10 August 2010 (10.08.2010)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
12/551,180 31 August 2009 (31.08.2009) US

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(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ,

[Continued on next page]

(54) Title: SILICON-SELECTIVE DRY ETCH FOR CARBON-CONTAINING FILMS

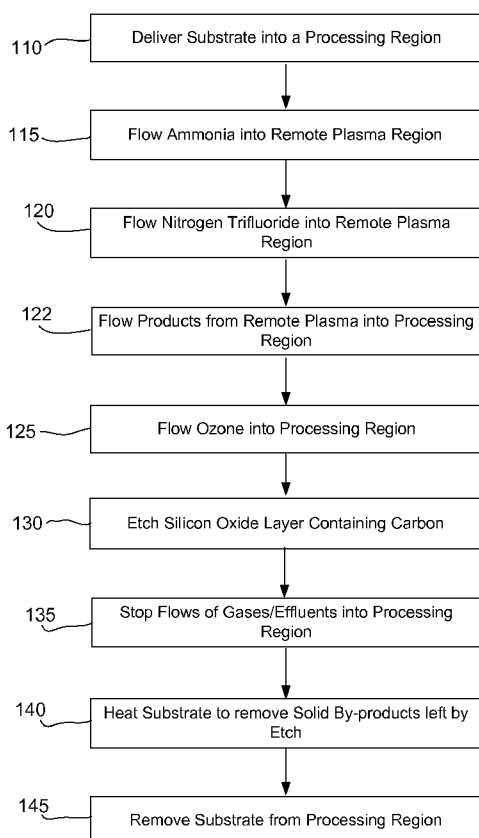


FIG. 1

(57) Abstract: A method of etching silicon-and-carbon-containing material is described and includes a SiConi™ etch in combination with a flow of reactive oxygen. The reactive oxygen may be introduced before the SiConi™ etch reducing the carbon content in the near surface region and allowing the SiConi™ etch to proceed more rapidly. Alternatively, reactive oxygen may be introduced during the SiConi™ etch further improving the effective etch rate.



CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PE, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

- (84) Designated States** (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU,

LV, MC, MK, MT, NL, NO, PL, PT, RO, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

**Published:**

- with international search report (Art. 21(3))
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))

**(88) Date of publication of the international search report:**

19 May 2011

**A. CLASSIFICATION OF SUBJECT MATTER*****H01L 21/3065(2006.01)i, G03F 7/42(2006.01)i, B44C 1/22(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 21/3065; H01L 21/302; B08B 7/00; H01L 21/4763; H01L 21/3205

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) &amp; Keywords: etch, byproduct, remove, sublimation

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 7488688 B2 (CHUNG SEUNG-PIL et al.) 10 February 2009 See abstract;column 8, line 15-column 9, line 49;claims 1,3,5.	1-15
A	US 5888906 A (SANDHU; GURTEJ S. et al.) 30 March 1999 See column 3, line 41-column 6, line 3;claims 1-2,19-20,25;figures 1-3.	1-15
A	US 6796314 B1 (GRAFF; WESLEY P.) 28 September 2004 See column 2, line 49-column 6, line 6;claims 1,9,13-14.	1-15
A	US 2005-0181588 A1 (JEONG-HO KIM) 18 August 2005 See abstract;paragraphs [0022]-[0066];claims 1,2,6,11-15.	1-15



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

22 MARCH 2011 (22.03.2011)

Date of mailing of the international search report

**23 MARCH 2011 (23.03.2011)**

Name and mailing address of the ISA/KR

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Government Complex-Daejeon, 139 Seonsa-ro, Seo-  
gu, Daejeon 302-701, Republic of Korea

Facsimile No. 82-42-472-7140

Authorized officer

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Telephone No. 82-42-481-8497



**INTERNATIONAL SEARCH REPORT**

Information on patent family members

International application No.

**PCT/US2010/045056**

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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