



(51) International Patent Classification:
H01L 21/3065 (2006.01)

(21) International Application Number:
PCT/US2009/006531

(22) International Filing Date:
14 December 2009 (14.12.2009)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
61/138,357 17 December 2008 (17.12.2008) US

(71) Applicant (for all designated States except US): **LAM RESEARCH CORPORATION** [US/US]; 4650 Cushing Parkway, Fremont, California 94538-6470 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **FANG, Tong** [US/US]; 891 Clara Drive, Palo Alto, California 94303 (US). **KIM, Yunsang S.** [US/US]; 17280 Clara Street, Monte Sereno, California 95030 (US). **FISCHER, Andreas** [US/US]; 18989 Mount Lassen Drive, Castro Valley, California 94552 (US).

(74) Agent: **SKIFF, Peter K.**; BUCHANAN INGERSOLL & ROONEY P.C., P. O. Box 1404, Alexandria, Virginia 22313-1404 (US).

(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, 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, 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, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (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).

Declarations under Rule 4.17:

- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))
- as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))

[Continued on next page]

(54) Title: HIGH PRESSURE BEVEL ETCH PROCESS

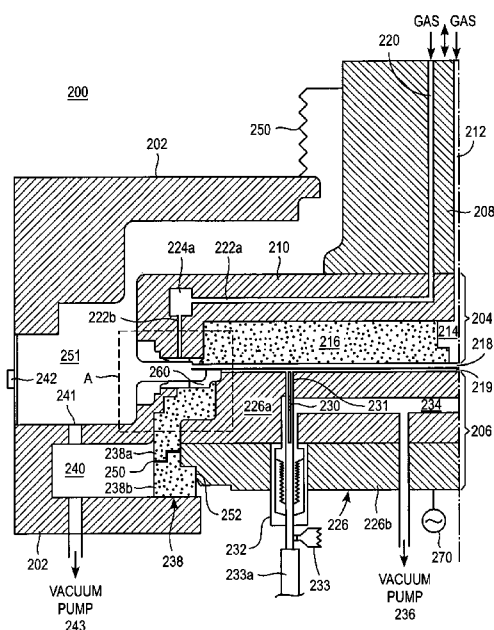


FIG. 1

(57) Abstract: A method of preventing arcing during bevel edge etching a semiconductor substrate with a plasma in a bevel etcher in which the semiconductor substrate is supported on a semiconductor substrate support comprises bevel edge etching the semiconductor substrate with the plasma in the bevel etcher while evacuating the bevel etcher to a pressure of 3 to 100 Torr while maintaining RF voltage seen at the wafer at a low enough value to avoid arcing.

WO 2010/077299 A3



Published:

— *with international search report (Art. 21(3))*

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

28 October 2010