(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
26 October 2006 (26.10.2006)

PCT

(10) International Publication Number
WO 2006/112424 A1

(51) International Patent Classification:
H01L 21/78 (2006.01) *H01L 21/3065* (2006.01)
H01L 21/68 (2006.01)

(21) International Application Number:
PCT/JP2006/307997

(22) International Filing Date: 11 April 2006 (11.04.2006)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
2005-117239 14 April 2005 (14.04.2005) JP

(71) Applicant *(for all designated States except US)*: **MATSUSHITA ELECTRIC INDUSTRIAL CO., LTD.** [JP/JP]; 1006, Oaza Kadoma, Kadoma-shi, Osaka, 5718501 (JP).

(72) Inventors; and

(75) Inventors/Applicants *(for US only)*: **ARITA, Kiyoshi. NAKAGAWA, Akira.**

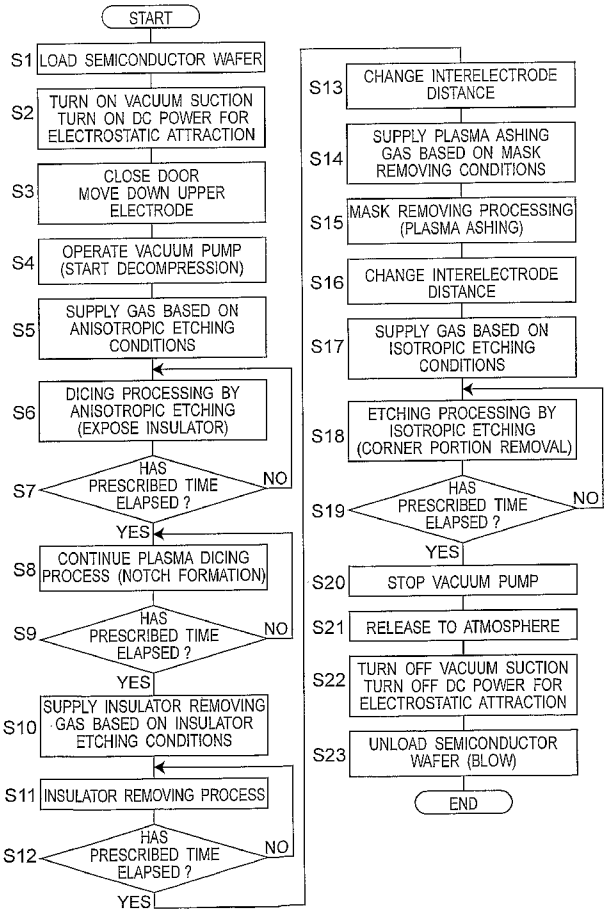
(74) Agents: **KAWAMIYA, Osamu** et al.; AOYAMA & PARTNERS, IMP Building, 3-7, Shiromi 1-chome, Chuo-ku, Osaka-shi, Osaka 540-0001 (JP).

(81) Designated States *(unless otherwise indicated, for every kind of national protection available)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, KE, KG, KM, KN, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, 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),

[Continued on next page]

(54) Title: MANUFACTURING METHOD FOR SEMICONDUCTOR CHIPS



(57) Abstract: By performing plasma etching on the second surface of a semiconductor wafer on the first surface of which an insulating film is placed in dividing regions and on the second surface of which a mask for defining the dividing regions are placed, the second surface being located opposite from the first surface, the insulating film is exposed from an etching bottom portion by removing portions that correspond to the dividing regions. Subsequently, by continuously performing the plasma etching in the state in which the exposed surfaces of the insulating film are charged with electric charge due to ions in the plasma, corner portions put in contact with the insulating film are removed. Subsequently, by removing the mask and thereafter performing plasma etching on the second surface, corner portions located on the second surface side are removed.

WO 2006/112424 A1

European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

Published:

— *with international search report*