

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
7 September 2007 (07.09.2007)

PCT

(10) International Publication Number
WO 2007/100544 A3

(51) International Patent Classification:

H01L 21/311 (2006.01)

(21) International Application Number:

PCT/US2007/004334

(22) International Filing Date:

21 February 2007 (21.02.2007)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

11/360,540 23 February 2006 (23.02.2006) US

(71) Applicant (for all designated States except US): **MI-**

CRON TECHNOLOGY, INC. [US/US]; 8000 South Federal Way, Boise, ID 83716 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **RANA, Niraj** [IN/US]; 6263 South Basalt Trail Place, Boise, ID 83716 (US). **RAGHU, Prashant** [IN/US]; 3571 East Tallow Lane, Boise, ID 83716 (US). **TOREK, Kevin** [US/US]; 1718 N. Kastle Falls Avenue, Meridian, OH 83642 (US).

(74) Agent: **STRODTHOFF, Kristine, M.**; Whyte Hirschboeck Dudek S.C., 555 East Wells Street, Suite 1900, Milwaukee, WI 53202 (US).

(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, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, 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

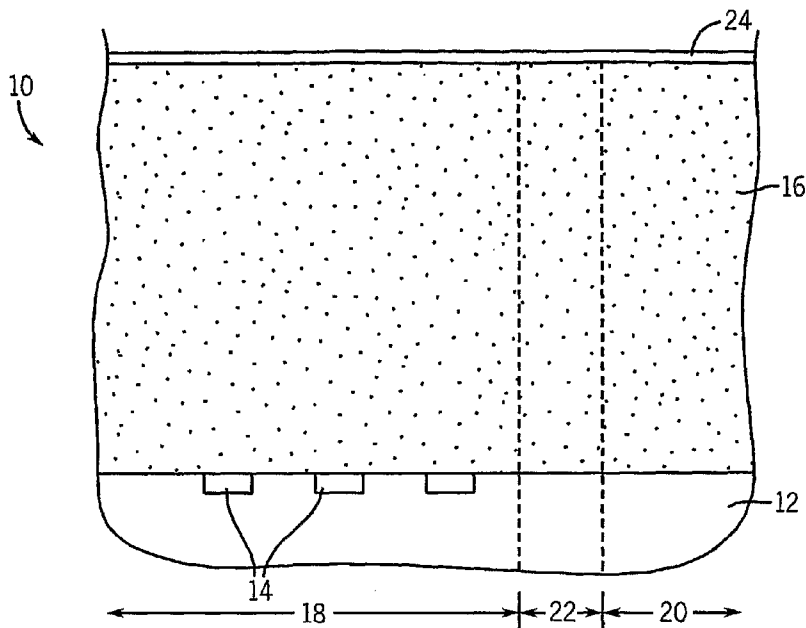
kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

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: HIGHLY SELECTIVE DOPED OXIDE ETCHANT



(57) Abstract: Etch solutions for selectively etching doped oxide materials in the presence of silicon nitride, titanium nitride, and silicon materials, and methods utilizing the etch solutions, for example, in the construction of container capacitor constructions is provided. The etch solutions are formulated as a mixture of hydrofluoric acid and an organic acid having a dielectric constant less than water, optionally with an inorganic acid, and a pH of 1 or less.

WO 2007/100544 A3

**Published:**

- *with international search report*
- *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*

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.

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

25 October 2007