

CORRECTED VERSION

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
15 October 2009 (15.10.2009)

PCT

(10) International Publication Number
WO 2009/126204 A8

- (51) International Patent Classification:
H01L 27/108 (2006.01) *H01L 27/04* (2006.01)
H01L 21/8242 (2006.01) *H01L 21/3065* (2006.01)
- (21) International Application Number:
PCT/US2009/001693
- (22) International Filing Date:
18 March 2009 (18.03.2009)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
12/099,577 8 April 2008 (08.04.2008) US
- (71) Applicant (for all designated States except US): **MICRON TECHNOLOGY, INC.** [US/US]; 8000 S Federal Way, Boise, ID 83716-9632 (US).
- (72) Inventor; and
(75) Inventor/Applicant (for US only): **KIEHLBAUCH, Mark, W.** [US/US]; 2002 E Goodman Court, Boise, ID 83712 (US).
- (74) Agents: **BROOKS, Edward, J., III** et al.; Brooks, Cameron & Huebsch, PLLC, 1221 Nicollet Avenue, Suite 500, Minneapolis, MN 55403 (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, 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, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG,

[Continued on next page]

(54) Title: HIGH ASPECT RATIO OPENINGS

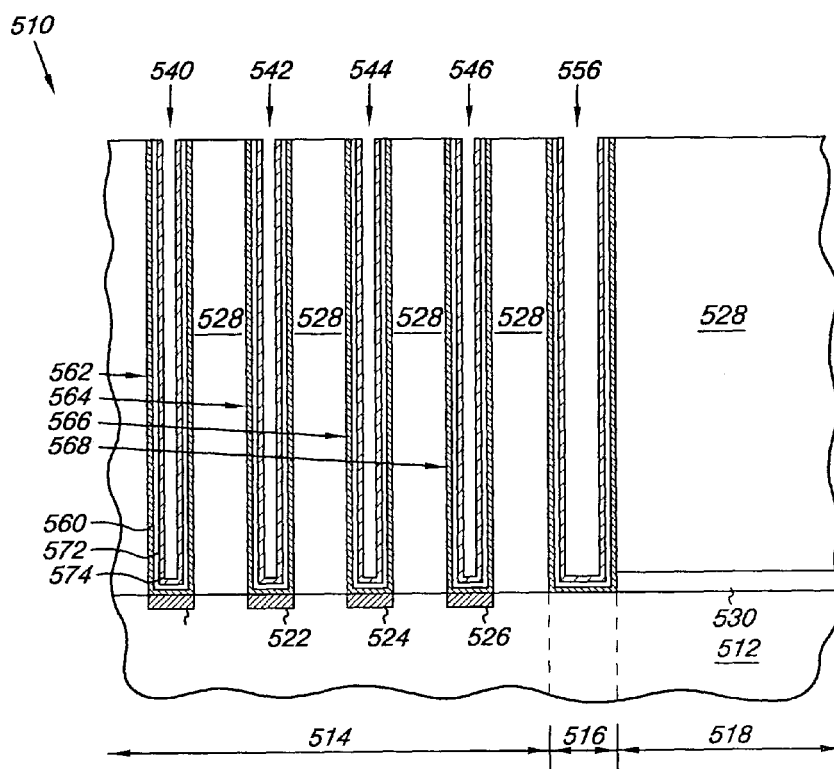


Fig. 5A

[Continued on next page]



SK, SL, SM, ST, SV, SY, TJ, TM, TN, TR, TT, TZ, UA,
UG, US, UZ, VC, VN, ZA, ZM, ZW.

Published:

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

- (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, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

(88) Date of publication of the international search report:
30 December 2009

(48) Date of publication of this corrected version:
4 November 2010

(15) Information about Correction:
see Notice of 4 November 2010

(57) Abstract: A capacitor forming method includes forming an electrically conductive support material over a substrate, with the support material containing at least 25 at% carbon. The method includes forming an opening through at least the support material where the opening has an aspect ratio of at least 20: 1 within a thickness of the support material. After forming the opening, the method includes processing the support material to effect a reduction in conductivity, and forming a capacitor structure in the opening.