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

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
20 October 2005 (20.10.2005)

PCT

(10) International Publication Number
WO 2005/098929 A3

(51) International Patent Classification[7]: H01L 21/28, 21/336

(21) International Application Number: PCT/US2005/010475

(22) International Filing Date: 29 March 2005 (29.03.2005)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
10 2004 015 864.9 31 March 2004 (31.03.2004) DE
11/039,084 19 January 2005 (19.01.2005) US

(71) Applicant *(for all designated States except US)*: **ADVANCED MICRO DEVICES, INC.** [US/US]; One AMD Place, Mail Stop 68, P.O. Box 3453, Sunnyvale, CA 94088-3453 (US).

(72) Inventors; and

(75) Inventors/Applicants *(for US only)*: **LENSKI, Markus** [DE/DE]; Wilder-Mann-Strasse 17, 01129 Dresden (DE). **GRAETSCH, Falk** [DE/DE]; Selliner Str. 5b, 01109 Dresden (DE). **REICHEL, Carsten** [DE/DE]; Turner-Strasse 14, 09599 Freiberg (DE). **SCHWAN, Christoph** [DE/DE]; Rathausplatz 2se 20, 57580 Gebhardshain (DE). **BIERSTEDT, Helmut** [DE/DE]; Sagarder Weg 4, 01109 Dresden (DE). **KAMMLER, Thorsten** [DE/DE]; Buchenstrasse 12c, 01458 Ottendorf-Okrilla (DE). **MAZUR, Martin** [DE/DE]; Kastanienweg 18, 01896 Pulsnitz (DE).

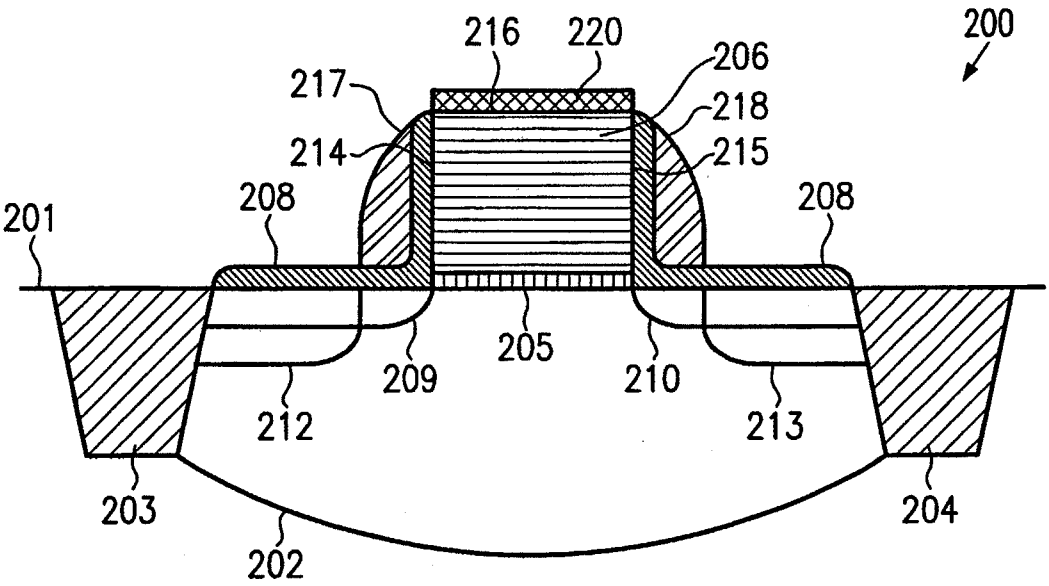
(74) Agent: **DRAKE, Paul, S.**; Advanced Micro Devices, Inc., 5204 East Ben White Boulevard, Mail Stop 562, Austin, TX 78741 (US).

(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, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, 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,

[Continued on next page]

(54) Title: METHOD OF FORMING SIDEWALL SPACERS



(57) Abstract: The present invention allows the formation of sidewall spacers (217,218) adjacent a feature (206) on a substrate (201) without there being an undesirable erosion of the feature. The feature (206) is covered by one or more protective layers (220,207). A layer of a spacer material (211) is deposited over the feature (206) and etched anisotropically. An etchant used in the anisotropic etching is adapted to selectively remove the spacer material, whereas the one or more protective layers (220, 207) are substantially not affected by the etchant. Thus, the one or more protective layers (220, 207) protect the feature from being exposed to the etchant.

WO 2005/098929 A3

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, 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).

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*

(88) Date of publication of the international search report:
15 December 2005

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.