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

(19) World Intellectual Property Organization
International Bureau

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

PCT

(10) International Publication Number
WO 2007/100589 A1

(51) International Patent Classification:
H01L 21/336 (2006.01) *H01L 29/08* (2006.01)
H01L 29/10 (2006.01)

(21) International Application Number:
PCT/US2007/004544

(22) International Filing Date:
20 February 2007 (20.02.2007)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
102006009226.0 28 February 2006 (28.02.2006) DE
11/551,263 20 October 2006 (20.10.2006) 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)*: **WEI, Andy** [US/DE]; Alaunstrasse 23, 01099 Dresden (DE). **KAMMLER, Thorsten** [DE/DE]; Buchenstrasse 12c, 01458 Ottendorf-okrilla (DE). **HOENTSCHEL, Jan** [DE/DE]; Prellerstrasse 9, 01309 Dresden (DE). **HORSTMANN, Manfred** [DE/DE]; Aeusere Parkstrasse 25, 01833 Duerrhoehrsdorf-ditterbach (DE).

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

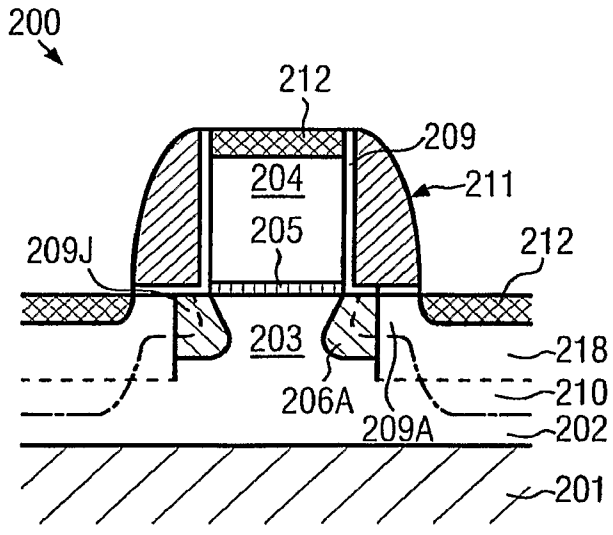
(81) Designated States *(unless otherwise indicated, for every kind of national protection available)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, 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).

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.

(54) **Title:** TRANSISTOR DEVICE HAVING AN INCREASED THRESHOLD STABILITY WITHOUT DRIVE CURRENT DEGRADATION



(57) **Abstract:** By removing a portion of a halo region (206, 306) or by avoiding the formation of the halo region (206, 306) within the extension region (209A), which may be subsequently formed on the basis of a re-grown semiconductor material (218, 318), the threshold roll off behavior may be significantly improved, wherein an enhanced current drive capability may simultaneously be achieved.

WO 2007/100589 A1