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

CORRECTED VERSION

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
22 December 2005 (22.12.2005)

PCT

(10) International Publication Number
WO 2005/122270 A3

(51) International Patent Classification:
H01L 29/49 (2006.01) *H01L 29/51* (2006.01)
H01L 21/28 (2006.01)

(21) International Application Number:
PCT/US2005/019009

(22) International Filing Date: 31 May 2005 (31.05.2005)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
10/861,744 4 June 2004 (04.06.2004) US

(71) Applicant: **MICRON TECHNOLOGY, INC.** [US/US]; 8000 South Federal Way, Boise, ID 83716 (US).

(72) Inventors: **BASCERI, Cem**; 12011 Edgemere Circle, Reston, VI 20190 (US). **MANNING, Montgomery, H.**; 3695 West Houseland Court, Eagle, ID 83616 (US). **SANDHU, Gurtej, S.**; 2964 East Parkriver Drive, Boise, ID 83706 (US). **PAREKH, Kunal, R.**; 677 North Morningside Way, Boise, ID 83712 (US).

(74) Agents: **MATKIN, Mark, S.** et al.; Wells St. John P.S., 601 West First Avenue, Suite 1300, Spokane, WA 99201-3828 (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, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, 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), 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*

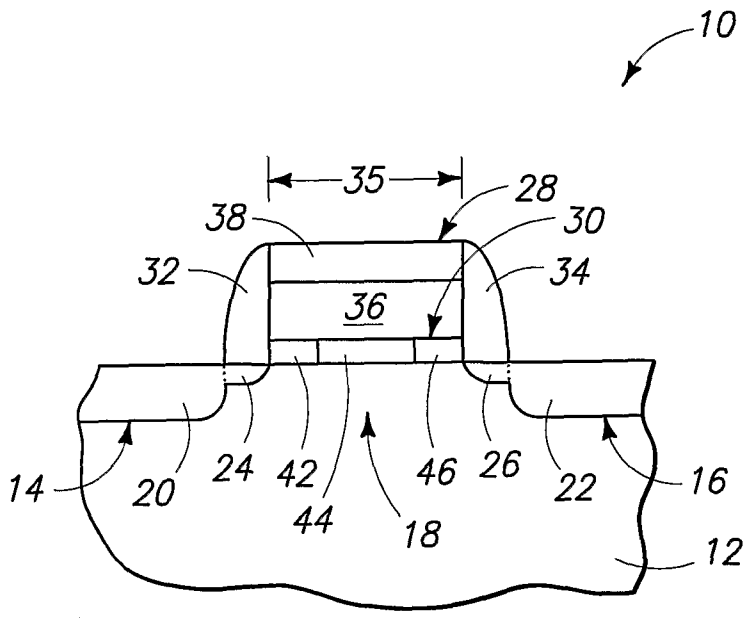
(88) Date of publication of the international search report:
2 March 2006

(48) Date of publication of this corrected version:
18 May 2006

(15) Information about Correction:
see PCT Gazette No. 20/2006 of 18 May 2006

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: GATED FIELD EFFECT DEVICES AND METHODS OF FORMING A GATED FIELD EFFECT DEVICE



(57) Abstract: This invention includes gated field effect devices, and methods of forming gated field effect devices. In one implementation, a gated field effect device includes a pair of source/drain regions having a channel region therebetween. A gate is received proximate the channel region between the source/drain regions. The gate has a gate width between the source/drain regions. A gate dielectric is received intermediate the channel region and the gate. The gate dielectric has at least two different regions along the width of the gate. The different regions are characterized by different materials which are effective to define the two different regions to have different dielectric constants k. Other aspects and implementations are contemplated.

WO 2005/122270 A3