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- (71) Applicant (for all designated States except US): **TEXAS INSTRUMENTS INCORPORATED** [US/US]; P.O.Box 655474, Mail Station 3999, Dallas, TX 75265-5474 (US).
- (71) Applicant (for JP only): **TEXAS INSTRUMENTS JAPAN LIMITED** [JP/JP]; 24-1, Nishi-shinjuku 6-chome, Shinjuku-ku Tokyo, 160-8366 (JP).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): **SADOVNIKOV, Alexei** [US/US]; 924 Redwood Avenue, Sunnyvale, CA 94086 (US). **FRENCH, William** [GB/US]; 1198 Topaz Avenue, San Jose, CA 95117 (US). **MAZOTTI, Erika** [US/US]; 11477 Carls Court, San Martin, CA 95046 (US). **FOOTE, Richard, Wendell, Jr.** [US/US]; 109 Enchanted Court North, Burleson, TX 76028 (US). **HOPPER, Peter, J.** [GB/US]; 4327 Verdigris Circle, San Jose, CA 95134

(US). **BHOLA, Punit** [IN/US]; 10 Riverplace Drive, Unit 10404, South Portland, ME 04106 (US). **VASHCHENKO, Vladislav** [RU/US]; 700 Paul Avenue, Palo Alto, CA 94306 (US).

(74) Agent: **FRANZ, Warren, L.**; Texas Instruments Incorporated, Deputy General Patent Counsel, P.O.BOX 655474, Mail Station 3999, Dallas, TX 75265-5474 (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, CL, 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, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

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[Continued on next page]

(54) Title: DMOS TRANSISTOR WITH A SLANTED SUPER JUNCTION DRIFT STRUCTURE

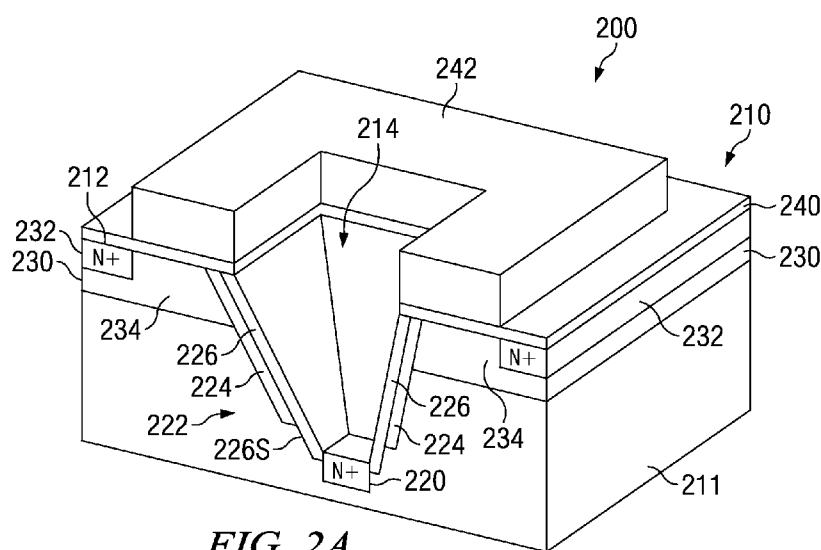


FIG. 2A

(57) Abstract: A DMOS transistor (200) with a lower on-state drain-to-source resistance and a higher breakdown voltage utilizes a slanted super junction drift structure (222) that lies along the side wall (218) of an opening (214) with the drain region (220) at the bottom of the opening and the source region (232) near the top of the opening

**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))*

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A. CLASSIFICATION OF SUBJECT MATTER**H01L 29/78(2006.01)i, H01L 21/336(2006.01)i**

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

H01L 29/78; H01L 27/088; H01L 21/20; H01L 31/119; H01L 29/76; H01L 21/76; H01B 13/00

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Korean utility models and applications for utility models

Japanese utility models and applications for utility models

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

eKOMPASS(KIPO internal) & Keywords: DMOS, slant, opening, via, drift, junction, body, drain, source, gate

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2002-0149051 A1 (KINZER, DANIEL M. et al.) 17 October 2002 See abstract; paragraphs[0018]-[0033]; figs.5-9	1-17
A	US 2008-0258226 A1 (ISHIGURO, TAKESHI) 23 October 2008 See abstract; paragraphs[0016]-[0062]; fig.6	1-17
A	US 2005-0029222 A1 (CHEN, XINGBI) 10 February 2005 See abstract; paragraphs[0090]-[0099]; fig.10	1-17
A	US 2009-0218620 A1 (HEBERT, FRANCOIS et al.) 03 September 2009 See abstract; paragraph[0021]; fig.1	1-17



Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents:

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"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

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"&" document member of the same patent family

Date of the actual completion of the international search

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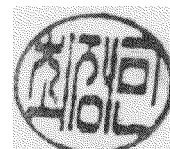
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Authorized officer

Choi Jeongmin

Telephone No. 82-42-481-8708



INTERNATIONAL SEARCH REPORT

Information on patent family members

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