

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

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
14 June 2018 (14.06.2018)



(10) International Publication Number
WO 2018/106698 A1

(51) International Patent Classification:
H01L 29/20 (2006.01) *H01L 29/778* (2006.01)

(21) International Application Number:
PCT/US2017/064726

(22) International Filing Date:
05 December 2017 (05.12.2017)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
62/430,649 06 December 2016 (06.12.2016) US

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(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, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, JO, JP, KE, KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, 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.

(54) Title: LATERAL HIGH ELECTRON MOBILITY TRANSISTOR WITH INTEGRATED CLAMP DIODE

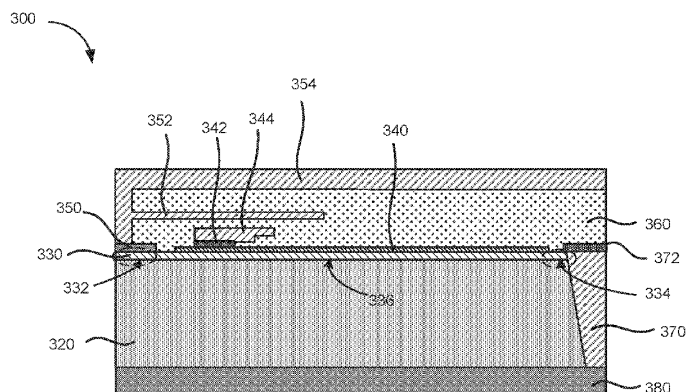


FIG. 3B

(57) Abstract: A method of forming a semiconductor device includes providing an engineered substrate, forming a gallium nitride layer coupled to the engineered substrate, forming a channel region coupled to the gallium nitride layer by forming an aluminum gallium nitride barrier layer on the front surface of the gallium nitride layer, forming a gate dielectric layer coupled to the aluminum gallium nitride barrier layer in the central portion of the channel region, forming a gate contact coupled to the gate dielectric layer, forming a source contact at the first end of the channel region, forming a via at the second end of the channel region, filling the via with a conductive material, forming a drain contact coupled to the via, removing the engineered substrate to expose the back surface of the epitaxial gallium nitride layer, and forming a drain pad on the back surface of the epitaxial gallium nitride layer.

[Continued on next page]

(84) Designated States (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, ST, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, 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, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

Published:

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