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

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
29 December 2011 (29.12.2011)

PCT

(10) International Publication Number
WO 2011/162977 A3

(51) International Patent Classification:
H01L 29/78 (2006.01) *H01L 21/336* (2006.01)

(21) International Application Number:
PCT/US2011/039892

(22) International Filing Date:
10 June 2011 (10.06.2011)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
12/823,163 25 June 2010 (25.06.2010) 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, 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, RO, RS, RU, 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.

(84) Designated States *(unless otherwise indicated, for every kind of regional protection available)*: ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, 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, ML, MR, NE, SN, TD, TG).

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(54) Title: DELTA MONOLAYER DOPANTS EPITAXY FOR EMBEDDED SOURCE/DRAIN SILICIDE

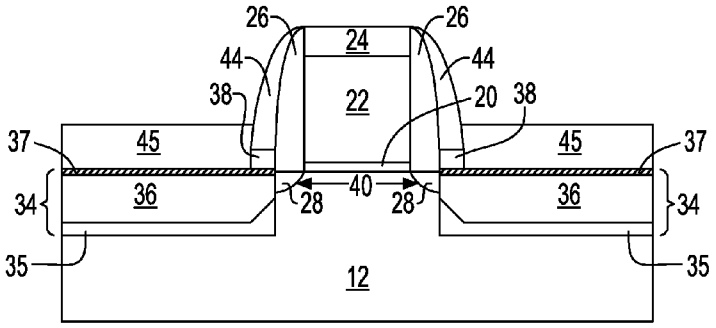


FIG. 4

(57) Abstract: Semiconductor structures are disclosed that have embedded stressor elements therein. The disclosed structures include at least one FET gate stack (18) located on an upper surface of a semiconductor substrate (12). The at least one FET gate stack includes source and drain extension regions (28) located within the semiconductor substrate at a footprint of the at least one FET gate stack. A device channel (40) is also present between the source and drain extension regions (28) and beneath the at least one gate stack (18). The structure further includes embedded stressor elements (33) located on opposite sides of the at least one FET gate stack and within the semiconductor substrate. Each of the embedded stressor elements includes, from bottom to top, a first layer of a first epitaxy doped semiconductor material (35) having a lattice constant that is different from a lattice constant of the semiconductor substrate and imparts a strain in the device channel, a second layer of a second epitaxy doped semiconductor material (36) located atop the first layer, and a delta monolayer of dopant located on an upper surface of the second layer. The structure further includes a metal semiconductor alloy contact (45) located directly on an upper surface of the delta monolayer (37).

WO 2011/162977 A3

WO 2011/162977 A3

Published:

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

— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))*

(88) Date of publication of the international search report:
15 March 2012