

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

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
03 March 2022 (03.03.2022)



(10) International Publication Number
WO 2022/046411 A1

(51) International Patent Classification:
H01L 21/321 (2006.01) *H01L 21/02* (2006.01)
H01L 21/3205 (2006.01)

(21) International Application Number:
PCT/US2021/045532

(22) International Filing Date:
11 August 2021 (11.08.2021)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
17/004,262 27 August 2020 (27.08.2020) 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,

(54) Title: DIFFUSION BARRIERS FOR GERMANIUM

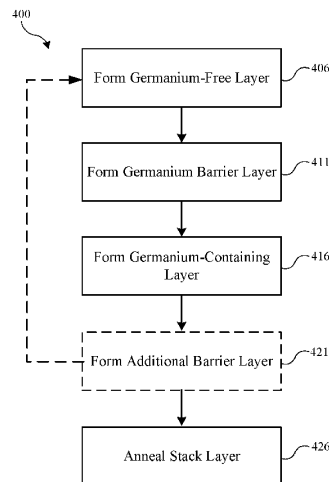


FIG. 4

(57) Abstract: Examples of the present technology include semiconductor processing methods to form diffusion barriers for germanium in a semiconductor structure. The methods may include forming a semiconductor layer stack from pairs of Si-and-SiGe layers. The Si-and-SiGe layer pairs may be formed by forming a silicon layer, and then forming the germanium barrier layer of the silicon layer. In some embodiments, the germanium-barrier layer may be less than or about 20 Å. A silicon-germanium layer may be formed on the germanium-barrier layer to complete the formation of the Si-and-SiGe layer pair. In some embodiments, the silicon layer may be an amorphous silicon layer, and the SiGe layer may be characterized by greater than or about 5 atom% germanium. Examples of the present technology also include semiconductor structures that include a silicon-germanium layer, a germanium-barrier layer, and a silicon layer.

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HR, HU, ID, IL, IN, IR, IS, IT, 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, ST, SV, SY, TH, TJ, TM, TN,
TR, TT, TZ, UA, UG, US, UZ, VC, VN, WS, 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, 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))