

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

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
06 August 2020 (06.08.2020)



(10) International Publication Number
WO 2020/159707 A1

(51) International Patent Classification:

H01L 21/02 (2006.01) C23C 16/505 (2006.01)
H01L 27/11551 (2017.01)

(21) International Application Number:

PCT/US2020/013693

(22) International Filing Date:

15 January 2020 (15.01.2020)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

62/799,571 31 January 2019 (31.01.2019) 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, 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))
- 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))

(54) Title: LOW STRESS FILMS FOR ADVANCED SEMICONDUCTOR APPLICATIONS

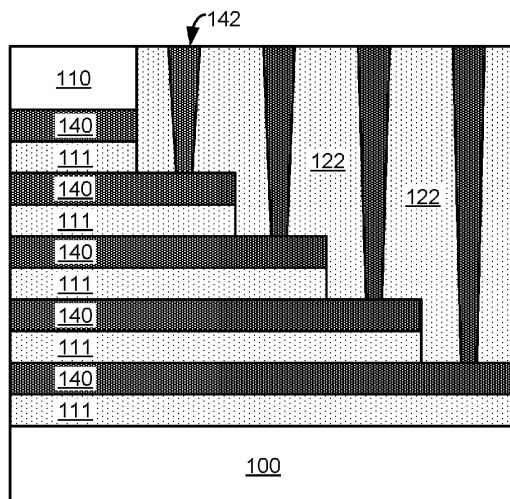


FIG. 12

(57) Abstract: Films that can be useful in large area gap fill applications, such as in the formation of advanced 3D NAND devices, involve processing a semiconductor substrate by depositing on a patterned semiconductor substrate a doped silicon oxide film, the film having a thickness of at least 5 μm , and annealing the doped silicon oxide film to a temperature above the film glass transition temperature. In some embodiments, reflow of the film may occur. The composition and processing conditions of the doped silicon oxide film may be tailored so that the film exhibits substantially zero as-deposited stress, substantially zero stress shift post-anneal, and substantially zero shrinkage post-anneal.

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