

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

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
09 September 2022 (09.09.2022)



(10) International Publication Number
WO 2022/185144 A1

(51) International Patent Classification:
H01L 45/00 (2006.01)

(21) International Application Number:
PCT/IB2022/051532

(22) International Filing Date:
22 February 2022 (22.02.2022)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
17/189,173 01 March 2021 (01.03.2021) US

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(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM,

(54) Title: ELECTRICAL MEMRISTIVE DEVICES BASED ON BILAYER ARRANGEMENTS

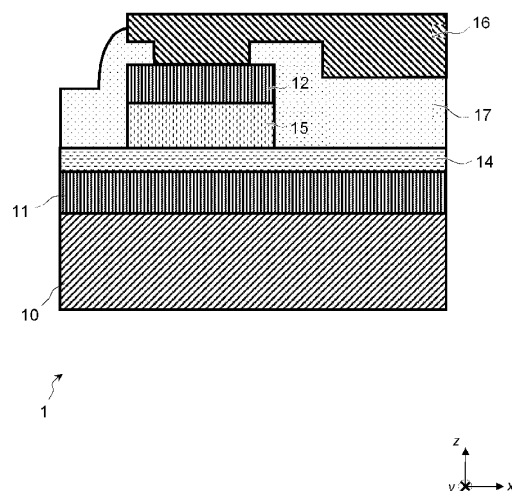


FIG. 1

(57) Abstract: An electrical memristive device has a layer structure. The later structure comprises two electrodes and a bilayer material arrangement that connects the two electrodes. The bilayer material arrangement may, for example, be sandwiched by the two electrodes, in direct contact therewith. The bilayer material arrangement includes an HfO_y layer, where $1.3 \pm 0.1 \leq y < 1.9 \pm 0.1$, as well as a WO_x layer in direct contact with the HfO_y layer, where $2.5 \pm 0.1 \leq x < 2.9 \pm 0.1$. The bilayer arrangement involves sub-stoichiometric layers of HfO_y and WO_x , where the WO_x layer may advantageously have a polycrystalline structure in the monoclinic phase, while the HfO_y layer is preferably amorphous.

[Continued on next page]

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, IT, JM, 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))