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

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
11 October 2012 (11.10.2012)

WIPO | PCT

(10) International Publication Number
WO 2012/136888 A1

(51) International Patent Classification:
C23C 16/24 (2006.01) *H01L 21/02* (2006.01)
H01L 21/768 (2006.01) *C30B 28/14* (2006.01)

(21) International Application Number:
PCT/FI2012/050325

(22) International Filing Date:
30 March 2012 (30.03.2012)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
20115321 4 April 2011 (04.04.2011) FI

(71) Applicant *(for all designated States except US)*: **OKMETIC OYJ** [FI/FI]; Piitie 2, FI-01510 Vantaa (FI).

(72) Inventors; and
(75) Inventors/Applicants *(for US only)*: **AIRAKSINEN, Veli Matti** [FI/FI]; Kippotie 13, FI-02770 Espoo (FI). **MÄKINEN, Jari** [FI/FI]; Nuumäentie 5 D 14, FI-02710 Espoo (FI).

(74) Agent: **BERGGREN OY AB**; P.O. Box 16, (Antinkatu 3 C), FI-00101 Helsinki (FI).

(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, QA, RO, RS, RU, RW, 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, RW, 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).

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))*

WO 2012/136888 A1

(54) Title: METHOD FOR DEPOSITING ONE OR MORE POLYCRYSTALLINE SILICON LAYERS ON SUBSTRATE

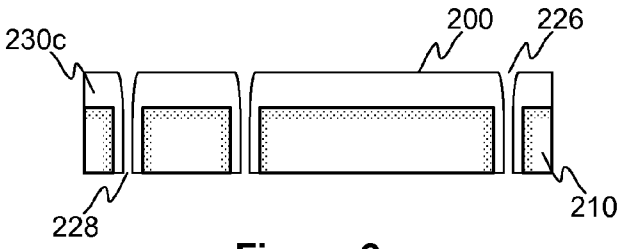


Figure 2c

(57) Abstract: The invention relates to a method for depositing one or more polycrystalline silicon layers (230c) on a substrate (210) by a chemical vapour deposition in a reactor, which method comprises adjusting a deposition temperature between 605 °C-800 °C in a process chamber of the reactor, and depositing the one or more polycrystalline silicon layers on the substrate by using a silicon source gas comprising SiH_4 or SiH_2Cl_2, and a dopant gas comprising BCl_3.