



(43) International Publication Date
8 November 2012 (08.11.2012)

WIPO | PCT

(10) International Publication Number
WO 2012/150133 A2

(51) International Patent Classification:

C23C 18/32 (2006.01) *C25D 3/38* (2006.01)
C23C 18/34 (2006.01) *H01L 21/3205* (2006.01)
C25D 5/02 (2006.01)

(21) International Application Number:

PCT/EP2012/057085

(22) International Filing Date:

18 April 2012 (18.04.2012)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

1153843 5 May 2011 (05.05.2011) FR

(71) Applicant (for all designated States except US): **ALCHIMER** [FR/FR]; 15 rue du Buisson aux Fraises, Z.I. de la Bonde, F-91300 Massy (FR).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **MEVELLEC, Vincent** [FR/FR]; 43 rue Anatole France, F-92370 Chaville (FR). **SUHR, Dominique** [FR/FR]; 60 avenue de la Division Leclerc, F-92290 Chatenay-Malabry (FR).

(74) Agents: **HUBERT, Philippe** et al.; Cabinet Beau De Lomenie, 158 Rue de l'Université, F-75340 Paris Cedex 07 (FR).

(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:

— without international search report and to be republished upon receipt of that report (Rule 48.2(g))

(54) Title: METHOD OF DEPOSITING METALLIC LAYERS BASED ON NICKEL OR COBALT ON A SEMICONDUCTING SOLID SUBSTRATE; KIT FOR APPLICATION OF SAID METHOD

(57) Abstract: The present invention relates to a kit intended for the deposition of nickel or cobalt in the cavities of a semiconductor substrate intended to form through-silicon vias (TSV) for making interconnections in integrated circuits in three dimensions. The invention also relates to a method of metallization of the insulating surface of such a substrate which comprises contacting the surface with a liquid aqueous solution containing: - at least one metal salt of nickel or cobalt; - at least one reducing agent; - at least one polymer bearing amine functions, and - at least one agent stabilizing the metal ions. The step coverage of the layer of nickel or cobalt obtained can be greater than 80%, which facilitates subsequent filling of the vias with copper by electrodeposition.



WO 2012/150133 A2