

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
4 June 2009 (04.06.2009)

PCT

(10) International Publication Number
WO 2009/070124 A1

(51) International Patent Classification:

C09J 5/06 (2006.01) *B29C 65/14* (2006.01)
C09J 5/04 (2006.01) *C09J 163/02* (2006.01)

(21) International Application Number:

PCT/SG2007/000409

(22) International Filing Date:

28 November 2007 (28.11.2007)

(25) Filing Language:

English

(26) Publication Language:

English

(71) Applicant (for all designated States except US):
AGENCY FOR SCIENCE, TECHNOLOGY AND RESEARCH [SG/SG]; 20 Biopolis Way #07-01, Centros, Singapore 138668 (SG).

(72) Inventor; and

(75) Inventor/Applicant (for US only): **LAO, Leng Kin** [PT/SG]; c/o Institute of Microelectronics, 11 Science Park Road, Singapore Science Park II, Singapore 117685 (SG).

(74) Agent: **SCHIWECK, Wolfram**; Viering, Jentschura & Partner LLP, P.O. Box 1088, Rochor Post Office, Rochor Road, Singapore 911833 (SG).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, 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, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, 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, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report

(54) Title: A LOW TEMPERATURE METHOD OF BONDING SUBSTRATES HAVING AT LEAST ONE SURFACE THAT INCLUDES A LAYER OF SU8

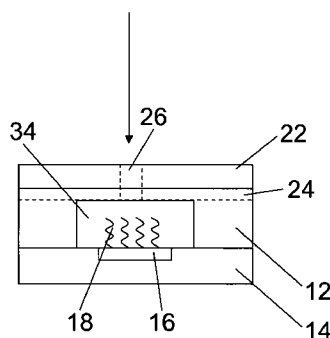


Figure 4B

(57) Abstract: A method of bonding at least two substrates, each substrate having at least one surface that includes a layer of SU8, said method comprising soft baking at least a portion of the layer of SU8 of the first and second substrates, exposing at least the portion of the layer of SU8 of the first and second substrates to ultraviolet (UV) radiation to cross-link at least the portion of the layer of SU8 of the second substrate to a suitable degree, post exposure baking at least the portion of the layer of SU8 of the first substrate at a temperature greater than or equal to 20 degree Celsius (°C) and less than or equal to 50 degree Celsius (°C) to cross-link at least the portion of the layer of SU8 of the first substrate to a suitable degree. The method also includes compressing the portion of the cross-linked layer of SU8 of the first substrate against the portion of the cross-linked layer of SU8 of the second substrate at a suitable starting temperature (T_s) for a suitable time period (t_{comp}). In addition, the method also includes elevating the temperature during compression from T_s to a suitable elevated temperature (T_e), thereby bonding the first and second substrates.

WO 2009/070124 A1