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

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
9 January 2003 (09.01.2003)

PCT

(10) International Publication Number
WO 03/003420 A1

(51) International Patent Classification[7]: H01L 21/00

(21) International Application Number: PCT/US02/20695

(22) International Filing Date: 28 June 2002 (28.06.2002)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:

09/896,189	29 June 2001 (29.06.2001)	US
09/897,160	29 June 2001 (29.06.2001)	US
09/896,983	29 June 2001 (29.06.2001)	US
09/897,158	29 June 2001 (29.06.2001)	US
60/365,998	19 March 2002 (19.03.2002)	US
60/365,996	19 March 2002 (19.03.2002)	US
60/366,032	19 March 2002 (19.03.2002)	US

(71) Applicant *(for all designated States except US)*: **XANOPTIX, INC.** [US/US]; 10 Al Paul Lane, Merrimack, NH 03054 (US).

(72) Inventors; and

(75) Inventors/Applicants *(for US only)*: **DUDOFF, Greg** [US/US]; 28 Standish Way, Amherst, NH 03031 (US). **TREZZA, John** [US/US]; 12 White Oak Drive, Nashua, NH 03063 (US).

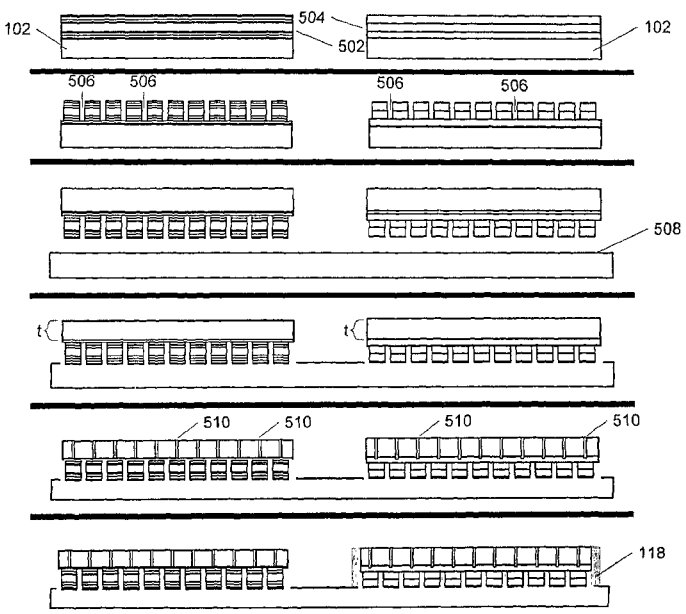
(74) Agent: **STRAUSSMAN, Richard**; Morgan & Finnegan, L.L.P., 345 Park Avenue, New York, NY 10154 (US).

(81) Designated States *(national)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW.

(84) Designated States *(regional)*: ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

[Continued on next page]

(54) Title: OPTO-ELECTRONIC DEVICE INTEGRATION



(57) Abstract: A method of integrating a chip with a backside active optical chip described. The backside active optical chip has at least one optical device, having an active side, including an optically active region and an optically inactive region each abutting a substrate (102), a bonding side opposite the active side, and a device thickness. The method involves if the substrate has a substrate thickness (t) in excess of 100 microns over the optically active region, thinning the substrate over the optically active region, while leaving at least some substrate over the optically inactive region; bonding the optical chip to the electronic chip (508) using a flip chip process; and creating access ways (510) in the substrate over optically active regions.

WO 03/003420 A1

Published:
— *with international search report*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.