

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
1 December 2005 (01.12.2005)

PCT

(10) International Publication Number
WO 2005/112583 A3

(51) International Patent Classification:

H01L 21/48 (2006.01) *H01L 21/607* (2006.01)
H01L 23/498 (2006.01) *H01L 21/60* (2006.01)

(21) International Application Number:

PCT/US2005/016521

(22) International Filing Date: 10 May 2005 (10.05.2005)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

60/570,704 12 May 2004 (12.05.2004) US
60/660,486 9 March 2005 (09.03.2005) US

(71) Applicant (for all designated States except US):
KULICKE AND SOFFA INVESTMENTS, INC.
[US/US]; 2751 Centerville Road, Little Falls Center II,
Wilmington, DE 19808 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **BEATSON, David,**
T. [US/US]; 485 Greenwood Road, Kennett Square, PA
19348 (US). **LING, Jamin** [US/US]; 3855 Blair Mill Road,
Apartment 227-F, Horsham, PA 19044 (US).

(74) Agents: **SHAFFER, William, L.** et al.; TOWNSEND
AND TOWNSEND AND CREW LLP, Two Embarcadero
Center, 8th Floor, San Francisco, CA 94111-3834 (US).

(81) Designated States (unless otherwise indicated, for every
kind of national protection available): AE, AG, AL, AM,
AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,
KG, KM, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA,
MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ,
OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL,
SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC,
VN, YU, 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, MC, 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:

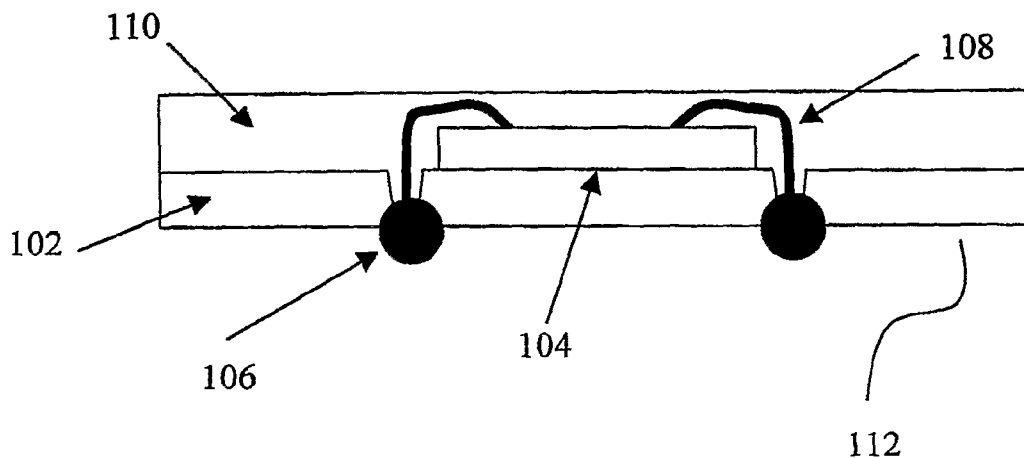
- with international search report
- before the expiration of the time limit for amending the
claims and to be republished in the event of receipt of
amendments

(88) Date of publication of the international search report:

9 March 2006

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

(54) Title: INTEGRATED BALL AND VIA PACKAGE AND FORMATION PROCESS



(57) Abstract: A method of processing a semiconductor device is provided. The method includes providing a semiconductor device supported by a carrier structure. The carrier structure defines a plurality of vias from a first surface of the carrier structure adjacent the semiconductor device to a second surface of the carrier structure. The method also includes extending a conductor through one of the vias such that a first end of the conductor at least partially extends below the second surface. The method also includes electrically coupling another portion of the conductor to a portion of the semiconductor device.