22/05/02
20020309 89

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

CORRECTED VERSION

162162

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
31 May 2001 (31.05.2001)

PCT

(10) International Publication Number
WO 01/039252 A3

(51) International Patent Classification[7]: H01L 23/66, 23/58

(21) International Application Number: PCT/US00/32198

(22) International Filing Date:
22 November 2000 (22.11.2000)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/166,823 22 November 1999 (22.11.1999) US

(71) Applicant *(for all designated States except US)*: **THE BOARD OF TRUSTEES OF THE UNIVERSITY OF ILLINOIS** [US/US]; 1737 West Polk Street, Chicago, IL 60612-7227 (US).

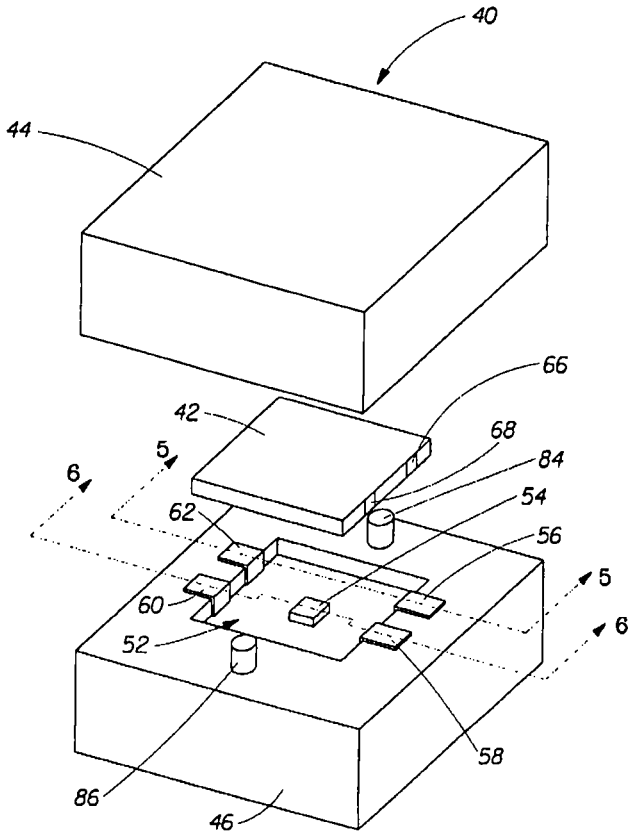
(72) Inventors; and

(75) Inventors/Applicants *(for US only)*: **NEBRIGIC, Dragan, Danilo** [YU/US]; 4155 Mill Crest Drive, Indian Springs, OH 45011 (US). **JEVTITCH, Milan, Marcel** [US/US]; 3001 Springer Avenue, Cincinnati, OH 45208 (US). **HUANG, Chow-Chi** [US/US]; 8138 Glenridge Court, West Chester, OH 45069 (US). **KERR, Kendall, William** [US/US]; 2480 Joyce Lane, Okeana, OH 45053 (US).

(74) Agent: **GAMSON, Edward**; Welsh & Katz, Ltd., 120 South Riverside Plaza, 22nd Floor, Chicago, IL 60606 (US).

[Continued on next page]

(54) Title: ACTIVE PACKAGE FOR INTEGRATED CIRCUIT



(57) Abstract: An active package for an integrated circuit may include an integrated circuit and an active component that is part of the circuit topology for the integrated circuit. The active component forms at least a portion of the housing for the integrated circuit. The integrated circuit may be housed in a shell formed by one or more discrete components. The active package may be formed in the same geometry and dimensions as a standard passive integrated circuit package, or may be formed in a shape to fit inside a standard or specially made battery package, or for another special application. A smart component may include a discrete component or a semiconductor-based resistor, capacitor or inductor, and a separate integrated circuit housed in the same housing as the discrete component or a semiconductor-based resistor, capacitor or inductor. The integrated circuit may control at least one electrical parameter of the discrete component or a semiconductor-based resistor, capacitor or inductor. In one embodiment, the integrated circuit may maintain the resistance, resistivity, capacitance, inductance, etc. of the component inside a narrow range in order to create a high-precision component regardless of changes in environmental changes such as temperature, pressure, humidity, etc.

WO 01/039252 A3

ACTION

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

(84) **Designated States** *(regional)*: ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, 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, GW, ML, MR, NE, SN, TD, TG).

Published:
— *with international search report*

(88) **Date of publication of the international search report:**
11 July 2002

(48) **Date of publication of this corrected version:**
26 September 2002

(15) **Information about Correction:**
see PCT Gazette No. 39/2002 of 26 September 2002, Section II

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.