20000 3140-1

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International Bureau

INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 6 : H01L 21/31 — A1

(11) International Publication Number: WO 99/34423

(43) International Publication Date: 8 July 1999 (08.07.99)

(21) International Application Number: PCT/US98/24358

(22) International Filing Date: 16 November 1998 (16.11.98)

(30) Priority Data:
09/002,178 31 December 1997 (31.12.97) US

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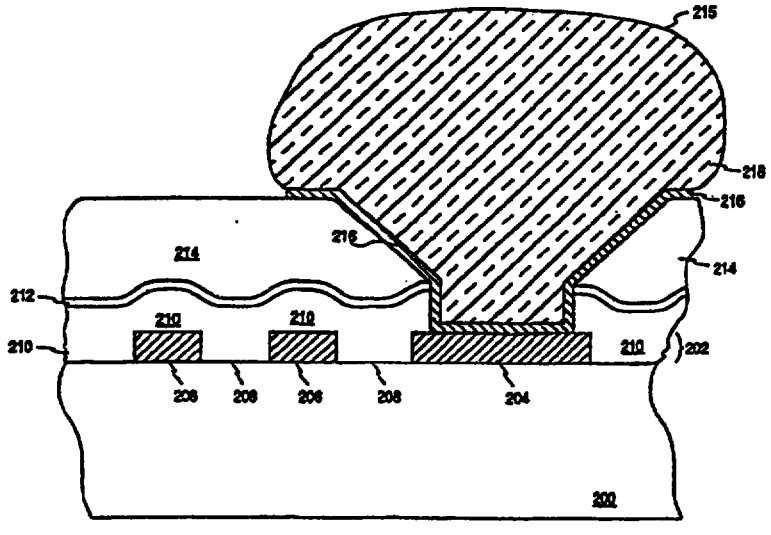
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(81) Designated States: AL, AM, AT, AT (Utility model), AU (Petty patent), AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, CZ (Utility model), DE, DE (Utility model), DK, DK (Utility model), EE, EE (Utility model), ES, FI, FI (Utility model), GB, GE, GH, GM, HR, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SK (Utility model), SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SZ, 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), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

Published
With international search report.

(54) Title: WAFER PASSIVATION STRUCTURE AND METHOD OF FABRICATION



(57) Abstract

A wafer passivation structure and its method of fabrication is described. According to one embodiment of the present invention, a metal layer having a bond pad (204) spaced by a gap (208) from a metal member (206) is formed on a substrate (200). A first dielectric layer (210), such as silicon dioxide, is then formed over the bond pad and the metal member and completely fills the gap. Next, a second dielectric layer (212), such as silicon nitride, having a dielectric constant greater than the first dielectric layer and being hermetic is formed over the first dielectric layer. A capping dielectric layer (214), such as a polyimide, can be formed on the second dielectric layer. An electrical contact (215), such as a controlled chip collapse contact (C–4) which includes a conductive barrier layer (216) and a bump (218) is formed through all the dielectric layers and makes electrical contact with bond pad (204).