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


(51) International Patent Classification 6: H05K 7/20 — A1

(11) International Publication Number: WO 96/27280

(43) International Publication Date: 6 September 1996 (06.09.96)

(21) International Application Number: PCT/US96/02000

(22) International Filing Date: 15 February 1996 (15.02.96)

(30) Priority Data: 08/399,162 — 2 March 1995 (02.03.95) — US



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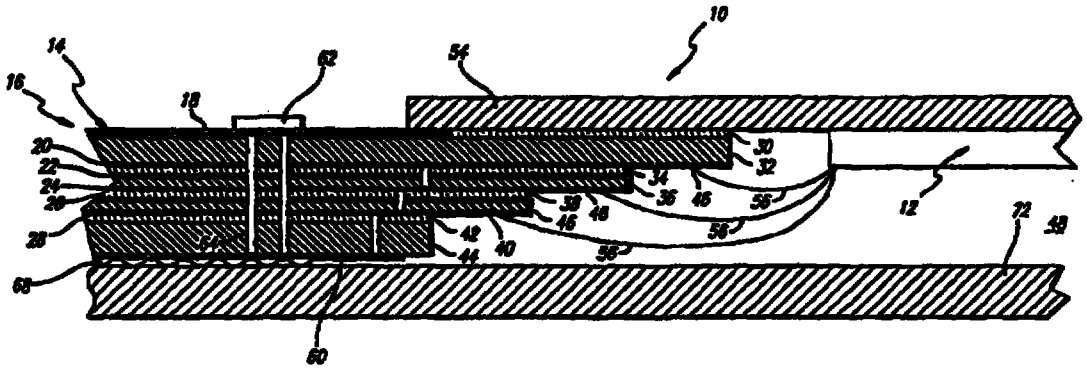
(81) Designated States: AL, AM, AT, AT (Utility model), AU, AZ, BB, BG, BR, BY, CA, CH, CN, CZ, CZ (Utility model), DE, DE (Utility model), DK, DK (Utility model), EE, EE (Utility model), ES, FI, FI (Utility model), GB, GE, HU, IS, JP, KE, KG, KP, KR, KZ, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SK (Utility model), TJ, TM, TR, TT, UA, UG, UZ, VN, ARIPO patent (KE, LS, MW, SD, SZ, UG), Eurasian patent (AZ, BY, KG, KZ, RU, TJ, TM), European patent (AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG).

Published
*With international search report.*


(54) Title: THERMALLY AND ELECTRICALLY ENHANCED BALL GRID PACKAGE





(57) Abstract

An integrated circuit package (10) which has internal bonding pads (46) that are located on bonding shelves and coupled to internal conductive power/ground planes (20, 24, 28) by conductive strips (52) that extend along the edges of the shelves. The edge strips eliminate the need for conventional vias to couple the bonding pads to the planes and thus reduce the cost and size of the package and improve package electrical performance (less inductive, less resistance path). The bonding pads are coupled to an integrated circuit (12) that is mounted to a heat slug (54) attached to a top surface of the package. The heat slug can function as both a ground path and a thermal sink for the integrated circuit. The package may have capacitors (62) coupled to the internal routing of the package to reduce the electrical noise of the signals provided to the integrated circuit. Additionally, the package may have multiple power planes dedicated to different voltage levels. The bonding pads and conductive planes are coupled to landing pads located on a bottom surface of the package. Attached to the landing pads are solder balls (68) which can be soldered to an external printed circuit board (72).


no covering letter

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