SEMICONDUCTOR DEVICE AND MANUFACTURING METHOD

ABSTRACT

[The goal of the present invention is] in the manufacture of BGA type semiconductor IC packages, to obviate the processing step in which the through-holes in the insulating substrate are filled with solder paste, and to reduce the thermal stress at the bonding portion of the solder balls.

[This goal is achieved through the following.] Through-holes (2a) are formed on insulating substrate (2) at positions corresponding to the positions where the solder balls are formed. On the surface of the insulating substrate where chip (3) is carried, conductor pattern (6) is formed, with the end [of each portion] of the conductor pattern positioned above through-hole (2a). The region of the aforementioned conductor pattern on each through-hole has portion (6d) protruding into the through-hole. Solder ball (7) is moved and carried on each through-hole to make contact with said bump portion (6d). In this state, the solder balls are melted and bump portions (6d) are directly bonded on solder balls (7). It is possible to form bump portions (6d) by performing buckling processing of the pattern. The bumps formed by buckling processing can reduce the thermal stress applied on these portions.

Drawing 1