STRUCTURALLY REINFORCED BALL GRID ARRAY SEMICONDUCTOR PACKAGES AND SYSTEMS

ABSTRACT

Supporting structure for a ball grid array surface mounted integrated circuit device (3) composed of support solder (16, 17, 18) formed at selective corner locations on the ball grid array surface of the integrated circuit device (3). In one form, L-shaped patterns of high melting temperature solder are formed along the axes defined by the ball grid array and are characterized in that cross sections of the L-shaped pattern match that of the solder balls (11) along one axis, and represent a continuum of solder between solder ball locations along the other axis. Support solder can be added where necessary to provide both structural reinforcement and thermal conduction. Control of the cross section of the support solder ensures that surface tension effects of the molten low temperature reflow solder used to connect the integrated circuit device does not materially change the final relative spacing between the integrated circuit device balls and the underlying printed circuit board contacts.

Fig. 3