ABSTRACT

FLUXLESS LASER REFLOW WITH TEMPLATE FOR SOLDER BALLS OF BGA PACKAGING

A system of solder ball placement and fluxless laser reflow on BGA packaging comprising means for template alignment, means for solder ball placement and a laser head. The template is aligned with connection pads located on the surface of the substrate without flux. The aligned template allows accurate guiding of the balls onto the pads by the ball placement means. One ball is dropped into each hole in the template directly onto the pads in the absence of flux. The solder balls positioned on the pads are then exposed to a laser via the laser head, resulting in the rapid melting of the solder balls directly onto the substrate pads. The melted balls are then allowed to cool rapidly. The present invention is preferably practiced on pads made from gold. The preferred condition for reflow is under nitrogen environment. Other types of pads composed of materials which are inert, do not oxidize readily in air and compatible with the solder ball reflow process are also compatible with the system according to the present invention.

FIGURE 4