

ABSTRACT**METHOD OF PRODUCING SOLDER BUMPS ON SUBSTRATE**

The present invention provides a method of producing solder bumps from solder paste. According to one aspect of the invention, the solder paste is heated by a laser beam for reflowing. If the application is in semiconductor wafers or package, the solder paste is preferably applied in a defined volume onto each I/O pad, such that the resulting bump have uniform heights. According to another aspect of the invention, the paste application and the reflow steps may be performed within the same system, thereby eliminating the steps of transferring the substrate from one station to another. In the most preferred embodiment, a stencil is provided to facilitate the application of the defined volume and height of solder paste. A laser beam is then directed onto the solder paste, preferably without moving the stencil. According to another aspect of the invention, an additional template is provided above to protect the stencil from being exposed to the laser beam. The use of this method results in the elimination of solder balls and reflow oven, and the associated steps of transferring a substrate from the pick and place system to the oven, thereby reducing costs.

FIGURE 1