

APPARATUS AND METHOD FOR ALIGNING AND
ATTACHING SOLDER COLUMNS TO A SUBSTRATE

ABSTRACT OF THE DISCLOSURE

An apparatus and method for aligning and attaching a
5 plurality of solder columns (26) to a patterned array of
corresponding electrical contacts (24) on a ceramic
substrate (22). The apparatus includes a flat rectangular
alignment plate (12) in which a plurality of through holes
10 (14) are defined in a pattern identical to the pattern of
the electrical contacts (24). Four retainers (18) depend
from the four respective sides of the alignment plate (12).
The retainers (18) hold the alignment plate (12) in a fixed
position above the ceramic substrate (22) such that the
through holes (14) are vertically aligned with the
15 corresponding electrical contacts (24). The solder columns
(26) are inserted through the through holes (14) so that
the solder columns (26) are placed in an upright position
on the respective electrical contacts (24). A low melting
solder paste (28) is applied onto the electrical contacts
20 (24). The alignment plate (12) and the substrate (22) are
heated so that the solder paste (28) is reflowed and wetted
onto the solder columns (26) and the electrical contacts
(24). The solder paste (28) is thereafter resolidified to
form a metallurgical bond between the solder columns (26)
25 and the electrical contacts (24).

Figure 1