

BUMPLESS FLIP CHIP ASSEMBLY WITH STRIPS-IN-VIA AND PLATING

ABSTRACT

5

A flip chip assembly, and methods of forming the same, including a single or multi-layer substrate having a plurality of via holes of which the pre-formed strips or wires inside the via holes serve as the connections between semiconductor device and substrate circuitry is described. The assembling steps comprise of attaching an integrated circuit (IC) chip or chips to a rigid or flexible substrate circuitry having a plurality of pre-formed strips extended from the patterned circuitry and hanging inside a plurality of through holes. These through holes are aligned and placed on top of the terminal pads so that the respective traces on substrate can be connected with the respective input/output terminal pads of the IC chip through the leads inside the via holes. After attachment, electrically conductive material is subsequently connect these leads to the IC terminal pads through electrolytic plating, electroless (chemical) plating or solder re-flow processes. The joining material can provide mechanical support as well as electrical continuity between IC chip and the circuitry of the substrate.

10

15

20

FIG. 2E