

BUMPLESS FLIP CHIP ASSEMBLY WITH STRIPS AND VIA-FILL**ABSTRACT**

5 A flip chip assembly, and methods of making the same, including a substrate circuitry having a plurality of via holes of which the pre-formed strips or wires hanging therein and the filled conductive material together serve as the electrical connection between semiconductor device and substrate circuitry is described. The assembling steps comprise of attaching
10 an integrated circuit (IC) chip to a rigid or flexible substrate circuitry having a plurality of pre-formed strips extended from patterned circuitry traces 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 readily connected to the respective input/output terminal
15 pads of the IC chip through the leads inside the via holes. After attachment, the electrically conductive materials including adhesive or solder is subsequently filled into the blind vias therefore connect the leads-in-via to the terminal pads-in-via. The joining material not only provides the mechanical support but also the electrical continuity between IC chip and
20 the circuitry of the substrate.

FIG. 2E