Abstract: (Fig. 1)

"A BUMP ELECTRODE STRUCTURE OF A SEMICONDUCTOR DEVICE AND A METHOD FOR FORMING THE SAME"

A bump electrode structure of a semiconductor device comprises an electrode pad (13) formed of an aluminum alloy, an insulating oxide layer (14) covering only the peripheral edge portion of the electrode pad (13), an under-bump layer (15) formed of an alloy of titanium and tungsten, and a bump electrode (16) formed of gold. The titanium-tungsten alloy functions both as a barrier metal and as a bonding metal. The bump electrode (16) rises substantially straight from the bonding surface of the under-bump layer (15), and its top portion has an area only substantially equal to that of the electrode pad (13). Fine V-shaped grooves (17) are formed on the top surface of the bump electrode (16) by anisotropic etching. Thus, the semiconductor device with fine electrode pad pitches is provided with a high-reliability bump electrode structure which ensures sufficient bonding strength between internal and external electrodes.

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