Abstract

SEMICONDUCTOR DEVICE AND METHOD OF FORMING PAD LAYOUT FOR FLIPCHIP SEMICONDUCTOR DIE

A semiconductor device has a semiconductor die with a die pad layout. Signal pads in the die pad layout are located primarily near a perimeter of the semiconductor die, and power pads and ground pads are located primarily inboard from the signal pads. The signal pads are arranged in a peripheral row or in a peripheral array generally parallel to an edge of the semiconductor die. Bumps are formed over the signal pads, power pads, and ground pads. The bumps can have a fusible portion and non-fusible portion. Conductive traces with interconnect sites are formed over a substrate. The bumps are wider than the interconnect sites. The bumps are bonded to the interconnect sites so that the bumps cover a top surface and side surfaces of the interconnect sites. An encapsulant is deposited around the bumps between the semiconductor die and substrate.
(Fig. 5)