Abstract

SEMICONDUCTOR DEVICE AND METHOD OF FORMING EXTENDED SEMICONDUCTOR DEVICE WITH FAN-OUT INTERCONNECT STRUCTURE TO REDUCE COMPLEXITY OF SUBSTRATE

A semiconductor device has a semiconductor wafer with a plurality of semiconductor die. Contact pads are formed on a surface of the semiconductor die. The semiconductor die are separated to form a peripheral region around the semiconductor die. An encapsulant or insulating material is deposited in the peripheral region around the semiconductor die. An interconnect structure is formed over the semiconductor die and insulating material. The interconnect structure has an I/O density less than an I/O density of the contact pads on the semiconductor die. A substrate has an I/O density consistent with the I/O density of the interconnect structure. The semiconductor die is mounted to the substrate with the interconnect structure electrically connecting the contact pads of the semiconductor die to the first conductive layer of the substrate. A plurality of semiconductor die each with the interconnect structure can be mounted over the substrate.
(Fig. 6)