

Abstract

SEMICONDUCTOR DEVICE WITH OPTICAL SENSOR AND METHOD OF FORMING INTERCONNECT STRUCTURE ON FRONT AND BACKSIDE OF THE DEVICE

A semiconductor device includes a carrier and semiconductor die having an optically active region. The semiconductor die is mounted to the carrier to form a separation between the carrier and the semiconductor die. The semiconductor device further includes a passivation layer disposed over a surface of the semiconductor die and a glass layer disposed over a surface of the passivation layer. The passivation layer has a clear portion for passage of light to the optically active region of the semiconductor die. The semiconductor device further includes an encapsulant disposed over the carrier within the separation to form an expansion region around a periphery of the semiconductor die, a first via penetrating the expansion region, glass layer, and passivation layer, a second via penetrating the glass layer and passivation layer to expose a contact pad on the semiconductor die, and a conductive material filling the first and second vias.

(FIG. 6)