Abstract

SEMICONDUCTOR DEVICE AND METHOD OF FORMING OPENINGS THROUGH INSULATING LAYER OVER ENCAPSULANT FOR ENHANCED ADHESION OF INTERCONNECT STRUCTURE

A semiconductor device has a semiconductor die mounted to a carrier. An encapsulant is deposited over the semiconductor die and carrier. The carrier is removed. A first insulating layer is formed over a portion of the encapsulant within an interconnect site outside a footprint of the semiconductor die. An opening is formed through the first insulating layer within the interconnect site to expose the encapsulant. The opening can be ring-shaped or vias around the interconnect site and within a central region of the interconnect site to expose the encapsulant. A first conductive layer is formed over the first insulating layer to follow a contour of the first insulating layer. A second conductive layer is formed over the first conductive layer and exposed encapsulant. A second insulating layer is formed over the second conductive layer. A bump is formed over the second conductive layer in the interconnect site. (Fig 4k)