Abstract

SEMICONDUCTOR DEVICE AND METHOD OF FORMING A THIN WAFER WITHOUT A CARRIER

A semiconductor device has a conductive via in a first surface of a substrate. A first interconnect structure is formed over the first surface of the substrate. A first bump is formed over the first interconnect structure. The first bump is formed over or offset from the conductive via. An encapsulant is deposited over the first bump and first interconnect structure. A portion of the encapsulant is removed to expose the first bump. A portion of a second surface of the substrate is removed to expose the conductive via. The encapsulant provides structural support and eliminates the need for a separate carrier wafer when thinning the substrate. A second interconnect structure is formed over the second surface of the substrate. A second bump is formed over the first bump. A plurality of semiconductor devices can be stacked and electrically connected through the conductive via. (Figure 6)