

Abstract

SEMICONDUCTOR DEVICE AND METHOD OF FORMING AN INTERCONNECT STRUCTURE WITH TSV USING ENCAPSULANT FOR STRUCTURAL SUPPORT

A semiconductor device has a conductive via formed through in a first side of the substrate. A first interconnect structure is formed over the first side of the substrate. A semiconductor die or component is mounted to the first interconnect structure. An encapsulant is deposited over the first interconnect structure and semiconductor die or component. A portion of a second side of the substrate is removed to reduce its thickness and expose the TSV. A second interconnect structure is formed over the second side of the substrate. The encapsulant provides structural support while removing the portion of the second side of the substrate. The second interconnect structure is electrically connected to the conductive via. The second interconnect structure can include a redistribution layer to extend the conductivity of the conductive via. The semiconductor device is mounted to a printed circuit board through the second interconnect structure. (Fig. 3h)