Abstract

SEMICONDUCTOR DEVICE HAVING AN INTERCONNECT STRUCTURE WITH TSV USING ENCAPSULANT FOR STRUCTURAL SUPPORT

A semiconductor device includes a substrate and a via extending through the substrate. A first insulating layer is disposed on sidewalls of the via. An electrically conductive material is disposed in the via over the first insulating layer to form a TSV. A first interconnect structure is disposed over a first side of the substrate. A semiconductor die or a component is mounted to the first interconnect structure. An encapsulant is disposed over the first interconnect structure and semiconductor die or component. A second interconnect structure is disposed over the second side of the substrate. The second interconnect structure is electrically connected to the TSV. The second interconnect structure includes a second insulating layer disposed over the second surface of the substrate and TSV, and a first conductive layer disposed over the TSV and in contact with the TSV through the second insulating layer.

(Fig. 3h)