

Abstract

A semiconductor device has a substrate including a base and a plurality of conductive posts extending from the base. The substrate can be a wafer-shape, panel, or singulated form. The conductive posts can have a circular, rectangular, tapered, or narrowing intermediate shape. A semiconductor die is disposed through an opening in the base between the conductive posts. The semiconductor die extends above the conductive posts or is disposed below the conductive posts. An encapsulant is deposited over the semiconductor die and around the conductive posts. The base and a portion of the encapsulant is removed to electrically isolate the conductive posts. An interconnect structure is formed over the semiconductor die, encapsulant, and conductive posts. An insulating layer is formed over the semiconductor die, encapsulant, and conductive posts. A semiconductor package is disposed over the semiconductor die and electrically connected to the conductive posts.

(Fig.9)