Abstract

SEMICONDUCTOR DEVICE AND METHOD FOR FORMING SEMICONDUCTOR PACKAGE HAVING BUILD-UP INTERCONNECT STRUCTURE OVER SEMICONDUCTOR DIE WITH DIFFERENT CTE INSULATING LAYERS

A semiconductor device has a semiconductor die and encapsulant deposited over the semiconductor die. A first insulating layer is formed over the die and encapsulant. The first insulating layer is cured with multiple dwell cycles to enhance adhesion to the die and encapsulant. A first conductive layer is formed over the first insulating layer. A second insulating layer is formed over the first insulating layer and first conductive layer. The second insulating layer is cured with multiple dwell cycles to enhance adhesion to the first insulating layer and first conductive layer. A second conductive layer is formed over the second insulating layer and first conductive layer. A third insulating layer is formed over the second insulating layer and second conductive layer. The first, second, and third insulating layers have different CTE. The second insulating layer or third insulating layer is cured to a dense state to block moisture.
(Fig. 5)