Abstract

SEMICONDUCTOR DEVICE AND METHOD OF FORMING MICRO-VIAS PARTIALLY THROUGH INSULATING MATERIAL OVER BUMP INTERCONNECT CONDUCTIVE LAYER FOR STRESS RELIEF

A semiconductor device has a semiconductor die and first insulating layer formed over the semiconductor die. A plurality of first micro-vias can be formed in the first insulating layer. A conductive layer is formed in the first micro-openings and over the first insulating layer. A second insulating layer is formed over the first insulating layer and conductive layer. A portion of the second insulating layer is removed to expose the conductive layer and form a plurality of second micro-openings in the second insulating layer over the conductive layer. The second micro-openings can be micro-vias, micro-via ring, or micro-via slots. Removing the portion of the second insulating layer leaves an island of the second insulating layer over the conductive layer. A bump is formed over the conductive layer. A third insulating layer is formed in the second micro-openings over the bump. The second micro-openings provide stress relief. (Fig. 4j)