STRESS RELIEVED BALL GRID ARRAY PACKAGE

ABSTRACT

A method and structure for reducing thermally induced strains on the solder joints that couple a ball grid array (BGA) module (40) to a circuit card (50) is disclosed. The method generates void annular regions (43) around portions of the BGA dielectric substrate (42) and/or around portions of the circuit card dielectric material to which the BGA module (40) is to be attached. This results in the formation of dielectric islands or penninsulas that bound the solder balls of the BGA module (40) after installation on the circuit card (50). The islands increase the effective height over which the differential expansion is accomodated, thereby reducing the strains throughout the solder joints. Additionally, the void annular regions (43) provide space for the deformation of the dielectric islands or peninsulas, thereby increasing their compliance and transferring strain from the solder joints to the dielectric islands or peninsulas.

FIG 2