Abstract

SYSTEM-IN-PACKAGE HAVING INTEGRATED PASSIVE DEVICES AND METHOD THEREFOR

A method of manufacturing a semiconductor device involves providing a substrate, forming a first passivation layer over the substrate, and forming an integrated passive circuit over the substrate. The integrated passive circuit can include inductors, capacitors, and resistors. A second passivation layer is formed over the integrated passive circuit. System components are mounted to the second passivation layer and electrically connect to the second conductive layer. A mold compound is formed over the integrated passive circuit. A coefficient of thermal expansion of the mold compound is approximately equal to a coefficient of thermal expansion of the system component. The substrate is removed. An opening is etched into the first passivation layer and solder bumps are deposited over the opening in the first passivation layer to electrically connect to the integrated passive circuit. A metal layer can be formed over the molding compound or first passivation layer for shielding. (Fig. 2d)