CHIP SCALE SURFACE MOUNT PACKAGES FOR SEMICONDUCTOR DEVICE AND PROCESS OF FABRICATING THE SAME

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ABSTRACT

A package for a semiconductor device is formed by a process which includes forming a metal layer in contact with a connection pad on the front side of a semiconductor die while the die is still a part of a wafer. The metal layer extends into the scribe line between the die and an adjacent die. A nonconductive cap is attached to the front side of the wafer, and the wafer is ground from its back side to reduce its thickness. A cut is made from the back side of the wafer, preferably by sawing and etching, to expose the metal layer. A nonconductive layer is formed on the back side of the wafer and a second metal layer is deposited over the nonconductive layer, the second metal layer extending into the scribe line where it makes contact with the first metal layer through an opening in the nonconductive layer. Preferably, a solder post is formed on the second metal layer to allow the finished package to be mounted on a printed circuit board. The cap is then sawed along the scribe line with a saw whose kerf is small enough not to sever the contact between the metal layers. The dice are thereby completely detached from each other, forming individual semiconductor device packages.

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