Semiconductor Device with Crack Prevention Ring and Method of Manufacture Thereof

ABSTRACT OF THE DISCLOSURE

A method of forming a crack prevention ring at the exterior edge of an integrated circuit to prevent delamination and cracking during the separation of the integrated circuits into individual die. The crack prevention ring extends vertically into a semiconductor workpiece to at least a metallization layer of the integrated circuit. The crack prevention ring may be formed simultaneously with the formation of test pads of the integrated circuits. The crack prevention ring may be partially or completely filled with conductive material. An air pocket may be formed within the crack prevention ring beneath a passivation layer of the integrated circuit. The crack prevention ring may be removed during the singulation process. An optional seal ring may be formed between the crack prevention ring and the integrated circuit.

Figure 6b