Abstract

METHOD OF FORMING A SCRIBE LINE
ON A PASSIVE ELECTRONIC COMPONENT SUBSTRATE

A method of forming a scribe line 36 having a sharp snap line 44 entails directing a UV laser beam 14 along a ceramic or ceramic-like substrate 10 such that a portion of the thickness 24 of the substrate 10 is removed. The UV laser beam forms a scribe line in the substrate in the absence of appreciable substrate melting so that a clearly defined snap line forms a region of high stress concentration extending into the thickness of the substrate. Consequently, multiple depthwise cracks propagate into the thickness of the substrate in the region of high stress concentration in response to a breakage force applied to either side of the scribe line to effect clean fracture of the substrate into separate circuit components. The formation of this region facilitates higher precision fracture of the substrate while maintaining the integrity of the interior structure of each component during and after application of the breakage force.

[Fig. 5]