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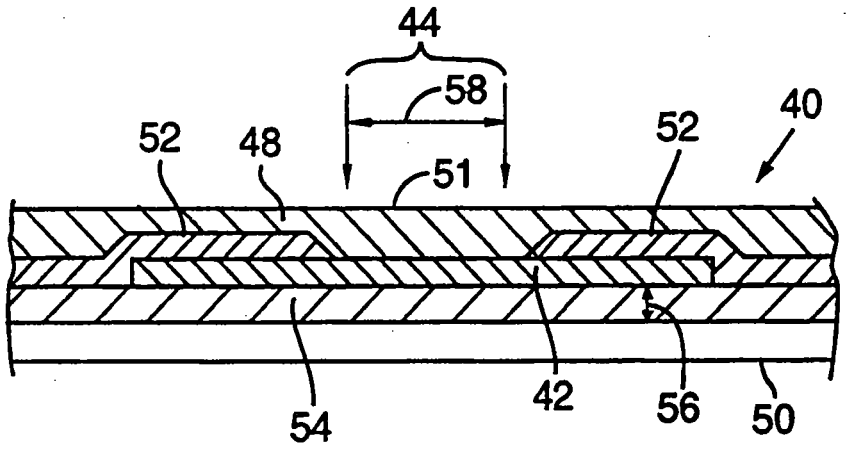


162162

(54) Title: METHOD OF SEVERING ELECTRICALLY CONDUCTIVE LINKS WITH ULTRAVIOLET LASER OUTPUT

(57) Abstract

Ultraviolet (UV) laser output exploits the absorption characteristics of the materials from which an electrically conductive link (42), an underlying semiconductor substrate (50), and passivation layers (48 and 54) are made to effectively remove the link (42) without damaging the substrate (50). The UV laser output forms smaller than conventional IR laser link–blowing spot diameters (58) because of its shorter wavelength, thus permitting the implementation of greater circuit density. A passivation layer positioned between the link and the substrate can be formulated to be sufficiently absorptive to UV laser energy and sufficiently thick to attenuate the laser energy to prevent it from damaging the substrate (50) in the laser beam spot area (43) in both the off–link and link–overlapped portions. The UV laser output can be employed to controllably ablate a depthwise portion of the passivation layer (54) underlying the link (42) to facilitate complete removal of the link (42). In addition, direct ablation of the passivation layer (48) with the UV laser output facilitates predictable and consistent link severing profiles. The absorption characteristics of the passivation material also reduce the risk of damage to neighboring links or other active structures.





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