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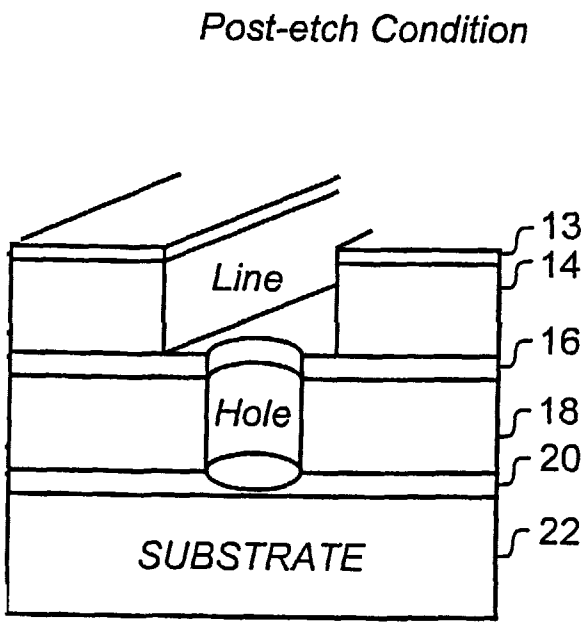
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(54) Title: METHOD OF PLASMA ETCHING LOW-K ORGANOSILICATE MATERIALS



(57) Abstract: A semiconductor manufacturing process wherein organosilicate glass is plasma etched with selectivity to an overlying and/or underlying dielectric layer. The oxygen-free etchant gas includes a fluorocarbon reactant, a nitrogen reactant and an optional carrier gas, the fluorocarbon reactant and nitrogen reactant being supplied to the chamber at flow rates such that the fluorocarbon reactant flow rate is less than the nitrogen reactant flow rate. The etch rate of the organosilicate glass can be at least 5 times higher than that of the dielectric layer. The process is useful for etching 0.25 micron and smaller contact or via openings in forming structures such as damascene structures.

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