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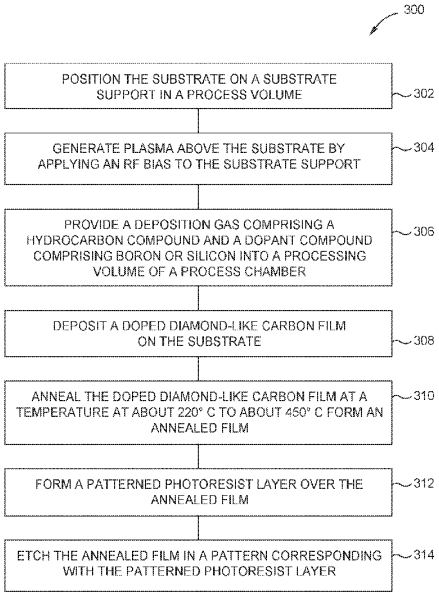


FIG. 3

(57) Abstract: A method of processing a substrate is provided including flowing a deposition gas comprising a hydrocarbon compound and a dopant compound into a process volume having a substrate disposed positioned on a substrate support. The process volume is maintained at a pressure of about 0.5 mTorr to about 10 mTorr. The method includes generating a plasma at the substrate by applying a first RF bias to the substrate support to deposit a doped diamond-like carbon film on the substrate. The doped diamond-iike carbon film includes about 5 at. % to about 25 at.% of dopant and a first stress property. The method includes annealing the doped diamond-like carbon film at about 220 °C to about 450 °C to form an annealed film. The annealed film includes a second stress property. The second stress property having an absolute value less than or within 10% the first stress property.

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