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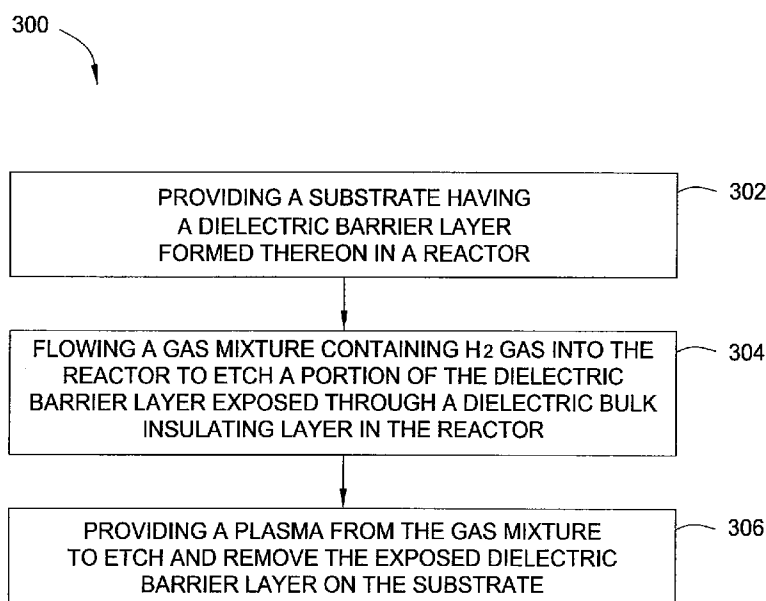
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(57) Abstract: Methods for etching a dielectric barrier layer with high selectivity to a dielectric bulk insulating layer are provided. In one embodiment, the method includes providing a substrate having a portion of a dielectric barrier layer exposed through a dielectric bulk insulating layer in a reactor, flowing a gas mixture containing H₂ gas, fluorine containing gas, at least an inert gas into the reactor, and etching the exposed portion of the dielectric barrier layer selectively to the dielectric bulk insulating layer.

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