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(54) Title: SELECTIVE ETCH FOR SILICON FILMS

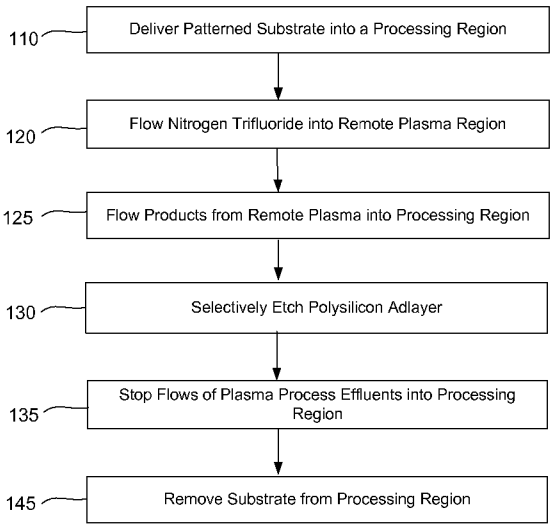


FIG. 1

(57) Abstract: A method of etching patterned heterogeneous silicon-containing structures is described and includes a remote plasma etch with inverted selectivity compared to existing remote plasma etches. The methods may be used to conformally trim polysilicon while removing little or no silicon oxide. More generally, silicon-containing films containing less oxygen are removed more rapidly than silicon-containing films which contain more oxygen. Other exemplary applications include trimming silicon carbon nitride films while essentially retaining silicon oxycarbide. Applications such as these are enabled by the methods presented herein and enable new process flows. These process flows are expected to become desirable for a variety of finer linewidth structures. Methods contained herein may also be used to etch silicon-containing films faster than nitrogen-and-silicon containing films having a greater concentration of nitrogen.

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