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(54) Title: SELECTIVE DEPOSITION PROCESSES ON SEMICONDUCTOR SUBSTRATES

(57) Abstract: Embodiments of the disclosure relate to methods of selectively depositing polysilicon after forming a flowable polymer film to protect a substrate surface within a feature. A first silicon (Si) layer is deposited by physical vapor deposition (PVD). The flowable polymer film is formed on the first silicon (Si) layer on the bottom. A portion of the first silicon (Si) layer is selectively removed from the top surface and the at least one sidewall. The flowable polymer film is removed. In some embodiments, a second silicon (Si) layer is selectively deposited on the first silicon (Si) layer to fill the feature. In some embodiments, the remaining portion of the first silicon (Si) layer on the bottom is oxidized to form a first silicon oxide (SiOx) layer on the bottom, and a silicon (Si) layer or a second silicon oxide (SiOx) layer is deposited on the first silicon oxide (SiOx) layer.

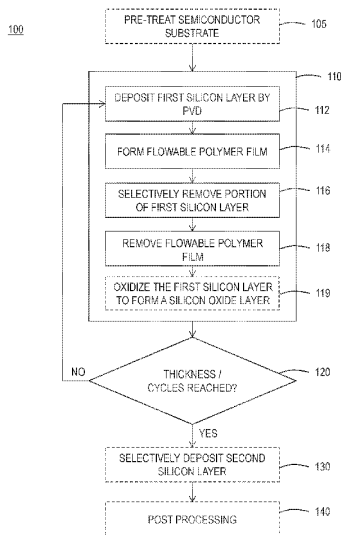


FIG. 1

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