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(54) Title: METHOD OF FORMING A MOISTURE BARRIER ON PHOTSENSITIVE ORGANOMETALLIC OXIDES

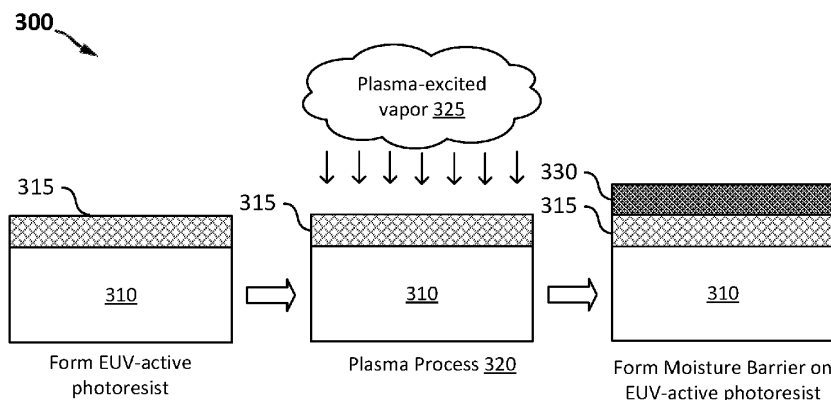


FIG. 3

(57) Abstract: Various embodiments of methods are provided for forming a moisture barrier layer on an EUV-active photoresist film before patterning the EUV-active photoresist film with EUV lithography. According to one embodiment, the methods disclosed herein may form an EUV-active photoresist film on a surface of a semiconductor substrate and a moisture barrier layer containing a hydrocarbon polymer on the EUV-active photoresist film before the EUV-active photoresist film is patterned with EUV lithography to form a patterned photoresist on the substrate surface. In some embodiments, a first hydrocarbon polymer layer may be formed on the substrate surface before an EUV-active photoresist film is formed on the first hydrocarbon polymer layer. By providing a hydrocarbon polymer layer above and/or below the EUV-active photoresist film, the disclosed methods improve the performance of the EUV-active photoresist film by protecting upper/lower surfaces of the EUV-active photoresist film from undergoing unwanted chemical reactions.

[Continued on next page]

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