ABSTRACT OF THE DISCLOSURE

PLASMA ETCH METHOD FOR FORMING PLASMA ETCHED SILICON LAYER

A method for forming an etched silicon layer. There is first provided a first substrate having formed thereover a first silicon layer. There is then etched the first silicon layer to form an etched first silicon layer while employing a plasma etch method employing a plasma reactor chamber in conjunction with a plasma etchant gas composition which upon plasma activation provides at least one of an active bromine containing etchant species and an active chlorine containing etchant species. Within the plasma etch method: (1) a cleaned plasma reactor chamber is seasoned to provide a seasoned plasma reactor chamber having a seasoning polymer layer formed therein; (2) the first silicon layer is etched to form the etched first silicon layer within the seasoned plasma reactor chamber; and (3) the seasoning polymer layer is cleaned from the seasoned plasma reactor chamber to provide the cleaned plasma reactor chamber after etching the first silicon layer to form the etched first silicon layer within the seasoned plasma reactor chamber, prior to etching a second silicon layer to form an etched second silicon layer formed over a second substrate within the plasma reactor chamber while employing the plasma etch method in accord with (1), (2) and (3).

(FIGURE 1 IS SUGGESTED FOR PUBLICATION)