ABSTRACT OF THE DISCLOSURE

FLUOROCARBON BASED ASPECT-RATIO INDEPENDENT ETCHING

A method for etching features into an etch layer disposed below a patterned mask is provided. At least three cycles are provided, where each cycle comprises providing an ion bombardment, by creating a plasma, of the etch layer to create activated sites of surface radicals in parts of the etch layer exposed by the patterned mask, extinguishing the plasma, exposing the etch layer to a plurality of fluorocarbon containing molecules, which causes the fluorocarbon containing molecules to selectively bind to the activated sites, wherein the selective binding is self limiting, and providing an ion bombardment of the etch layer to initiate an etch reaction between the fluorocarbon containing molecule and the etch layer, wherein the ion bombardment of the etch layer to initiate an etch reaction causes the formation of volatile etch products formed from the etch layer and the fluorocarbon containing molecule.

FIG. 1