

forming a self-assemblable block copolymer layer containing a first polymer and a second polymer on an intermediate layer formed on the etching target layer;

processing the workpiece to form a first region containing the first polymer and a second region containing the second polymer, from the block copolymer layer;

after the processing the workpiece, forming a mask by etching the second region and the intermediate layer just below the second region;

after the forming the mask, etching the etching target layer,

wherein the etching target layer is a layer containing silicon oxide or silicon nitride, and

in the etching the etching target layer, plasma of a processing gas containing at least one of fluorocarbon gas and fluorohydrocarbon gas, and hydrogen bromide gas, is generated within the processing container.

4. The method of ~~any one of claims 1 to 3~~claim 1, wherein the first polymer is polystyrene, and the second polymer is poly(methyl methacrylate).

5. The method of claim 3, wherein the first polymer is polystyrene, and the second polymer is poly(methyl methacrylate).