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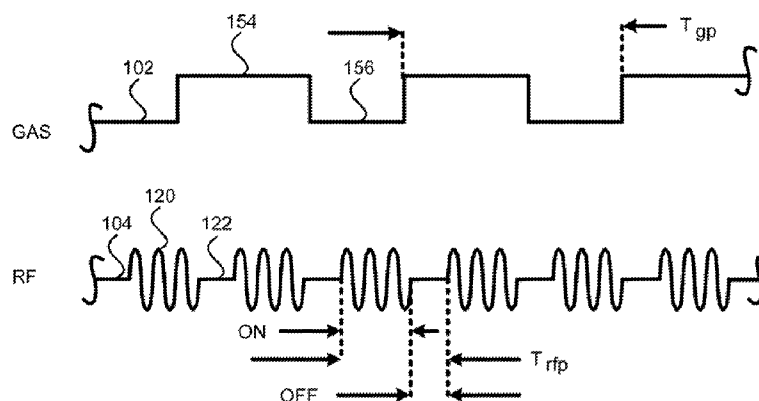


FIG. 1

(57) Abstract: A method for processing substrate in a chamber, which has at least one plasma generating source, a reactive gas source for providing reactive gas into the interior region of the chamber, and a non-reactive gas source for providing non-reactive gas into the interior region, is provided. The method includes performing a mixed-mode pulsing (MMP) preparation phase, including flowing reactive gas into the interior region and forming a first plasma to process the substrate that is disposed on a work piece holder. The method further includes performing a MMP reactive phase, including flowing at least non-reactive gas into the interior region, and forming a second plasma to process the substrate, the second plasma is formed with a reactive gas flow during the MMP reactive phase that is less than a reactive gas flow during the MMP preparation phase. Perform the method, steps a plurality of times.