

ABSTRACT

The present disclosure provides an etching method for a silicon-containing organic dielectric layer, and a semiconductor processing equipment. At least two cyclically alternating etching steps are adopted to etch a silicon-containing organic dielectric layer, the at least two etching steps include a first etching step and a second etching step, an etching gas used in the first etching step at least includes an oxygen-containing gas, and an etching gas used in the second etching step at least includes the oxygen-containing gas and a fluorine-containing gas. Thus, by alternately and cyclically performing the first etching step and the second etching step, a gas flow ratio of the fluorine-containing gas to the oxygen-containing gas can be adjusted to further adjust etching rates of different elements in the silicon-containing organic dielectric layer, so that sub-trenches or bumps at a bottom of a trench or through hole in the silicon-containing organic dielectric layer can be reduced, and the bottom of the trench or through hole can have smooth morphology, which can avoid excessive concentration of electric field stress at the bottom of the trench or through hole and further avoid an influence of the excessive concentration of the electric field stress at the bottom of the trench or through hole on performance of an electronic device.