ABSTRACT

In order to provide a light oxidation process technique in that in a CMOS LSI employing a polymetal gate structure and a dual gate structure, both oxidation of a refractory metal film constituting a part of a gate electrode, and diffusion of boron contained in a p-type polycrystalline silicon film constituting a part of the gate electrode can be prevented, a mixed gas containing a hydrogen gas and steam synthesized from an oxygen gas and a hydrogen gas is supplied to a major surface of a semiconductor wafer A1, and a heat treatment for improving a profile of a gate insulating film that has been cut by etching under an edge part of the gate electrode is conducted under a low thermal load condition in that the refractory metal film is substantially not oxidized, and boron contained in a p-type polycrystalline silicon film constituting a part of the gate electrode is not diffused to the semiconductor substrate through the gate oxide film.

This Sheet Has Been Replaced