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ABSTRACT OF THE DISCLOSURE

In a film formation method of a semiconductor device including a plurality of silicon-based transistors or capacitors, there exist hydrogen at least in a part of the silicon surface in advance, and the film formation method removes the hydrogen by exposing the silicon surface to a first inert gas plasma. Thereafter a silicon compound layer is formed on the surface of the silicon gas by generating plasma while using a mixed gas of a second inert gas and one or more gaseous molecules, such that there is formed a silicon compound layer containing at least a pat of the elements constituting the gaseous molecules, on the surface of the silicon gas.



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