

ABSTRACT

There is provided a method for manufacturing a magnetic tunnel junction element which prevents properties degradation due to hydrogen ions, and to which RIE processing that is capable of securing an etching shape is applied. A multilayer film which has a magnetic film and an oxidation film, of which a thickness of the magnetic film is 2 nm or less, and of which the magnetic film and the oxidation film have an interface in a film surface direction is generated, a mask layer that is patterned is formed on the multilayer film, etching is performed with respect to the multilayer film on which the mask layer is formed, by using a mixed gas of a hydrogen gas and a nitrogen gas as a reaction gas, and a ratio of a flow rate of the hydrogen gas to a flow rate of the mixed gas is 50% or less.

Fig 4.