Abstract

Methods for producing epitaxially coated silicon wafers

The invention relates to a first method for producing an epitaxially coated silicon wafer, in which a silicon wafer that has been polished on its front side is placed on a susceptor in the epitaxy reactor, is pretreated in a first step under a hydrogen atmosphere and in a second and a third step with addition of an etching medium to the hydrogen atmosphere, and is subsequently provided with an epitaxial layer, wherein during the first step and during the second step the hydrogen flow rate is 20-100 slm, during the second and third steps the flow rate of the etching medium is 0.5-1.5 slm, during the second step furthermore an average temperature in the reactor chamber is 950-1050°C and the power of heating elements arranged above and below the susceptor is regulated in such a way that there is a temperature difference of 5-30°C between a radially symmetrical region - encompassing the central axis - of the silicon wafer to be epitaxially coated and a part of the silicon wafer that lies outside said region; and during the third step the hydrogen flow rate is reduced to 0.5-10 slm. In a second method, by contrast, during the third pretreatment step the flow rate of the etching medium is increased to 1.5-5 slm, while the hydrogen flow rate does not have to be reduced during the third step of the pretreatment.

Fig. 1