Abstract

Epitaxially coated silicon wafer and method for producing epitaxially coated silicon wafers

The object is achieved by means of a first method for producing epitaxially coated silicon wafers, in which a multiplicity of silicon wafers which are polished at least on their front sides are provided and successively coated individually in each case in an epitaxy reactor by a procedure in which a respective one of the silicon wafers provided is placed on a susceptor in the epitaxy reactor, and is pretreated only under a hydrogen atmosphere in a first step and with addition of an etching medium with a flow rate of 1.5-5 slm to the hydrogen atmosphere in a second step, the hydrogen flow rate being 1-100 slm in both steps, is subsequently coated epitaxially on its polished front side and is removed from the epitaxy reactor.

In a second method according to the invention, gas flows introduced into the reactor chamber by injectors are distributed by means of valves into an outer and an inner zone of the reactor chamber, such that the gas flow in the inner zone acts on a region around the center of the silicon wafer and the gas flow in the outer zone acts on an edge region of the silicon wafer, the distribution of the etching medium in inner and outer zones being I/O = 0 - 0.75.

The invention permits the production of a silicon wafer having a front side and a rear side, wherein at least its front side is polished and an epitaxial layer is applied at least on its front side, and which has a global flatness value GBIR of 0.02-0.06 µm, relative to an edge exclusion of 2 mm.