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## Abstract

The invention relates to a process for the production of a layer structure of a nitride semiconductor component on a silicon surface, comprising the steps:

- provision of a substrate that has a silicon surface;
- deposition of an aluminium-containing nitride nucleation layer on the silicon surface of the substrate;
- optional: deposition of an aluminium-containing nitride buffer layer on the nitride nucleation layer;
- deposition of a masking layer on the nitride nucleation layer or, if present, on the first nitride buffer layer;
- deposition of a gallium-containing first nitride semiconductor layer on the masking layer,

wherein the masking layer is deposited in such a way that, in the deposition step of the first nitride semiconductor layer, initially separate crystallites grow that coalesce above a coalescence layer thickness and occupy an average surface area of at least 0.16 $\mu m^2$ in a layer plane of the coalesced nitride semiconductor layer that is perpendicular to the growth direction.

Fig. 1