Method for producing a component

The invention relates to a method for producing a component, in particular, a micro-mechanical, micro-electromechanical (MEMS) or rather micro-opto-electro-mechanical (MOEMS) component.

Micro-electromechanical components (MEMS) or rather micro-opto-electro-mechanical components (MOEMS) often comprise active structures. In particular, mobile structures or structures, which equally include mobile and optical components (e.g. mobile mirrors), are to be understood by "active structure". The term "active area" designates the area or rather volume of the component, in which the active structure lies or rather moves. It can be necessary or advantageous, if the active structure does not consist of a uniform composite, but has at least two separate parts or regions, which are mechanically connected to each other in a rigid manner, but are fully electrically insulated from each other.

The formation of an electrical insulation between the parts of the active structure electrically insulated from each other presents a particular challenge in the production of such a component, since the active structure is physically connected to other elements of the component to a limited extent only, in order to guarantee their mobility.

Embodiments of the invention provide a method for producing a component, in particular, a micro-mechanical, micro-electromechanical or micro-opto-electro-mechanical component, by which an active structure of the component with two separate parts or regions, which are mechanically connected to each other in a rigid manner, but are fully electrically insulated from each other, can be realized.

According to an aspect of the present invention, there is provided a method for producing a component, including: the step of producing a first layer composite, which comprises a structured layer, which is electrically conductive at least in a first region, and a trench filled with an insulating material, which extends outwards from a first surface of the structured layer and is arranged in the first region of the

structured layer, the first surface of the structured layer facing a first surface of first layer composite, the step of producing a second layer composite, which has a first depression in a first surface of the second layer composite, the step of connecting the first layer composite to the second layer composite, the first surface of the first layer composite adjoining the first surface of the second layer composite at least in some regions, and said filled trench being arranged within the lateral position of the first depression, after the first layer composite has been connected to the second layer composite, the thickness of the first layer composite from a second surface of the first layer composite to the depth of the filled trench is reduced, the second surface of the first layer composite lying opposite the first surface of the first layer composite, the step of producing an active structure of the component in the structured layer, said active structure being arranged within the lateral position of the first depression and comprising two second regions of the structured layer, which are arranged in the first region of the structured layer, are physically connected to each other in a rigid manner, and are electrically insulated from each other by means of the filled trench prior to connecting the first layer composite to the second layer composite, the filled trench in the first layer composite extends to a depth, which is smaller than a thickness of the first layer composite, characterized in that the first layer composite further comprises an auxiliary layer different from the structured layer, which adheres well to the structured layer, can be removed again, and adjoins a second surface of the structured layer, with the second surface of the structured layer lying opposite the first surface of the structured layer, and the filled trench extends to the second surface of the structured layer.

According to an embodiment of the method for producing a component, the filled trench in the first layer composite can, prior to the step of connecting the first layer composite to the second layer composite, extend to a depth, which is smaller than the thickness of the first layer composite. This means that the filled trench does not reach to a second surface of the first layer composite, which lies opposite the first surface of the first layer composite.

According to a specific embodiment, the first layer composite further comprises an auxiliary layer adjoining a second surface of the structured layer, the second