SILICON CARBIDE-BASED COMPOSITE STRUCTURE HAVING GOOD VERTICAL ELECTRICAL CONDUCTION

Abstract

The invention relates to a composite structure having a front face and a rear face extending parallel to a main plane, and comprising: - a working layer made of single-crystal silicon carbide, one free face of which forms the front face, with a first concentration of N-type dopants, - a carrier substrate made of polycrystalline silicon carbide, one free face of which forms the rear face, with a second concentration of N-type dopants, the second concentration being higher than the first concentration, - an intermediate region extending along the main plane and including an interface zone between a bonded face of the working layer and a bonded face of the carrier substrate; the composite structure being remarkable in that the intermediate region comprises single-crystal silicon carbide inclusions in direct contact with the working layer and extending, in a direction normal to the main plane, between grains of the carrier substrate, said inclusions having a third N-type dopant concentration between the first and second concentrations. The invention also relates to a method for manufacturing such a composite structure.

Fig. 2