METHOD FOR MANUFACTURING SIMOX WAFER AND SIMOX WAFER OBTAINED BY THIS METHOD

ABSTRACT OF DISCLOSURE

It is an object of the present invention to provide a method for manufacturing SIMOX wafer, wherein roughness Rms of a measurement area of 10 square micrometers in a surface of an SOI layer and roughness Rms of a measurement area of 10 square micrometers in an interface between the SOI layer and a BOX layer can be reduced respectively and a SIMOX obtained by the method. The method is to manufacture a SIMOX wafer comprising; a step of forming a first ion-implanted layer 12 containing highly concentrated oxygen within a wafer 11; a step of forming a second ion-implanted amorphous layer 13; and a high temperature heat treatment step of transforming the first and second ion-implanted layers into a BOX layer 15 by holding the wafer at a temperature between 1300 °C or more and a temperature less than a silicon melting point in an atmosphere containing oxygen, wherein when a first dose amount in the step of forming the first ion-implanted layer is set to $2x10^{17}$ to $3x10^{17}$ atoms/cm^2, the first implantation energy is set to 165 to 240 keV and a second dose amount in the step of forming the second ion-implanted layer is set to $1x10^{14}$ to $1x10^{16}$ atoms/cm^2.

Fig. 1