CLAIMS

1. A method for manufacturing a bonded SOI wafer, comprising:

implanting at least one gas ion selected from a hydrogen ion and a rare gas ion from a surface of a bond wafer to form an ion-implanted layer in an interior of the bond wafer, the bond wafer being composed of silicon single crystal;

bonding the ion-implanted surface of the bond wafer to a surface of a base wafer through an insulator film; and

delaminating a portion of the bond wafer along the ion-implanted layer to form a bonded SOI wafer having an SOI layer over the base wafer, the SOI layer being composed of a thin film of the bond wafer, wherein

the bonded SOI wafer after the delamination is subjected to a rapid thermal oxidation process such that an oxide film is formed on a surface of the SOI layer,

the oxide film is **then removed,**

the bonded SOI wafer is then subjected to a flattening heat treatment to flatten the surface of the SOI layer, the flattening heat treatment causing migration of silicon atoms of the surface of the SOI layer, and

the bonded SOI wafer is then subjected to a sacrificial oxidation process to adjust a film thickness of the SOI layer.

2. A method for manufacturing a bonded SOI wafer, comprising:

implanting at least one gas ion selected from a hydrogen ion and a rare gas ion from a surface of a bond