CLAIMS

1. A method of producing a bonded wafer including a thin film on a base wafer, comprising:

implanting at least one gas ion selected from a hydrogen ion and a rare gas ion into a bond wafer from a surface of the bond wafer to form a layer of the implanted ion;

bonding the surface from which the ion is implanted into the bond wafer and a surface of the base wafer directly or through an insulator film; and then

performing a heat treatment to separate part of the bond wafer along the layer of the implanted ion, wherein

before the bond wafer and the base wafer are bonded, a thickness of the bond wafer and the base wafer is measured, and a combination of the bond wafer and the base wafer is selected such that a difference in the thickness between the wafers is less than 5 μm, and the selected bond and base wafers are bonded.

2. The method according to claim 1, wherein at least one of the bond wafer and the base wafer is a wafer reclaimed by performing a reclaiming process including a thickness reducing process on a by-product wafer separated when a bonded wafer is produced by the producing method.

3. The method according to claim 2, wherein the reclaimed wafer is subjected to the reclaiming process including the thickness reducing process twice or more.

4. The method according to claim 2 or claim 3,

wherein the reclaiming process including the thickness reducing process reduces the thickness of the reclaimed wafer by 5 μm or more.

5. The method according to any one of claims 1 to 4, wherein the bond wafer and the base wafer are silicon single crystal wafers, the insulator film is a silicon oxide film, and the thin film is an SOI layer.

CLAIMS

1. A method of producing a bonded wafer including a thin film on a base wafer, comprising:

implanting at least one gas ion selected from a hydrogen ion and a rare gas ion into a bond wafer from a surface of the bond wafer to form a layer of the implanted ion;

bonding the surface from which the ion is implanted into the bond wafer and a surface of the base wafer directly or through an insulator film; and then

performing a heat treatment to separate part of the bond wafer along the layer of the implanted ion, wherein

at least one of the bond wafer and the base wafer is a wafer reclaimed by performing a reclaiming process including a thickness reducing process on a by-product wafer separated when a bonded wafer is produced by the producing method, and

wherein

the bond wafer and the base wafer are silicon single crystal wafers, and

wherein

before the bond wafer and the base wafer are bonded, a thickness of the bond wafer and the base wafer is measured, and a combination of the bond wafer and the base wafer is selected such that a difference in the thickness between the wafers is less than 5 μm, and the selected bond and base wafers are bonded.

2. The method according to claim 1, wherein the reclaimed wafer is subjected to the reclaiming process including the thickness reducing process twice or more.

3. The method according to claim 1 or claim 2, wherein the reclaiming process including the thickness reducing process reduces the thickness of the reclaimed wafer by 5 μm or more.

4. The method according to any one of claims 1 to 3, wherein the insulator film is a silicon oxide film, and the thin film is an SOI layer.