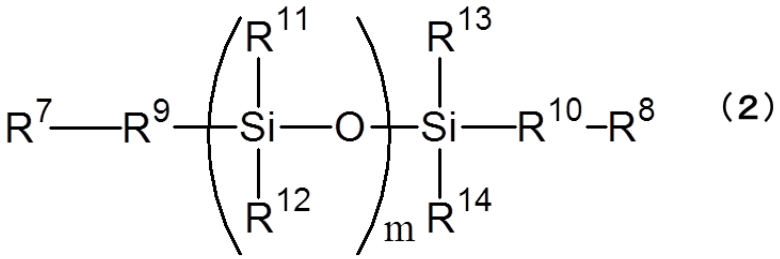
CLAIMS

1. A temporary-bonding adhesive, wherein the temporary-bonding adhesive is a resin composition containing (a) a resin (excluding a siloxane polymer represented by a general formula (2)), (b-1) a siloxane polymer represented by a general formula (2) and optionally (b-2) a compound represented by a general formula (3):



(2)

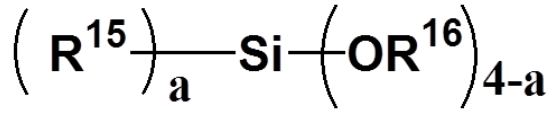
,

in which m is an integer of 10 to 100,

R^7 and R^8 may be the same or different and represent a monovalent organic group having 1 to 30 carbon atoms and 0 to 3 nitrogen atoms,

R^9 and R^{10} may be the same or different and represent an alkylene group having 1 to 30 carbon atoms or a phenylene group, and

R^{11} to R^{14} may be the same or different and represent an alkyl group having 1 to 30 carbon atoms, an alkylene group having 1 to 30 carbon atoms, an alkoxy group having 1 to 30 carbon atoms, a phenyl group, or a phenoxy group,



(3)

in which R^{15} represents a monovalent organic group having 2 to 20 carbon atoms and 1 to 3 nitrogen atoms, R^{16} represents hydrogen, an alkyl group having 1 to 20 carbon atoms, or an aromatic group, and a represents an integer of 0 to 4, wherein the (b-1) siloxane polymer represented by a general formula (2) in the temporary-bonding adhesive is in an amount of 0.01 to 30 wt% with respect to the (a) resin.

2. The temporary-bonding adhesive according to claim 1, wherein a glass transition temperature of the (a) resin is 100°C or lower.

3. The temporary-bonding adhesive according to claim 1 or 2, wherein a 1% weight Loss temperature of the (a) resin is 300°C or higher.

4. The temporary-bonding adhesive according to any one of claims 1 to 3, wherein the (a) resin is a polyimide resin.

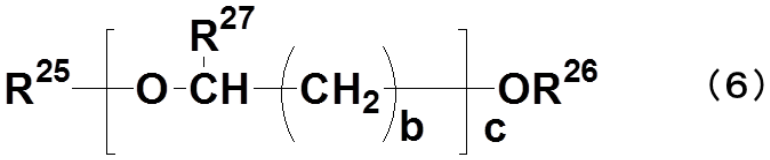
5. The temporary-bonding adhesive according to any one of claims 1 to 4, containing the (b-2) compound represented by a general formula (3) in an amount of 0.01 to 30 wt% with respect to the (a) resin.

6. The temporary-bonding adhesive according to any one of

claims 1 to 5, further comprising (c) a solvent.

7. The temporary-bonding adhesive according to claim 6, wherein the (c) solvent contains a solvent having an SP value of 7.5 to 9.0.

8. The temporary-bonding adhesive according to claim 6 or 7, wherein the (c) solvent contains a solvent represented by a general formula (6):



(6)

in which R^{25} and R^{26} independently represent hydrogen, alkyl groups having 1 to 12 carbon atoms, an acetyl group, or aromatic groups, R^{27} represents hydrogen or a methyl group, b is either 0, 1 or 2, and c is an integer of 1 to 3.

9. The temporary-bonding adhesive according to any one of claims 1 to 8, further comprising inorganic particles.

10. An adhesive layer obtained by forming a coating of the temporary-bonding adhesive according to any one of claims 1 to 9.

11. A wafer work piece formed by bonding a semiconductor

circuit formation substrate to a support substrate with at least the adhesive layer according to claim 10 interposed therebetween.

12. A wafer work piece formed by bonding a semiconductor circuit formation substrate to a support substrate with the adhesive layer according to claim 10 interposed therebetween.

13. A method for manufacturing a semiconductor device using the wafer work piece according to claim 11 or 12 comprising at least any one of a step of fabricating the semiconductor circuit formation substrate into a thinner one, a step of subjecting the semiconductor circuit formation substrate of the wafer work piece to device processing, a step of de-bonding off the semiconductor circuit formation substrate of the wafer work piece from a support substrate, and a step of washing, with a solvent, an adhesive layer adhering to the semiconductor circuit formation substrate de-bonded off from the wafer work piece or the support substrate of the wafer work piece.

14. A method for manufacturing a semiconductor device, wherein the step of fabricating the semiconductor circuit formation substrate into a thinner one according to claim 13 comprises a step of fabricating a thickness of the semiconductor circuit formation substrate to at least 1 μm and at most 100

μm.