based adhesive layer, and is peeled off by a mechanical force applied at room temperature (for example, Patent Documents 3 and 4).

PRIOR ART DOCUMENTS

PATENT DOCUMENTS

[0008]

Patent Document 1: Japanese Patent Laid-Open Publication No. 2010-254808 (Claims)

Patent Document 2: Japanese Patent Laid-Open Publication No. 2013-48215 (Claims)

Patent Document 3: Japanese Patent Laid-Open Publication No. 2013-241568 (Claims)

Patent Document 4: Japanese Patent Laid-Open Publication No. 2015-214675 (Claims)

SUMMARY

PROBLEMS TO BE SOLVED

[0009]

However, the adhesive for temporary bonding as in Patent Document 1, which can be peeled off only by heating, has problems that the solder bump is dissolved during the heating step for peeling, that an adhesive force during the electronic circuit forming step or the semiconductor circuit forming step is reduced and the adhesive is peeled

off during the step, or conversely an adhesive force is increased and the adhesive cannot be peeled off.

[0010]

The adhesive for temporary bonding as in Patent Document 2, which is peeled off by a mechanical force applied at room temperature, is free from the above-mentioned problems. However, two types of adhesive layers have to be formed, which imposes a considerable burden on the process. The adhesives for temporary bonding as in Patent Document 3 and 4 produce one type of an adhesive layer and are peeled off by a mechanical force applied at room temperature. However, they have problems that cycloolefin- and elastomer-based materials decompose during the electronic circuit forming step or the semiconductor circuit forming step at high temperatures.

[0011]

In view of such a situation, an object of the embodiments disclosed herein is to provide a resin composition that is capable of bonding an electronic circuit formation substrate or a semiconductor circuit formation substrate and a support substrate together, has excellent heat resistance during bonding of an electronic circuit formation substrate or semiconductor circuit formation substrate having a thickness of 1 μm or more and 100 μm or less, has steady adhesive force through the process of manufacturing an

electronic component, a semiconductor device or the like, and can be peeled off under mild conditions at room temperature after the manufacturing process, an adhesive, a resin layer, a laminated film, and a processed wafer containing the resin composition, as well as a method for manufacturing an electronic component or a semiconductor device using these. The resin composition of the present disclosure can be used as a permanent adhesive or an adhesive for temporary bonding, and, in particular, can be suitably used as an adhesive for temporary bonding.

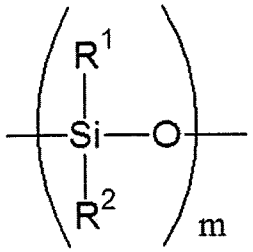
SOLUTIONS TO THE PROBLEMS

[0012]

The present disclosure provides a resin composition containing at least (a) a polyimide resin including a structure represented by the general formula (1) and (b) a crosslinker including a fluorene group:

[0013]

[Chemical Formula 1]



(1)

[0014]

wherein m is a natural number of 1 or more and 100 or

less, R^1 and R^2 may be same or different and each represent an alkyl group having 1 to 30 carbon atoms, a phenyl group, or a phenoxy group.

The present disclosure also provides a resin layer including a coating film of the resin composition of the present disclosure.

[0015]

The present disclosure also provides a permanent adhesive containing the resin composition of the present disclosure.

[0016]

The present disclosure also provides an adhesive for temporary bonding containing the resin composition of the present disclosure.

[0017]

The present disclosure also provides a method for manufacturing an electronic component or a semiconductor device using the resin composition of the present disclosure.

[0018]

The present disclosure also provides a laminated film including a heat-resistant insulating film and the resin composition of the present disclosure on at least one surface of the heat-resistant insulating film.

[0019]

The present disclosure also provides a method for manufacturing an electronic component or a semiconductor device using the laminated film of the present disclosure.

[0020]

The present disclosure also provides a processed wafer including an electronic circuit formation substrate or a semiconductor circuit formation substrate and a support substrate bonded together at least with the resin layer of the present disclosure or the laminated film of the present disclosure interposed between the electronic circuit formation substrate or the semiconductor circuit formation substrate and the support substrate.

[0021]

The present disclosure also provides a method for manufacturing an electronic component or a semiconductor device using the processed wafer of the present disclosure, including at least either of the steps of:

heat-treating the electronic circuit formation substrate or the semiconductor circuit formation substrate in the processed wafer;

peeling the electronic circuit formation substrate or the semiconductor circuit formation substrate in the processed wafer from the support substrate; and

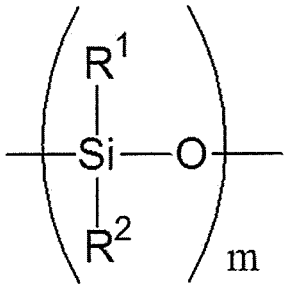
washing the resin layer attached to the electronic circuit formation substrate or the semiconductor circuit

formation substrate peeled from the processed wafer or the resin layer attached to the support substrate in the processed wafer with a solvent.

[0021a]

In an aspect, there is provided a resin composition comprising at least (a) a polyimide resin having a structure represented by the general formula (1) and (b) a crosslinker including a fluorene group:

[Chemical Formula 1]



(1)

wherein m is a natural number of 1 or more and 100 or less, R^1 and R^2 may be same or different and each represent an alkyl group having 1 to 30 carbon atoms, a phenyl group or a phenoxy group.

[0021b]

In another aspect, there is provided a resin layer comprising a coating film of the resin composition as defined above.

[0021c]

In another aspect, there is provided a permanent adhesive comprising the resin composition as defined above.

[0021d]

In another aspect, there is provided an adhesive for temporary bonding comprising the resin composition as defined above.

[0021e]

In another aspect, there is provided a method for manufacturing an electronic component or a semiconductor device using the resin composition as defined above.

[0021f]

In another aspect, there is provided a laminated film comprising a heat-resistant insulating film and the resin composition as defined above laminated on at least one surface of the heat-resistant insulating film.

[0021g]

In another aspect, there is provided a method for manufacturing an electronic component or a semiconductor device using the laminated film as defined above.

[0021h]

In another aspect, there is provided a processed wafer comprising an electronic circuit formation substrate or a semiconductor circuit formation substrate and a support substrate bonded together with at least the resin layer as defined above or the laminated film as defined above interposed between the electronic circuit formation substrate or the semiconductor circuit formation substrate and the support substrate.

[0021i]

In another aspect, there is provided a method for manufacturing an electronic component or a semiconductor device using the processed wafer as defined above, the method comprising at least either of the steps of:

heat-treating the electronic circuit formation substrate or the semiconductor circuit formation substrate in the processed wafer;

peeling the electronic circuit formation substrate or the semiconductor circuit formation substrate in the processed wafer from the support substrate; and

washing the resin layer attached to the electronic circuit formation substrate or the semiconductor circuit formation substrate peeled from the processed wafer or the resin layer attached to the support substrate in the processed wafer with a solvent.

EFFECTS

[0022]

According to the present disclosure, there can be provided a resin composition that is capable of bonding an electronic circuit formation substrate or a semiconductor circuit formation substrate and a support substrate together, has excellent heat resistance during bonding of an electronic circuit formation substrate or semiconductor circuit formation substrate having a thickness of 1 μm or more and 100 μm or less, has steady adhesive force through the process of manufacturing an electronic component, a semiconductor device or the like, and can be peeled off under mild conditions at room temperature after the manufacturing process, an adhesive, a resin layer, a laminated film, and a processed wafer containing the resin composition, as well as a method for manufacturing an electronic component or a semiconductor device using these. The resin composition of the present disclosure can be used as a permanent adhesive or an adhesive for temporary bonding, and, in particular, can be suitably used as an adhesive for temporary bonding.