equal to 300°C, the silicone-based resin produces a volatile component due to decomposition or the like. Furthermore, since the silicone-based tackiness agent contains silicone components of low molecular weight, there is a problem of these components adversely affecting electronic component parts.

[0004] As resins having a heat resistance for 250°C or higher, polyimide resin can be cited. As a polyimide resin to be used in use as an adhesive, for example, a siloxane-based polyimide resin in which siloxane-based diamine is copolymerized for the purpose of reducing production of gas during cure and developing excellent adhesiveness has been proposed (refer to, e.g., Patent document 3). Furthermore, for the purpose of enabling sticking a semiconductor adhesive tape at temperatures less than or equal to 300°C, a polysiloxane-based polyimide resin in which a diamine component is copolymerized with a polysiloxane-based diamine so that the glass transition temperature is 100 to 150°C has been proposed (refer to, e.g., Patent document 4).

Prior Art Document(s)

Patent Document(s)

[0005] Patent document 1: Japanese Unexamined Patent Publication (Kokai) No. 2008-308549

Patent document 2: Japanese Unexamined Patent Publication (Kokai) No. 2005-105246

Patent document 3: Japanese Unexamined Patent Publication (Kokai) No. 5-200946

Patent document 4: Japanese Unexamined Patent Publication (Kokai) No. 2004-277619

Summary ~~of the Invention~~

Problems to be Solved ~~by the Invention~~

[0006] However, even a polyimide resin whose adhesive force has been enhanced cannot be pressure-bonded to another base material at low temperatures less than or equal to 180°C, and cannot be used as a tackiness agent. Furthermore, although acryl-based or silicone-based tackiness agents allows another base material to be pressure-bonded at low temperatures less than or equal to 180°C, there is a problem of such a tackiness agent increasing in adhesive force after passing through a heat treatment step and the like so that the base material cannot be easily peeled off at room temperature when the base

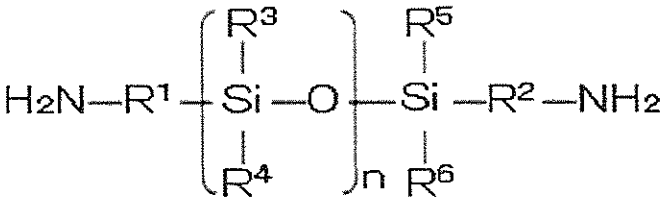
material is to be peeled.

[0007] In view of such circumstances, an object of the embodiments disclosed hereininvention is to provide a resin composition whose production of a volatile portion due to decomposition or the like is small even at high temperatures greater than or equal to 250°C, and which has good tackiness at low temperatures less than or equal to 180°C, and whose increase in adhesive force is small even after passage through a heat treatment step so that the peeling can easily be carried out at room temperature, and a cured product and a laminate film that employ this resin composition.

Means of Solving the Problems

[0008] That is, the invention isIn a first aspect, there is provided a resin composition containing a polyimide-based resin and a methylol-based compound, the resin composition being characterized in that the polyimide-based resin has an acid dianhydride residue and a diamine residue, and has as the diamine residue at least a residue of a polysiloxane-based diamine represented by General formula (1) and a residue of an aromatic diamine having a hydroxyl group, and is also a cured product and a laminate film that employ this resin composition.

[0009][Chem. 1]



(1)

[0010] (n is a natural number, and an average value thereof calculated from an average molecular weight of the polysiloxane-based diamine is in a range of 5 to 30. R^1 and R^2 may be individually the same or different, indicating an alkylene group or a phenylene group whose carbon number is 1 to 30. R^3 to R^6 may be individually the same or different, indicating an alkyl group, a phenyl group or a phenoxy group whose carbon number is 1 to 30.)

[0010a] In a second aspect, there is provided a cured membrane obtained by curing the resin composition as defined above.

[0010b] In a third aspect, there is provided a laminate film obtained by laminating the resin composition as defined above on at least one surface of a heat resistant insulation film.

[0010c] In a fourth aspect, there is provided a production method for a semiconductor apparatus in which the resin composition as defined above is employed.

[0010d] In a fifth aspect, there is provided a production method for a semiconductor apparatus in which the laminate film as defined above is employed.

Advantageous Effect ~~of the Invention~~

[0011] According to the ~~invention~~disclosure, it is possible to provide a highly heat resistant resin composition which exhibits good tackiness at low temperatures less than or equal to