CLAIMS

1. An adhesive sheet for back grinding of a semiconductor wafer having a convex part, comprising: a base material layer; and an adhesive layer provided on the base material layer, wherein:

the adhesive layer comprises an opening part having a diameter smaller than a diameter of the semiconductor wafer;

the adhesive layer is adhered to an outer peripheral part of the semiconductor wafer so that the convex part of the semiconductor wafer is placed in the opening part;

the adhesive layer is configured so that the convex part is protected by the base material layer with the semiconductor wafer adhered to the adhesive layer;

the base material layer comprises a cushion layer and a surface treatment layer provided thereon;

the cushion layer is composed of an ionomer resin;

the adhesive layer is provided on the surface treatment layer;

the surface treatment layer is formed of an acrylic resin composition containing an acrylic resin;

the acrylic resin is cross-linked by light irradiation or heating; and

the adhesive layer is formed of an acrylic resin composition containing an acrylic resin.

2. The adhesive sheet of Claim 1, wherein the acrylic resin contained in the surface treatment layer has a glass transition temperature after cross-linking of 10 to 80°C.

3. The adhesive sheet of Claim 1 or 2, wherein a storage modulus of the surface treatment layer at 180°C is 1.0×10^{4} Pa to 1.0×10^{8} Pa.

4. The adhesive sheet of any one of Claim 1 to Claim 3, wherein the convex part is protected by being embedded in the base material layer.

5. The adhesive sheet of any one of Claim 1 to Claim 4, wherein the semiconductor wafer is adhered to the adhesive layer under reduced pressure.

6. The adhesive sheet of any one of Claim 1 to Claim 5, wherein an adhesive force measured in accordance with JIS Z0237 at 23°C between the base material layer and the semiconductor wafer after heating the semiconductor wafer to which the base material layer of a test piece cut from

the adhesive sheet is adhered for 1 minute at 100°C and cooling to room temperature is lower than 6 N/200 mm.

7. A method for manufacturing a semiconductor wafer using the adhesive sheet of any one of Claim 1 to Claim 6, comprising: a frame adhering step; a wafer adhering step; a heating step; a cutting step; a resin curing step; and a grinding step, wherein:

in the frame adhering step, the adhesive sheet is adhered to a ring frame;

in the wafer adhering step, the adhesive sheet is adhered to the outer peripheral part of the semiconductor wafer under reduced pressure, the outer peripheral part on a surface of the semiconductor wafer where the convex part is provided;

in the heating step, the base material layer is heated;

in the cutting step, the adhesive sheet is cut along an outer periphery of the semiconductor wafer;

in the resin curing step, the base material layer is brought in contact with a curable resin after the wafer adhering step, and the curable resin is cured in that state; and

in the grinding step, a backside of the semiconductor wafer is ground.

8. A base material sheet for back grinding, comprising: a cushion layer; and a surface treatment layer provided thereon, wherein:

the cushion layer is composed of an ionomer resin;

the surface treatment layer is formed of an acrylic resin composition containing an acrylic resin; and

the acrylic resin is cross-linked by light irradiation or heating.

9. The base material sheet of Claim 8, wherein the acrylic resin contained in the surface treatment layer has a glass transition temperature after cross-linking of 10 to 80 °C.

10. The base material sheet of Claim 8 or Claim 9, wherein a storage modulus of the surface treatment layer at 180°C is 1.0×10^{4} Pa to 1.0×10^{8} Pa.