CLAIMS

[Claim 1] A method for manufacturing a semiconductor device, the method comprising:

a first wire bonding step of electrically connecting a first semiconductor element onto a substrate via a first wire;

a pressure bonding step of pressure-bonding a second semiconductor element to the substrate via an adhesive such that the first semiconductor is embedded in the adhesive, the adhesive having a thermosetting property; and

a heating and pressurizing step of heating the adhesive after the pressure bonding step under a pressurized atmosphere to subject the adhesive to a curing treatment,

wherein a melt viscosity of the adhesive before the curing treatment is 1000 to 3000 Pa·s at 120°C and the first semiconductor element is embedded in the adhesive after the curing treatment through the heating and pressurizing step.

[Claim 2] A method for manufacturing a semiconductor device, the method comprising:

a first wire bonding step of electrically connecting a first semiconductor element to a substrate via a first wire;

a pressure bonding step of pressure-bonding a second semiconductor element to the substrate via a film-like adhesive having a thermosetting property and a thickness of 100 to 200 μm; and

a heating and pressurizing step of heating the adhesive after the pressure bonding step under a pressurized atmosphere to subject the adhesive to a curing treatment,

wherein a melt viscosity of the adhesive before the curing

treatment is 1000 to 3000 Pa·s at 120°C, and at least one of at least a part of the first wire and the first semiconductor element is embedded in the adhesive after the curing treatment through the heating and pressurizing step.

[Claim 3] The method for manufacturing a semiconductor device according to claim 1 or 2, wherein in the heating and pressurizing step, the adhesive is heated at 60°C to 175°C for 5 minutes or longer under a pressurized atmosphere of 0.1 to 1.0 MPa.

[Claim 4] The method for manufacturing a semiconductor device according to any one of claims 1 to 3, further comprising a step of further stacking a third semiconductor element above the second semiconductor element after the heating and pressurizing step.

[Claim 5] The method for manufacturing a semiconductor device according to any one of claims 1 to 4, further comprising:

a second wire bonding step of electrically connecting the substrate and the second semiconductor element to each other via a second wire; and

a step of sealing the second semiconductor element with a resin.

[Claim 6] A film-like adhesive being used in a manufacturing process of a semiconductor device,

the manufacturing process including a step of performing a curing treatment in which the adhesive is heated under a pressurized atmosphere to embed a semiconductor element on a substrate in the adhesive after the curing treatment,

wherein a melt viscosity of the film-like adhesive is 1000 to 3000 Pa·s at 120°C.

[Claim 7] A film-like adhesive for use in a manufacturing process of a semiconductor device,

the manufacturing process including a step of performing a curing treatment in which the adhesive is heated under a pressurized atmosphere to embed at least one of at least a part of a first wire and a first semiconductor element in the adhesive after the curing treatment, wherein the at least a part of the first wire and the first semiconductor element are on the substrate,

wherein a thickness of the film-like adhesive is 100 to 200 μm and a melt viscosity of the film-like adhesive is 1000 to 3000 Pa·s at 120°C.

[Claim 8] The film-like adhesive according to claim 6 or 7, wherein the film-like adhesive has an adhesive force after curing of 1.0 MPa or more with respect to the substrate coated with solder resist ink.