CLAIMS

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

~~a step of preparing a substrate having a recess;~~

~~a step of disposing a first semiconductor element in the recess of the substrate;~~

~~a step of preparing a laminate of a film-like adhesive composed of a thermosetting resin composition and a second semiconductor element by dicing;~~

~~a step of pressing the laminate against the substrate so that the film-like adhesive covers a region including the recess in the substrate and the first semiconductor element is embedded in the film-like adhesive; and~~

~~a step of sealing the first semiconductor element with a cured product of the film-like adhesive by heating the film-like adhesive, wherein~~

~~an area of the recess is smaller than an area of the second semiconductor element.~~ A method for manufacturing a semiconductor device, the method comprising:

a step of preparing a substrate having a recess;

a step of disposing a first semiconductor element in the recess of the substrate;

a step of preparing a laminate of a film-like adhesive composed of a thermosetting resin composition and a second semiconductor element by dicing;

a step of pressing the laminate against the substrate so that the

film-like adhesive covers a region including the recess in the substrate and the first semiconductor element is embedded in the film-like adhesive; and

a step of sealing the first semiconductor element with a cured product of the film-like adhesive by heating the film-like adhesive, wherein

an area of the recess is smaller than an area of the second semiconductor element, and

a depth of the recess is 10 to 30% with respect to a height of the first semiconductor element.

[Claim 2]. The method for manufacturing a semiconductor device according to claim 1, wherein the area of the recess is 30 to 80% with respect to the area of the second semiconductor element.

~~3. The method for manufacturing a semiconductor device according to claim 1 or 2, wherein a depth of the recess is 10 to 30% with respect to a height of the first semiconductor element~~.

[Claim 43]. The method for manufacturing a semiconductor device according to ~~any one of~~ claim~~s~~ 1 ~~to~~or 32, wherein a thickness of the film-like adhesive is 60 to 150 μm.

[Claim 54]. The method for manufacturing a semiconductor device according to any one of claims 1 to 43, wherein in a state where the first semiconductor element is disposed in the recess, a gap between the first semiconductor element and a side surface of the recess is 1.2 to 5 mm.

[Claim 65]. The method for manufacturing a semiconductor device according to any one of claims 1 to 54, wherein a shear viscosity at any temperature of 60°C to 150°C of the film-like adhesive is 5000 Pa·s or

less.

[Claim ~~7~~6]~~.~~ The method for manufacturing a semiconductor device according to any one of claims 1 to ~~6~~5, wherein the substrate has a circuit pattern on a surface, and

the method further includes a first wire bonding step of electrically connecting the first semiconductor element and the circuit pattern to each other.

[Claim ~~8~~7]~~.~~ The method for manufacturing a semiconductor device according to claim ~~7~~6, further comprising:

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

a step of sealing the second semiconductor element and the second wire with a resin composition.

[Claim ~~9~~8]~~.~~ The method for manufacturing a semiconductor device according to any one of claims 1 to ~~8~~7, further comprising a step of stacking a third semiconductor element above the second semiconductor element.

[Claim ~~10~~9]~~.~~ The method for manufacturing a semiconductor device according to any one of claims 1 to ~~9~~8, wherein the first semiconductor element is sealed with a cured product of the film-like adhesive by heating the film-like adhesive under a pressurized atmosphere.

[Claim ~~11~~10]~~.~~ A semiconductor device comprising:

a substrate having a recess;

a first semiconductor element disposed in the recess;

a first sealing layer disposed to cover a region including the recess in the substrate and sealing the first semiconductor element; and

a second semiconductor element disposed to cover a surface in the first sealing layer opposite to the side of the substrate, wherein

the first sealing layer is composed of a cured product of a film-like adhesive composed of a thermosetting resin composition, and

an area of the recess is smaller than an area of the second semiconductor element~~.~~, and

a depth of the recess is 10 to 30% with respect to a height of the first semiconductor element.

[Claim ~~12~~11]~~.~~ The semiconductor device according to claim 1~~1~~0, wherein the area of the recess is 30 to 80% with respect to the area of the second semiconductor element.

~~13. The semiconductor device according to claim 11 or 12, wherein a depth of the recess is 10 to 30% with respect to a height of the first semiconductor element~~.

[Claim ~~14~~12]~~.~~ The semiconductor device according to ~~any one of~~ claims ~~11~~10 ~~to~~or ~~13~~11, wherein a gap between the first semiconductor element and a side surface of the recess is 1.2 to 5 mm.

[Claim ~~15~~13]~~.~~ The semiconductor device according to any one of claims ~~11~~10 to ~~14~~12, wherein a thickness of the substrate is 90 to 140 μm.

[Claim ~~16~~14]~~.~~ The semiconductor device according to any one of claims ~~11~~10 to ~~15~~13, further comprising:

a circuit pattern formed on a surface of the substrate; and

a first wire electrically connecting the first semiconductor element and the circuit pattern to each other.

[Claim ~~17~~15]~~.~~ The semiconductor device according to claim ~~16~~14,

further comprising:

a second wire electrically connecting the second semiconductor element and the circuit pattern to each other; and

a second sealing layer sealing the second semiconductor element and the second wire.

[Claim ~~18~~16]~~.~~ The semiconductor device according to any one of claims ~~11~~10 to ~~17~~15, further comprising a third semiconductor element stacked above the second semiconductor element.