

CLAIMS

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

preparing a dicing/die-bonding integrated adhesive sheet which includes a bonding adhesive layer composed of a die-bonding film having an elongation at break at -15°C of 5% or less, an adhesive layer, and a base film in this order;

preparing a semiconductor wafer and forming a modified layer with respect to the semiconductor wafer;

pasting a surface of the bonding adhesive layer of the dicing/die-bonding integrated adhesive sheet to the semiconductor wafer;

individually dividing the semiconductor wafer and the bonding adhesive layer by expanding the base film to produce a bonding adhesive layer-attached semiconductor chip;

picking up the bonding adhesive layer-attached semiconductor chip from the adhesive layer; and

bonding the bonding adhesive layer-attached semiconductor chip to a support substrate for mounting a semiconductor chip via the bonding adhesive layer,

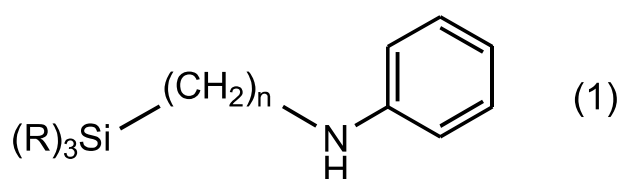
wherein the die-bonding film ~~contains~~ comprises an epoxy resin, an epoxy resin curing agent, ~~and~~—an epoxy group-containing (meth)acrylic copolymer, and a curing accelerator, and

a total content of the epoxy resin and the epoxy resin curing agent is 10% by mass or more and less than 30% by mass on the basis of a total amount of the epoxy resin, the epoxy resin curing agent, and the epoxy group-containing (meth)acrylic copolymer.

[Claim 2]- The method for producing a semiconductor device according to claim 1, wherein a die shear strength at 250°C of the die-bonding film is 0.7 MPa or more in a cured product of the die-bonding film after the die-bonding film is thermally compressed to a wiring board and cured at 170°C for 3 hours.

[Claim 3]- The method for producing a semiconductor device according to claim 1 or 2, wherein the die-bonding film further ~~contains~~ comprises a silane coupling agent.

[Claim 4]- The method for producing a semiconductor device according to claim 3, wherein the silane coupling agent is a silane coupling agent represented by the following general formula (1):



where, in general formula (1), R is an alkoxy group and n is an integer of 1 to 3.

[Claim 5]- The method for producing a semiconductor device according to any one of claims 1 to 4, wherein the die-bonding film further ~~contains~~ comprises an inorganic filler, and

a content of the inorganic filler is 25% by mass or more on the basis of a total amount of the die-bonding film.

[Claim 6]- The method for producing a semiconductor device according to any one of claims 1 to 5, wherein a content of the epoxy group-containing (meth)acrylic copolymer is 60% by mass or less on the basis of a total amount of the die-bonding film.

[Claim 7]- A die-bonding film for bonding a semiconductor chip to a

support member on which the semiconductor chip is mounted,
an elongation at break at -15°C of the die-bonding film being 5%
or less,

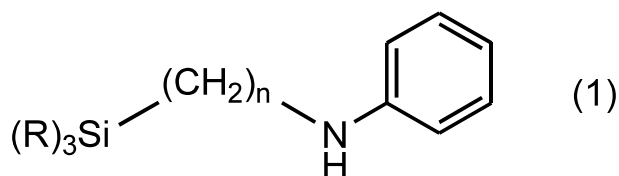
the die-bonding film comprising: an epoxy resin; an epoxy resin
curing agent; ~~and~~ an epoxy group-containing (meth)acrylic copolymer;
and a curing accelerator,

wherein a total content of the epoxy resin and the epoxy resin
curing agent is 10% by mass or more and less than 30% by mass on the
basis of a total amount of the epoxy resin, the epoxy resin curing agent,
and the epoxy group-containing (meth)acrylic copolymer.

[Claim 8]: The die-bonding film according to claim 7, wherein a die
shear strength at 250°C of the die-bonding film is 0.7 MPa or more in a
cured product of the die-bonding film after the die-bonding film is
thermally compressed to a wiring board and cured at 170°C for 3 hours.

[Claim 9]: The die-bonding film according to claim 7 or 8, ~~wherein~~
~~the die-bonding film~~ further ~~contains~~ comprising a silane coupling agent.

[Claim 10]: The die-bonding film according to claim 9, wherein the
silane coupling agent is a silane coupling agent represented by the
following general formula (1):



where, in general formula (1), R is an alkoxy group and n is an
integer of 1 to 3.

[Claim 11]: The die-bonding film according to any one of claims 7 to
10, further comprising an inorganic filler, wherein a content of the

inorganic filler is 25% by mass or more on the basis of a total amount of the die-

bonding film.

[Claim 12]- The die-bonding film according to any one of claims 7 to 11, wherein a content of the epoxy group-containing (meth)acrylic copolymer is 60% by mass or less on the basis of a total amount of the die-bonding film.

[Claim 13]- A dicing/die-bonding integrated adhesive sheet comprising, in the following order:

a bonding adhesive layer composed of the die-bonding film according to any one of claims 7 to 12;

an adhesive layer; and

a base film.