CLAIMS

[Claim 1]

A laminate comprising a substrate 1 with laser transparency and a resin film stacked in this order wherein the absorbance of the resin film converted to a film thickness of 1.0 μm is 0.4 or more and 5.0 or less at a wavelength in the range of 200 to 1,100 nm, wherein the surface of the resin film opposite to the one where the substrate 1 is in contact with the resin film has an adhesive strength of 0.02 N/cm or more and 0.3 N/cm or less, and wherein the resin film has a thickness of 0.7 μm or more and 30 μm or less.

[Claim 2]

A laminate comprising a substrate 1 with laser transparency, a resin film, and semiconductor elements stacked in this order wherein the absorbance of the resin film converted to a film thickness of 1.0 μm is 0.4 or more and 5.0 or less at a wavelength in the range of 200 to 1,100 nm, wherein the adhesive strength at the face where the semiconductor elements and the resin film are in contact with each other is 0.02 N/cm or more and 0.3 N/cm or less, and wherein the resin film has a thickness of 0.7 μm or more and 30 μm or less.

[Claim 3]

A laminate as set forth in either claim 1 or 2 wherein the absorbance of the resin film converted to a film thickness of 1.0 μm is 0.4 or more and 5.0 or less at a wavelength selected from 248 nm, 266 nm, 308 nm, 532 nm, and 1,064 nm.

[Claim 4]

A laminate as set forth in any one of claims 1 to 3 wherein the absorbance of the resin film 1 converted to a film thickness of 1.0 μm is 0.4 or more and 5.0 or less at a wavelength selected from 248 nm, 266 nm, and 355 nm.

[Claim 5]

A laminate as set forth in any one of claims 1 to 4 wherein the indentation hardness that is measured by making an indentation in the direction from the resin film toward the substrate 1 with laser transparency is 2 MPa or more and 500 MPa or less.

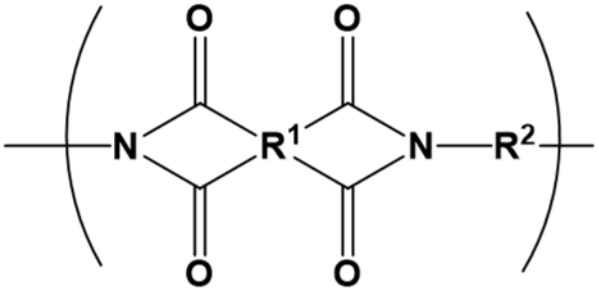
[Claim 6]

A laminate as set forth in any one of claims 1 to 5 wherein the resin film has an elongation at break of 100% or more and 1,000% or less.

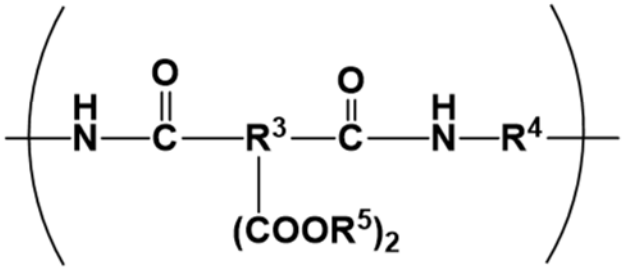
[Claim 7]

A laminate as set forth in any one of claims 1 to 6 wherein the resin film comprises, as the resin (A), one or more selected from the group consisting of a polyimide having a structure as represented by the formula (1), a polyimide precursor having a structure as represented by the formula (2), a polybenzoxazole having a structure as represented by the formula (3), a polybenzoxazole precursor having a structure as represented by the formula (4), and copolymers thereof:

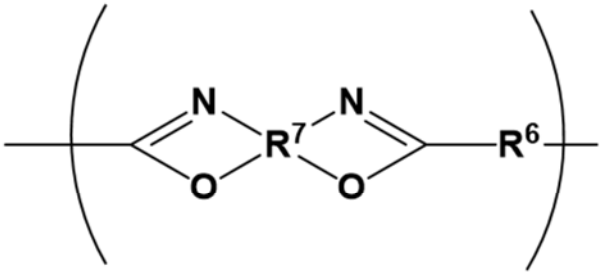
[Chemical compound 1]



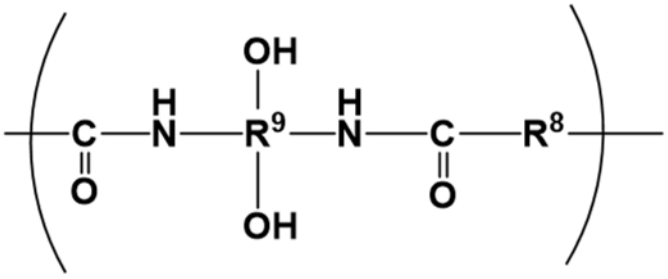
(1)



(2)



(3)



(4)

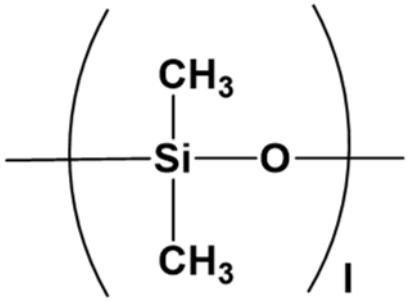
wherein in the formulae (1) to (4), $R^1$, $R^3$, $R^7$, and $R^9$ each independently represent a tetravalent organic group having 6 to 40 carbon atoms; $R^2$, $R^4$, $R^6$, and $R^8$ each independently represent a divalent organic group having 2 to 40 carbon atoms; and $R^5$ represents a hydrogen atom or a monovalent organic group having 1 to 20 carbon atoms.

[Claim 8]

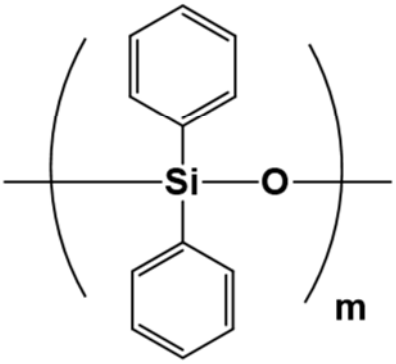
A laminate as set forth in claim 7 wherein the resin (A) comprises one or more structures selected from the group consisting of a dimethylsiloxane structure as represented by the

formula (5), a diphenylsiloxane structure as represented by the formula (6), an alkylene glycol structure as represented by the formula (7), and an alkylene structure as represented by the formula (8):

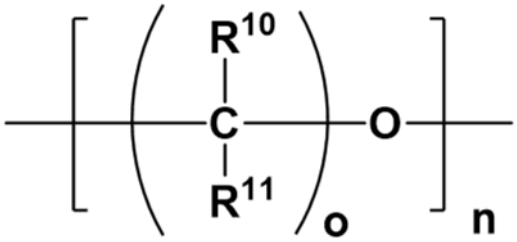
[Chemical compound 2]



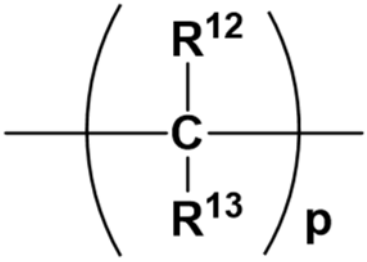

(5)




(6)




(7)




(8)

wherein in the formulae (5) to (8), $R^{10}$ to $R^{13}$ each independently represent a hydrogen atom

or a monovalent organic group having 1 to 20 carbon atoms; l, m, and n each independently represent an integer of 4 to 40; p represents an integer of 10 to 40; and o represents an integer of 1 to 16.

[Claim 9]

A laminate as set forth in claim 8 wherein the resin (A) is polyimide siloxane.

[Claim 10]

A laminate as set forth in any one of claims 1 to 9 wherein the resin film contains a crosslinking agent.

[Claim 11]

A laminate as set forth in any one of claims 1 to 10 wherein the resin film contains an ultraviolet absorber agent and/or a coloring matter.

[Claim 12]

A laminate as set forth in any one of claims 1 to 11 wherein the resin film has a 1% weight loss temperature of 300°C or more.

[Claim 13]

A production method for a semiconductor device using a laminate as set forth in claim 2 and comprising a step for disposing the laminate so that its semiconductor element plane faces the substrate 2 and a subsequent step for applying a laser beam through the substrate 1 with laser transparency present in the laminate to transfer a semiconductor element to the substrate 2.

[Claim 14]

A production method for a semiconductor device as set forth in claim 13 wherein the laser beam has a wavelength selected from 248 nm, 266 nm, and 355 nm.

[Claim 15]

A production method for a semiconductor device as set forth in either claim 13 or 14 wherein the substrate 2 is a circuit board.