Claims

1. A laminate comprising

a semiconductor substrate,

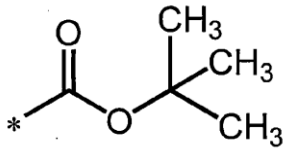
a UV-ray-transmissive support substrate, and

an adhesive layer and a release layer disposed between the semiconductor substrate and the support substrate,

wherein

the release layer is a film formed from a releasing agent composition containing a polymer of an ethylenic unsaturated monomer having a tert-butoxycarbonyl group, a photoacid generator, and a solvent; and

the ethylenic unsaturated monomer having a tert-butoxycarbonyl group is an ethylenic unsaturated monomer having in the molecule thereof a group represented by formula (1)

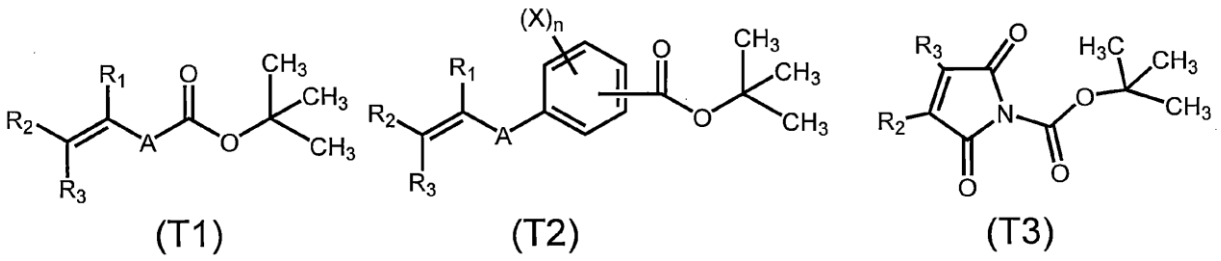


(1)

(wherein the symbol "*" represents a bonding site).

2. A laminate according to claim 1, wherein the ethylenic unsaturated monomer having a tert-butoxycarbonyl group includes at least one species selected from the group consisting of formulas (T1) to (T3):

[F1]



(T1) (T2) (T3)

(wherein R_1 independently represents a hydrogen atom, a cyano group, a methyl group, an ethyl group, an n-propyl group, or an isopropyl group;

each of R_2 and R_3 independently represents a hydrogen atom or a C1 to C10 alkyl group;

A independently represents a single bond, an ether group (-O-), a carbonyl group (-CO-), an amido group (-CONH-), a C1 to C12 alkylene group, a C6 to C16 arylene group, or a C3 to C12 heteroarylene group;

X independently represents a halogen atom, a cyano group, a nitro group, a C1 to C10 alkyl group, or a C1 to C10 haloalkyl group; and

n is the number of a substituent or substituents X of the benzene ring and an integer of 0 to 4).

3. A laminate according to claim 1, wherein the ethylenic unsaturated monomer having a tert-butoxycarbonyl group includes tert-butyl (meth)acrylate.

4. A laminate according to any one of claims 1 to 3, wherein the adhesive layer is a film formed from an adhesive composition containing an adhesive component (S) containing at least one species selected from among a polysiloxane adhesive, an acrylic resin adhesive, an epoxy resin adhesive,

a polyamide adhesive, a polystyrene adhesive, a polyimide adhesive, and a phenolic resin adhesive.

5. A laminate according to claim 4, wherein the adhesive component (S) contains a polysiloxane adhesive.

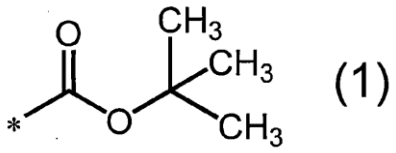
6. A laminate according to claim 5, wherein the polysiloxane adhesive contains a polyorganosiloxane component (A) which is curable through hydrosilylation.

7. A releasing agent composition for forming a release layer of a laminate comprising a semiconductor substrate, a UV-ray-transmissive support substrate, and an adhesive layer and the release layer disposed between the semiconductor substrate and the support substrate,

the composition comprising a polymer of an ethylenic unsaturated monomer having a tert-butoxycarbonyl group, a photoacid generator, and a solvent;

wherein

the ethylenic unsaturated monomer having a tert-butoxycarbonyl group is an ethylenic unsaturated monomer having in the molecule thereof a group represented by formula (1)



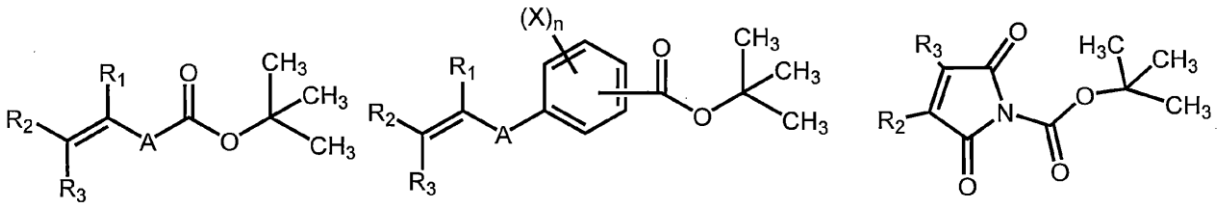
(1)

(wherein the symbol "*" represents a bonding site).

8. A releasing agent composition according to claim 7, wherein the ethylenic unsaturated monomer having a tert-butoxycarbonyl group includes at least one species selected

from the group consisting of formulas (T1) to (T3):

[F2]



(wherein R_1 independently represents a hydrogen atom, a cyano group, a methyl group, an ethyl group, an n-propyl group, or an isopropyl group;

each of R_2 and R_3 independently represents a hydrogen atom or a C1 to C10 alkyl group;

A independently represents a single bond, an ether group (-O-), a carbonyl group (-CO-), an amido group (-CONH-), a C1 to C12 alkylene group, a C6 to C16 arylene group, or a C3 to C12 heteroarylene group;

X independently represents a halogen atom, a cyano group, a nitro group, a C1 to C10 alkyl group, or a C1 to C10 haloalkyl group; and

n is the number of a substituent or substituents X of the benzene ring and an integer of 0 to 4).

9. A releasing agent composition according to claim 7, wherein the ethylenic unsaturated monomer having a tert-butoxycarbonyl group includes tert-butyl (meth)acrylate.

10. A releasing agent composition according to any one of claims 7 to 9, wherein the adhesive layer is a film formed from an adhesive composition containing an adhesive component

(S) containing at least one species selected from among a polysiloxane adhesive, an acrylic resin adhesive, an epoxy resin adhesive, a polyamide adhesive, a polystyrene adhesive, a polyimide adhesive, and a phenolic resin adhesive.

11. A releasing agent composition according to claim 10, wherein the adhesive component (S) contains a polysiloxane adhesive.

12. A releasing agent composition according to claim 11, wherein the polysiloxane adhesive contains a polyorganosiloxane component (A) which is curable through hydrosilylation.

13. A processed semiconductor substrate production method comprising:

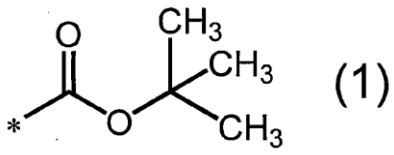
a first step of processing a semiconductor substrate of a laminate comprising the semiconductor substrate, a UV-ray-transmissive support substrate, and an adhesive layer and a release layer disposed between the semiconductor substrate and the support substrate, wherein the release layer is a film formed from a releasing agent composition containing a polymer of an ethylenic unsaturated monomer having a tert-butoxycarbonyl group, a photoacid generator, and a solvent;

after the first step, a second step of irradiating the release layer with a UV ray from the support substrate side; and

after the second step, a third step of heating the release layer;

wherein

the ethylenic unsaturated monomer having a tert-butoxycarbonyl group is an ethylenic unsaturated monomer having in the molecule thereof a group represented by formula (1)

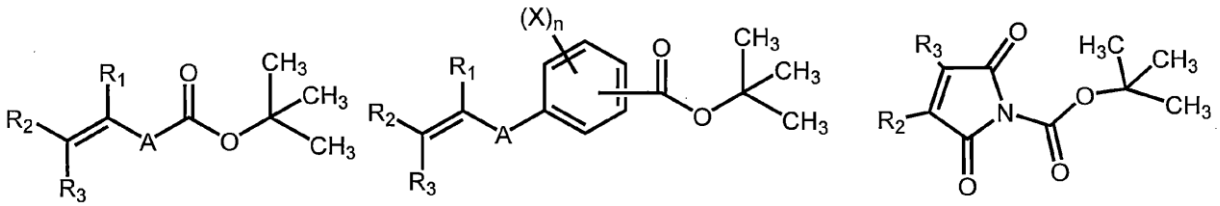


(1)

(wherein the symbol "*" represents a bonding site).

14. A processed semiconductor substrate production method according to claim 13, wherein the ethylenic unsaturated monomer having a tert-butoxycarbonyl group includes at least one species selected from the group consisting of formulas (T1) to (T3):

[F3]



(T1) (T2) (T3)

(wherein R_1 independently represents a hydrogen atom, a cyano group, a methyl group, an ethyl group, an n-propyl group, or an isopropyl group;

each of R_2 and R_3 independently represents a hydrogen atom or a C1 to C10 alkyl group;

A independently represents a single bond, an ether group (-O-), a carbonyl group (-CO-), an amido group (-CONH-), a C1 to C12 alkylene group, a C6 to C16 arylene

group, or a C3 to C12 heteroarylene group;

X independently represents a halogen atom, a cyano group, a nitro group, a C1 to C10 alkyl group, or a C1 to C10 haloalkyl group; and

n is the number of a substituent or substituents X of the benzene ring and an integer of 0 to 4).

15. A processed semiconductor substrate production method according to claim 13, wherein the ethylenic unsaturated monomer having a tert-butoxycarbonyl group includes tert-butyl (meth)acrylate.

16. A processed semiconductor substrate production method according to any one of claims 13 to 15, wherein the adhesive layer is a film formed from an adhesive composition containing an adhesive component (S) containing at least one species selected from among a polysiloxane adhesive, an acrylic resin adhesive, an epoxy resin adhesive, a polyamide adhesive, a polystyrene adhesive, a polyimide adhesive, and a phenolic resin adhesive.

17. A processed semiconductor substrate production method according to claim 16, wherein the adhesive component (S) contains a polysiloxane adhesive.

18. A processed semiconductor substrate production method according to claim 17, wherein the polysiloxane adhesive contains a polyorganosiloxane component (A) which is curable through hydrosilylation.