CLAIMS

1. A method of producing an oxide semiconductor layer, the method comprising:

~~the~~ a precursor layer forming step of forming, on or above a substrate, a layered oxide semiconductor precursor including a compound of metal to be oxidized into an oxide semiconductor dispersed in a solution including a binder made of an aliphatic polycarbonate (possibly including inevitable impurities); and

~~the~~ an annealing step of heating the precursor layer at a first temperature achieving decomposition of 90 wt% or more of the binder, and then annealing the precursor layer at a temperature equal to or higher than a second temperature that is higher than the first temperature, achieves bonding between the metal and oxygen, and has an exothermic peak value in differential thermal analysis (DTA) for the precursor~~.~~

2. A method of producing an oxide semiconductor layer, the method comprising:

a precursor layer forming step of forming, on or above a substrate, a layered oxide semiconductor precursor including a compound of metal to be oxidized into an oxide semiconductor dispersed in a solution including a binder made of an aliphatic polycarbonate (possibly including inevitable impurities); and

an annealing step of heating the precursor layer at a first temperature achieving decomposition of 90 wt% or more of the binder, and then annealing the precursor layer at a temperature equal to or higher than a second temperature that is higher than the first temperature, achieves bonding between the metal and oxygen, and has an exothermic peak value in differential thermal analysis (DTA) for the compound.

~~2~~3. The method of producing the oxide semiconductor layer according to claim 1

or 2, wherein

the second temperature is higher than the first temperature by 10 ¯C or higher.

~~3~~4. The method of producing the oxide semiconductor layer according to claim 1 or 2, wherein

the second temperature is higher than the first temperature by 50 ¯C or higher.

~~4~~5. The method of ~~manufacturing~~ producing the oxide semiconductor layer according to any one of claims 1 to ~~3~~4, the method further comprising:

~~the~~ an irradiation step of irradiating with ultraviolet rays after the annealing step.

~~5~~6. The method of ~~manufacturing~~ producing the oxide semiconductor layer according to any one of claims 1 to ~~3~~4, wherein

the aliphatic polycarbonate is an aliphatic polycarbonate obtained by polymerizing an epoxide and carbon dioxide.

~~6~~7. The method of ~~manufacturing~~ producing the oxide semiconductor layer according to any one of claims 1 to ~~3~~4, wherein

the aliphatic polycarbonate is at least one selected from the group consisting of a polyethylene carbonate and a polypropylene carbonate.

~~7~~8. An oxide semiconductor precursor comprising a compound of metal to be oxidized into an oxide semiconductor dispersed in a solution including a binder made of an aliphatic polycarbonate (possibly including inevitable impurities), wherein

90wt% or more of the binder is decomposed at a first temperature lower than a second temperature that achieves bonding between the metal and oxygen and has an exothermic peak value in differential thermal analysis (DTA) for the precursor.

9. An oxide semiconductor precursor comprising a compound of metal to be oxidized into an oxide semiconductor dispersed in a solution including a binder made of an aliphatic polycarbonate (possibly including inevitable impurities), wherein

90wt% or more of the binder is decomposed at a first temperature lower than a second temperature that achieves bonding between the metal and oxygen and has an exothermic peak value in differential thermal analysis (DTA) for the compound.

~~8~~10. The oxide semiconductor precursor according to claim ~~7~~8 or 9, wherein

the second temperature is higher than the first temperature by 10 ̄C or higher.

~~9~~11. The oxide semiconductor precursor according to claim ~~7~~8 or 9, wherein the second temperature is higher than the first temperature by 50 ̄C or higher.

~~10~~12. The oxide semiconductor precursor according to any one of claims ~~7~~8 to ~~9~~11, wherein

the aliphatic polycarbonate is an aliphatic polycarbonate obtained by polymerizing an epoxide and carbon dioxide.

~~11~~13. The oxide semiconductor precursor according to any one of claims ~~7~~8 to ~~9~~11, wherein

the aliphatic polycarbonate is at least one selected from the group consisting of a polyethylene carbonate and a polypropylene carbonate.

~~12~~14. An oxide semiconductor layer formed by annealing a layer of an oxide semiconductor precursor including a compound of metal to be oxidized into an oxide semiconductor dispersed in a solution including a binder made of an aliphatic polycarbonate (possibly including inevitable impurities) at a temperature equal to or higher than a second temperature that achieves bonding between the metal and oxygen and has an exothermic peak value in differential thermal analysis (DTA) for the precursor, wherein

90 wt% or more of the binder is decomposed at a first temperature lower than the second temperature.

15. An oxide semiconductor layer formed by annealing a layer of an oxide semiconductor precursor including a compound of metal to be oxidized into an oxide semiconductor dispersed in a solution including a binder made of an aliphatic polycarbonate (possibly including inevitable impurities) at a temperature equal to or higher than a second temperature that achieves bonding between the metal and oxygen and has an exothermic peak value in differential thermal analysis (DTA) for the compound, wherein

90 wt% or more of the binder is decomposed at a first temperature lower than the second temperature.

~~13~~16. The oxide semiconductor layer according to claim ~~12~~14 or 15, wherein the second temperature is higher than the first temperature by 10 °C or higher.

~~14~~17. The oxide semiconductor layer according to claim ~~12~~14 or 15, wherein the second temperature is higher than the first temperature by 50 °C or higher.

~~15~~18. A semiconductor element comprising:

the oxide semiconductor layer according to any one of claims ~~12~~14 to ~~14~~17.

~~16~~19. An electronic device comprising:

the semiconductor element according to claim ~~15~~18.