Claims

1. An electrically conductive composition comprising:

an electrically conductive filler; and

a resin particle, wherein

a rate of change in a maximum Feret's diameter of the resin particle between before and after sintering the electrically conductive composition is less than 1.20,

a temperature at which the electrically conductive composition is sintered is in the range of 80°C to 300°C,

the temperature increase rate when sintering the electrically conductive composition is 1 to 10°C/min, and

the time for sintering the electrically conductive composition is 15 minutes to 180 minutes.

2. The electrically conductive composition according to claim 1, wherein the rate of change in a maximum Feret's diameter is in the range of 0.9 to 1.1.

3. The electrically conductive composition according to claim 1or 2, comprising (A) a silver fine particle having an average particle diameter of 10 to 300 nm as the electrically conductive filler.

4. The electrically conductive composition according to claim 3, comprising (B) a metal particle having an average particle diameter of 0.5 to 10 μm as the electrically conductive filler.

5. The electrically conductive composition according to claim 4, comprising (C) a resin particle having an average particle diameter of 2 to 15 μm as the resin particle.

6. The electrically conductive composition according to claim 5, wherein the resin forming the resin particle (C) is selected from a group of a thermoplastic resin, a thermosetting resin and a silicone resin.

7. The electrically conductive composition according to claim 6, wherein the thermoplastic resin is selected from a group of a polyolefin and a polyamide.

8. The electrically conductive composition according to any one of claims 5 to 7, wherein the average particle diameter of the resin particle (C) corresponds to 1 to 85% of the thickness of a sintered part or a bonding part to be obtained after sintering the electrically conductive composition.

9. The electrically conductive composition according to any one of claims 5 to 8, wherein the electrically conductive composition comprises 5 to 50% by mass of the silver fine particle (A), 35 to 85% by mass of the metal particle (B), and 0.1 to 10% by mass of the resin particle (C), based on the mass of the electrically conductive composition.

10. The electrically conductive composition according to any one of claims 1 to 9, wherein the electrically conductive composition further comprises 0.5 to 10% by mass of (D) a binder resin based on the mass of the electrically conductive composition.

11. The electrically conductive composition according to any one of claims 4 to 10, wherein a ratio of the silver fine particle (A): the metal particle (B) in the electrically conductive composition is in the range of 5:95 to 60:40 in terms of mass ratio.

12. The electrically conductive composition according to any one of claims 1 to 12, further comprising at least one component selected from a group consisting of a curing agent, a curing accelerator, a solvent, an antioxidant, an ultraviolet absorber, a tackifier, a viscosity modifier, a dispersant, a coupling agent, a toughness-imparting agent, and an elastomer.

13. A method for bonding a member using the electrically conductive composition according to any one of claims 1 to 12, comprising a step of sintering the electrically conductive composition such that the rate of change of the maximum Feret's diameter of the resin particle after sintering to the maximum Feret's diameter of the resin particle before sintering is less than 1.20, wherein
the temperature at which the electrically conductive composition is sintered is in the range of 80°C to 300°C,
the temperature increase rate when sintering the electrically conductive composition is 1 to 10°C/min, and
the time for sintering the electrically conductive composition is 15 minutes to 180 minutes.

14. A method for producing an electrically conductive sintered part or bonding part using the electrically conductive composition according to any one of claims 1 to 12, comprising a step of sintering the electrically conductive composition such that the rate of change of the maximum Feret's diameter of the resin particle after sintering to the maximum Feret's diameter of the resin particle before sintering is less than 1.20, wherein
the temperature at which the electrically conductive composition is sintered is in the range of 80°C to 300°C,

the temperature increase rate when sintering the electrically conductive composition is 1 to 10°C/min, and

the time for sintering the electrically conductive composition is 15 minutes to 180 minutes.

15. Use of the electrically conductive composition according to any one of claims 1 to 12 for forming a bonding part of a member, an electrically conductive layer, or a circuit.

16. A sintered part or a bonding part comprising:

an electrically conductive filler; and

a resin particle, wherein

the sintered part or the bonding part is obtained by sintering the electrically conductive composition according to any one of claims 1 to 12, the proportion at which the electrically conductive filler accounts for a cross-sectional area of the sintered part or the bonding part is 60 to 95% by area, and the proportion at which the resin particle accounts therefor is 1 to 35% by area, the proportion at which a component or components other than the resin particle and the electrically conductive filler and voids account therefor is 4 to 25% by area, and the average particle diameter of the resin particle is 2 to 15 μm.

17. A member comprising the sintered part or the bonding part according to claim 16.