Claims

1. An electrically conductive adhesive agent composition comprising:

a metal particle (P);

a resin (M); and

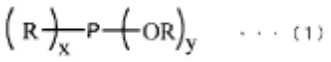
an organophosphorus compound (A) represented by the general formula (1) below,

wherein the metal particle (P) comprises a first metal particle (P1) made of a single metal selected from the group of copper, nickel, aluminum and tin or an alloy comprising two or more metals selected from said group,

at least a portion of the resin (M) is a thermosetting resin (M1), and

the thermosetting resin (M1) comprises a maleic acid imide compound including two or more units of an imide group in a single molecule:

[Chemical formula 1]



in the general formula (1), each R independently represents an organic group, R may be the same or different with each other, both x and y are an integer from 0 to 3, and the sum (x + y) of x and y is 3.

2. The electrically conductive adhesive agent composition according to claim 1, wherein, in the general formula (1), each R is independently selected from an alkyl group, an aryl group, an organic group including a functional group, an organic group including a heteroatom, and an organic group including an unsaturated bond.

3. The electrically conductive adhesive agent composition according to claim 1 or 2, wherein, in the general formula (1), each R independently comprises, in its moiety, one or more group selected from a vinyl group, an acrylic group, a methacrylic group, a maleic acid ester group, a maleic acid amide group, a maleic acid imide group, a primary

amino group, a secondary amino group, a thiol group, a hydrosilyl group, a hydroboron group, a phenolic hydroxyl group and an epoxy group.

4. The electrically conductive adhesive agent composition according to any one of claims 1 to 3, wherein the organophosphorus compound (A) has a number average molecular weight of 260 or more.

5. The electrically conductive adhesive agent composition according to any one of claims 1 to 4, wherein the maleic acid imide compound comprises a backbone derived from an aliphatic amine having a carbon atom number of 10 or more.

6. The electrically conductive adhesive agent composition according to any one of claims 1 to 5, wherein the maleic acid imide compound has a number average molecular weight of 3000 or more.

7. The electrically conductive adhesive agent composition according to any one of claims 1 to 6, wherein the metal particle (P) is a mixture comprising the first metal particle (P1) and a second metal particle (P2) based on a metal component different from the first metal particle (P1), and

the first metal particle (P1) and the second metal particle (P2) comprise a metal component capable of mutually forming an intermetallic compound.

8. The electrically conductive adhesive agent composition according to claim 7, wherein the second metal particle (P2) is made of a single metal selected from the group of copper, nickel, aluminum, tin, zinc, titanium, silver, gold, indium, bismuth, gallium and palladium or an alloy comprising two or more metals selected from said group.

9. The electrically conductive adhesive agent composition according to claim 7 or 8, wherein at least one of the first metal particle (P1) and the second metal particle (P2) is an alloy particle comprising two or more metal components.

10. The electrically conductive adhesive agent composition according to any one of claims 1 to 9, wherein at least one endothermic peak is observed in a temperature range of from 100 to 250°C in DSC (differential scanning calorimetry) in a state before sintering, and the endothermic peak disappears in a state after sintering.

11. An electrically conductive adhesive film, comprising the electrically conductive adhesive agent composition according to any one of claims 1 to 10 formed in the form of a film onto a substrate.

12. A dicing-die bonding film, comprising the electrically conductive adhesive film according to claim 11 adhered to a dicing tape.