

Lead-free high temperature compound

Abstract

The invention relates to a simple method for firmly-bonded connection of an electronic component to a substrate that dispenses with the use of lead-containing paste solders and leads to a contact layer that features sufficiently high resistance to heat fatigue in an environment that is characterised by incessant periodical temperature variations, and that features high thermal and electrical conductivity.

Said object is met by a method for firmly-bonded connection of an electronic component to a substrate, comprising

- a) providing an electronic component having a first surface to be connected and a substrate having a second surface to be connected;
- b) applying a paste solder to at least one of said surfaces to be connected;
- c) arranging the electronic component and the substrate such that the first electronic component surface to be connected and the second substrate surface to be connected contact each other through the paste solder; and
- d) soldering the arrangement from c) in order to generate a firmly-bonded connection between the electronic component and the substrate, whereby the paste solder contains (i) 10- 30 % by weight copper particles, (ii) 60 - 80 % by weight particles of at least one substance selected from the group consisting of tin and tin-copper alloys, and (iii) 3 - 30 % by weight solder flux, whereby the mean particle diameter of the copper particles and of the particles made of a substance selected from the group consisting of tin and tin-copper alloys is no more than 15 μm , and whereby the thickness of the applied layer of paste solder is at least 20 μm .