

SOLDER MATERIAL AND ELECTRONIC PART USING THE SAME**ABSTRACT OF THE DISCLOSURE**

This invention provides a lead-free high temperature solder material comprising 0.005-3.0 wt % of palladium (Pd) and 97.0-99.995 wt % of tin (Sn) whose liquidus temperature is 200-350°C. The solder material is environmentally-friendly, improved in thermal fatigue property, and it can improve the reliability of electronic apparatuses. A predetermined amount of Sn material and Pd is mixed, vacuum-melted and cast to prepare an ingot. The ingot is rolled to be a tape that is later pressed to obtain a solder pellet. In a preferable composition, at least 95 wt % of Sn and 0.005-3.0 wt % of Pd are contained, and 0.1-5.0 wt % of metallic (e.g. Cu, Ni) or alloy particles are added. The average particle diameter is about 40 μ m. A substrate and an IC chip (5) (electronic element) are die-bonded substantially in parallel by a solder material (3) provided between an Ni plating (4) on the lower side of an IC chip (semiconductor) (5) and an Ni plating (2) on a die (1).

FIGURE 1