Abstract

Ag-Au-Pd Ternary Alloy Bonding Wire

[Objects] To improve the bonding reliability of a bonding wire upon an aluminum pads which are used in circumstances of high temperature and high humidity.

[Means to solve] An Ag-Au-Pd ternary alloy bonding wire for semiconductor devices made from 4 - 10 mass % of gold having a purity of 99.999 mass % or higher, 2 - 5 mass % of palladium having a purity of 99.99 mass % or higher, and remaining mass % of silver (Ag) having a purity of 99.999 mass % or higher; and this wire contains 15 - 70 mass ppm of oxidizing non-noble metallic elements, and is thermally annealed before being continuously drawn through dies, and is thermally tempered after being continuously drawn through said dies, and this wire is useful for ball bonding in a nitrogen atmosphere; Ag_2Al and a Pd rich layer produced in the interface between the Ag-Au-Pd ternary alloy wire and an aluminum pad suppress the corrosion development between the Ag_2Al intermetallic compound layer and the wire.

Fig. 1