

[Title of Invention]

NOBLE METAL-COATED COPPER WIRE FOR BALL BONDING

[Document Name] ABSTRACT

[Problem]

An object of the present invention is to provide a noble metal-coated copper wire for ball bonding suitable for mass production, wherein a palladium (Pd) concentrated layer can be stably and uniformly dispersed on the entire surface of the molten copper ball of the core material, palladium (Pd) does not flow into the inside of the solidified copper ball, and no voids are formed.

[Structure]

One of the noble metal-coated copper wires for ball bonding of the present invention is a noble metal-coated copper wire for ball bonding, the wire having a wire diameter of 10 μm or more and 25 μm or less, and comprising a core material comprising a copper alloy having a copper (Cu) purity of 98 mass% or higher, and a noble metal-coating layer formed on the core material;

wherein the noble metal-coating layer comprises:

a palladium (Pd) cavitating layer in which at least one or two or more contained elements selected from Group 13 to 16 elements and oxygen elements are finely dispersed, or a palladium (Pd) cavitating layer in which the contained elements are released from the palladium (Pd) cavitating layer; and

a diffusion layer of palladium (Pd) and copper (Cu).

Another one of the noble metal-coated copper wires for ball bonding of the present invention is a noble metal-coated copper wire for ball bonding, the wire having a wire diameter of 10 μm or more and 25 μm or less, and comprising a core material comprising a copper alloy having a copper (Cu) purity of 98 mass% or higher, and a noble metal-coating layer formed on the core material;

wherein the noble metal-coating layer comprises:

a gold (Au) ultra-thin stretched layer;

a palladium (Pd) cavitating layer in which at least one or two or more contained elements selected from Group 13 to 16 elements and oxygen elements are finely dispersed, or a palladium (Pd) cavitating layer in which the contained elements are released from the palladium (Pd) cavitating layer; and

a diffusion layer of palladium (Pd) and copper (Cu).

[Selected Drawing] Fig. 2