

Title (en)
HIGH-BONDING STRENGTH COPPER-ALUMINUM COMPOSITE CONDUCTIVE MATERIAL AND PREPARATION METHOD THEREFOR

Title (de)
LEITFÄHIGER KUPFER-ALUMINIUM-VERBUNDSTOFF MIT HOHER HAFTFESTIGKEIT UND HERSTELLUNGSVERFAHREN DAFÜR

Title (fr)
MATÉRIAU CONDUCTEUR COMPOSITE CUIVRE-ALUMINIUM À HAUTE RÉSISTANCE DE LIAISON ET SON PROCÉDÉ DE PRÉPARATION

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Application
EP 16923175 A 20161216

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Abstract (en)
Provided is a high-bonding strength copper-aluminum composite conductive material and a preparation method thereof. The high-bonding strength copper-aluminum composite conductive material includes a clad copper layer and an aluminum core matrix; an interatomic bonded metallurgical bonding layer is formed between the clad copper layer and the aluminum core matrix; the thickness of the bonding layer is 5~35 μ m, and the bonding strength is ≥ 40 MPa; a copper-aluminum intermetallic compound is dispersedly distributed in the bonding layer; the components of a diffusion layer close to the clad copper layer are uniform, and a thickness is narrow; and a diffusion layer close to the aluminum core matrix is of a reticular structure formed by a mixture of two or more component phases, and a thickness is wide. The bonding between copper and aluminum in the copper-aluminum composite material achieves a metallurgical bonding state, and the corresponding bonding strength is greater than 40 MPa; a thickness of a side copper layer of the copper-aluminum composite material is about 1.6-2 times of a thickness of a planar copper layer; the thickness of the side clad copper layer is sufficient enough for large current impact and heat dissipation; and the elongation rate of the copper-aluminum composite material is greater than 30%; and the high-bonding strength copper-aluminum composite conductive material may carry out processing such as torsion, spiraling and side bending which are applied to the new field.

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