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(54) Title: METHOD FOR COPPER-TO-COPPER DIRECT BONDING AND ASSEMBLY

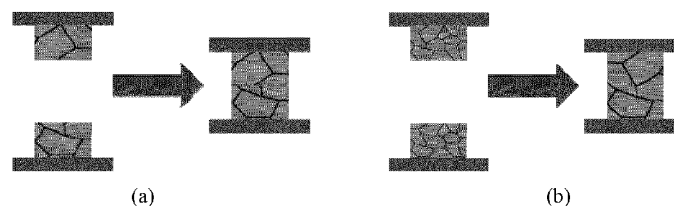


Fig. 1

(57) Abstract: The invention relates to method for copper-to-copper direct bonding comprising the steps: a) providing a first substrate comprising a first pure copper deposit having a bonding surface; b) providing a second substrate comprising a second pure copper deposit having a bonding surface; c) connecting the bonding surface of the first deposit with the bonding surface of the second deposit and obtaining a connected deposit; and d) converting the first deposit and the second deposit of the connected deposit into a connected and converted deposit, - wherein the first deposit and the second deposit are formed by an electrochemical copper deposition step and having copper grains with a grain size which is smaller than a grain size after the converting in step d), - wherein the connected and converted deposit is having grains with a grain size which is larger than the grain size of the first deposit and the second deposit before the converting in step d); and to an assembly and a device produced by the method.



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