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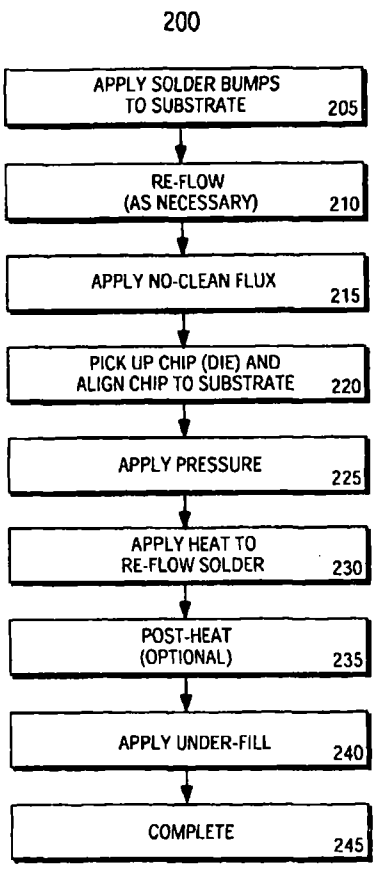
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(54) Title: FLIP CHIP INTERCONNECTION USING NO-CLEAN FLUX



(57) Abstract: A flip chip method of joining a chip and a substrate is described. A thermo-compression bonder is utilized to align the chip and substrate and apply a contact force to hold solder bumps on the substrate against metal bumps on the chip. The chip is rapidly heated from its non-native side by a pulse heater in the head of the bonder until the re-flow temperature at the solder bumps is reached. Proximate with reaching the re-flow temperature at the solder bumps, the contact force is released. The solder is held above its re-flow temperature for several seconds to facilitate wetting of the substrate's metal protrusions and joining. A no-clean flux that has a volatilization temperature below the melting point of the solder bumps is utilized to minimize or eliminate the need for a post interconnection de-flux operation.

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