Method and Device for Permanent Bonding of Wafers

Abstract

This invention relates to a method for bonding of a first contact area (3) of a first substrate (1) to a second contact area (4) of a second substrate (2), the second substrate (2) having a least one reaction layer (7), with the following steps, especially the following sequence:

- acommodating the substrates between a first electrode (21) and a second electrode (22), or within a coil (26),
- formation of a reservoir (5) in a reservoir formation layer (6) on the first contact area (3) by exposing the first contact area (3) to a plasma produced by means of capacitive coupling of the electrodes (21, 22), a first frequency (f_{21}) which is different from a second frequency (f_{22}) of the second electrode (22) being applied on the first electrode (21) during plasma production, or plasma produced by means of inductive coupling of a coil (26), a first frequency (f_{21}) which is different from a second frequency (f_{22}) of a second generator (24) being applied on a first generator (23) during plasma production,
- at least partial filling of the reservoir (5) with a first educt or a first group of educts,
- making contact of the first contact area (3) with the second contact area (4) for formation of a pre-bond interconnection,
- formation of a permanent bond between the first and second contact area (3, 4) at least partially strengthened by the reaction of the first educt with a second educt which is contained in the reaction layer (7) of the second substrate (2).

Moreover this invention relates to a corresponding device.

Figure 9