

## Room temperature wafer bonding

### Silicon wafer bonding via polysilazane

#### Overview

Recently, silicon wafers are required to be bonded to each other in the fields of semiconductors and MEMS devices. However, since the conventional wafer bonding technology requires bonding at a high temperature, **thermal stress and warpage in the wafer makes the circuit failure.**

This is the simple wafer bonding technology which can be bonded to each other simply by overlapping and pressurizing the other silicon wafer via plasma treated polysilazane coating.

This technology doesn't require the high-temperature bonding process, which is expected to increase the yield of semiconductor and MEMS devices.

#### Product Application

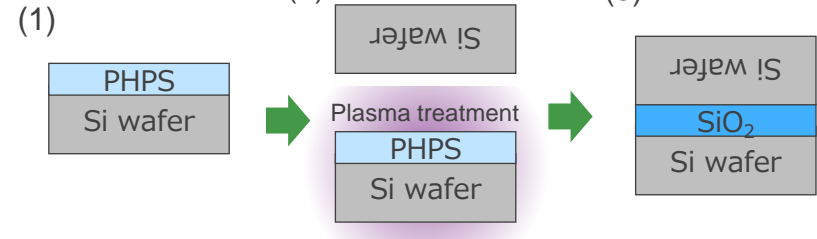
- ❑ Room temperature Si wafer bonding
- ❑ SOI wafer

#### IP Data

IP No. : Not Published  
 Inventors : TAKEUCHI Kai, HIGURASHI Eiji  
 Admin No. : T24-033

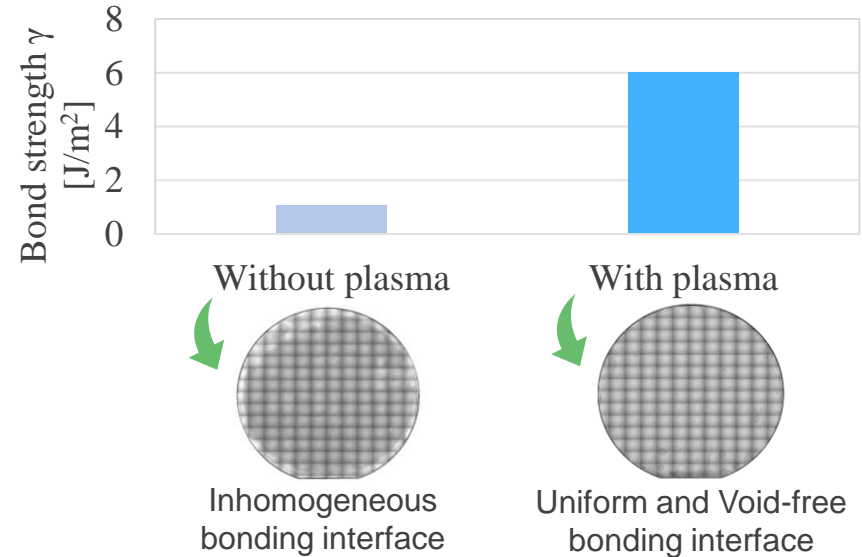
#### Features・Outstandings

< Method example >



- (1) Polysilazane(PHPS) is coated on Silicon wafer
- (2) After plasma treatment, bonded to each wafers at R.T.
- (3) Wafer bonding complete.

< Example of the results >



⇒ The invention shows high strength and good interface.

#### Contact