

Title (en)

METHOD FOR PERMANENTLY BONDING WAFERS

Title (de)

VERFAHREN ZUM PERMANENTEN BONDEN VON WAFERN

Title (fr)

PROCÉDÉ DE LIAISON PERMANENTE DE PLAQUETTES DE SEMI-CONDUCTEURS

Publication

EP 2695183 A1 20140212 (DE)

Application

EP 11714257 A 20110408

Priority

EP 2011055470 W 20110408

Abstract (en)

[origin: WO2012136267A1] The invention relates to a method for bonding a first contact surface (3) of a first substrate (1) to a second contact surface (4) of a second substrate (2), having the following steps, in particular in the following sequence: - forming a reservoir (5) in a surface layer (6) on the first contact surface (3), said surface layer (6) consisting at least predominantly of a native oxide material, - at least partly filling the reservoir (5) with a first reactant or a first group of reactants, - contacting the first contact surface (3) with the second contact surface (4) in order to form a pre-bonding connection, and - forming a permanent bond between the first and second contact surfaces (3, 4), said bond being at least partially reinforced by reacting the first reactant with a second reactant contained in a reaction layer (7) of the second substrate.

IPC 8 full level

H01L 21/20 (2006.01); **H01L 21/762** (2006.01)

CPC (source: EP KR US)

H01L 21/02554 (2013.01 - KR); **H01L 21/187** (2013.01 - KR US); **H01L 21/2007** (2013.01 - EP KR US); **H01L 21/3105** (2013.01 - EP KR US); **H01L 21/76251** (2013.01 - EP KR US); **H01L 24/27** (2013.01 - US); **H01L 24/29** (2013.01 - US); **H01L 24/32** (2013.01 - US); **H01L 24/83** (2013.01 - US); **H01L 21/0223** (2013.01 - US); **H01L 21/02255** (2013.01 - US); **H01L 2224/27444** (2013.01 - US); **H01L 2224/278** (2013.01 - US); **H01L 2224/29188** (2013.01 - US); **H01L 2224/32145** (2013.01 - US); **H01L 2224/8309** (2013.01 - US); **H01L 2224/83896** (2013.01 - US); **H01L 2924/01013** (2013.01 - US); **H01L 2924/10252** (2013.01 - US); **H01L 2924/1032** (2013.01 - US); **H01L 2924/10328** (2013.01 - US); **H01L 2924/10329** (2013.01 - US); **H01L 2924/1033** (2013.01 - US); **H01L 2924/10331** (2013.01 - US); **H01L 2924/10332** (2013.01 - US); **H01L 2924/10333** (2013.01 - US); **H01L 2924/10334** (2013.01 - US); **H01L 2924/10335** (2013.01 - US); **H01L 2924/10336** (2013.01 - US); **H01L 2924/10346** (2013.01 - US); **H01L 2924/1082** (2013.01 - US); **H01L 2924/10821** (2013.01 - US); **H01L 2924/10823** (2013.01 - US); **H01L 2924/20106** (2013.01 - US)

Citation (search report)

See references of WO 2012136267A1

Citation (examination)

- US 2010193897 A1 20100805 - SINHA NISHANT [US], et al
- WO 2008114099 A1 20080925 - SOITEC SILICON ON INSULATOR [FR], et al

Designated contracting state (EPC)

AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

DOCDB simple family (publication)

WO 2012136267 A1 20121011; CN 103477420 A 20131225; CN 103477420 B 20161116; EP 2695183 A1 20140212; JP 2014516470 A 20140710; KR 101794390 B1 20171201; KR 20130141646 A 20131226; SG 192180 A1 20130830; TW 201250785 A 20121216; TW I543237 B 20160721; US 10825793 B2 20201103; US 2014017877 A1 20140116; US 2017229423 A1 20170810

DOCDB simple family (application)

EP 2011055470 W 20110408; CN 201180069932 A 20110408; EP 11714257 A 20110408; JP 2014503003 A 20110408; KR 20137018783 A 20110408; SG 2013057286 A 20110408; TW 101112349 A 20120406; US 201114007999 A 20110408; US 201715499011 A 20170427