

Title (en)
SEMICONDUCTOR WAFER MADE OF MONOCRYSTALLINE SILICON AND METHOD FOR PRODUCING THE SEMICONDUCTOR WAFER

Title (de)
HALBLEITERSCHEIBE AUS EINKRISTALLINEM SILIZIUM UND VERFAHREN ZUR HERSTELLUNG DER HALBLEITERSCHEIBE

Title (fr)
PLAQUETTE DE SEMI-CONDUCTEUR EN SILICIUM MONOCRISTALLIN ET PROCÉDÉ DE FABRICATION DE LA PLAQUETTE DE SEMI-CONDUCTEUR

Publication
EP 3662504 A1 20200610 (DE)

Application
EP 18743014 A 20180719

Priority
• DE 102017213587 A 20170804
• EP 2018069584 W 20180719

Abstract (en)
[origin: WO2019025197A1] The invention relates to an epitaxially coated semiconductor wafer made of monocrystalline silicon and to a method for producing a p/p+ epitaxially coated semiconductor wafer. The epitaxially coated semiconductor wafer made of monocrystalline silicon comprises: a p+-doped substrate layer; a p-doped epitaxial layer made of monocrystalline silicon, which covers a top side surface of the substrate layer; an oxygen concentration of the substrate layer of no less than 5.3×10^{17} atoms/cm³ and no more than 6.0×10^{17} atoms/cm³; a resistivity of the substrate layer of no less than 5 mΩcm and no more than 10 mΩcm; and the potential of the substrate layer, following heat treatment of the epitaxially coated semiconductor wafer, to form BMDs, the BMD density having certain properties.

IPC 8 full level
H01L 21/02 (2006.01); **C30B 15/02** (2006.01); **C30B 15/04** (2006.01); **C30B 15/20** (2006.01); **C30B 33/02** (2006.01); **H01L 21/322** (2006.01)

CPC (source: EP IL KR US)
C30B 15/206 (2013.01 - EP IL KR US); **C30B 25/20** (2013.01 - IL US); **C30B 29/06** (2013.01 - EP IL KR US);
H01L 21/02381 (2013.01 - EP IL KR US); **H01L 21/02428** (2013.01 - IL US); **H01L 21/02532** (2013.01 - EP IL KR US);
H01L 21/02579 (2013.01 - IL US); **H01L 21/02598** (2013.01 - IL US); **H01L 21/3225** (2013.01 - EP IL KR); **H01L 29/16** (2013.01 - IL US);
H01L 29/32 (2013.01 - IL US); **Y02P 70/50** (2015.11 - EP)

Citation (search report)
See references of WO 2019025197A1

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

Designated extension state (EPC)
BA ME

DOCDB simple family (publication)
WO 2019025197 A1 20190207; CN 110998789 A 20200410; CN 110998789 B 20230707; DE 102017213587 A1 20190207;
EP 3662504 A1 20200610; IL 271983 A 20200227; IL 271983 B 20221201; IL 271983 B2 20230401; JP 2020529958 A 20201015;
JP 7098717 B2 20220711; KR 102318313 B1 20211029; KR 20200028439 A 20200316; SG 11202000957S A 20200330;
TW 201910567 A 20190316; TW I665342 B 20190711; US 11417733 B2 20220816; US 11621330 B2 20230404; US 2020168712 A1 20200528;
US 2022328636 A1 20221013

DOCDB simple family (application)
EP 2018069584 W 20180719; CN 201880050755 A 20180719; DE 102017213587 A 20170804; EP 18743014 A 20180719;
IL 27198320 A 20200112; JP 2020505772 A 20180719; KR 20207004022 A 20180719; SG 11202000957S A 20180719;
TW 107125727 A 20180725; US 201816636352 A 20180719; US 202217835241 A 20220608