

Title (en)

METHOD FOR PRODUCING A SINGLE CRYSTAL FROM SEMICONDUCTOR MATERIAL BY THE FZ METHOD; DEVICE FOR CARRYING OUT THE METHOD AND SEMICONDUCTOR SILICON WAFER

Title (de)

VERFAHREN ZUR HERSTELLUNG EINES EINKRISTALLS AUS HALBLEITERMATERIAL GEMÄSS DER FZ-METHODE; VORRICHTUNG ZUR DURCHFÜHRUNG DES VERFAHRENS UND HALBLEITERSCHEIBE AUS SILIZIUM

Title (fr)

PROCÉDÉ DE FABRICATION D'UN MONOCRISTAL EN MATÉRIAU SEMI-CONDUCTEUR SELON LA MÉTHODE FZ ; DISPOSITIF DE MISE EN ŒUVRE DU PROCÉDÉ ET PLAQUETTE SEMI-CONDUCTRICE EN SILICIUM

Publication

EP 3810834 A1 20210428 (DE)

Application

EP 19728955 A 20190604

Priority

- DE 102018210317 A 20180625
- EP 2019064554 W 20190604

Abstract (en)

[origin: TW202001008A] Method of manufacturing a single crystal of semiconductor material according to the FZ method, apparatus for carrying out the method and silicon semiconductor wafer. The method comprises creating a molten zone between a feed rod and a growing single crystal; melting feed rod material in a high frequency magnetic field of a first induction coil; crystallizing material of the molten zone on top of the growing single crystal; rotating the growing single crystal about an axis of rotation and changing the direction of rotation and the speed of rotation according to a predetermined pattern; and imposing an alternating magnetic field of a second induction coil on the molten zone, wherein the alternating magnetic field is not axisymmetric with respect to the axis of rotation of the growing single crystal.

IPC 8 full level

C30B 13/20 (2006.01); **C30B 13/26** (2006.01); **C30B 30/04** (2006.01)

CPC (source: EP KR US)

C30B 13/12 (2013.01 - US); **C30B 13/20** (2013.01 - EP KR US); **C30B 13/26** (2013.01 - EP KR US); **C30B 29/06** (2013.01 - US); **C30B 30/04** (2013.01 - EP KR US); **H01L 21/02532** (2013.01 - US); **H01L 21/02576** (2013.01 - US); **H01L 21/02625** (2013.01 - US)

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)

DE 102018210317 A1 20200102; CN 112334605 A 20210205; CN 112334605 B 20221115; EP 3810834 A1 20210428; JP 2021529149 A 20211028; JP 7225270 B2 20230220; KR 102522807 B1 20230417; KR 20210020153 A 20210223; TW 202001008 A 20200101; TW I707991 B 20201021; US 11788201 B2 20231017; US 2021222319 A1 20210722; WO 2020001940 A1 20200102

DOCDB simple family (application)

DE 102018210317 A 20180625; CN 201980042984 A 20190604; EP 19728955 A 20190604; EP 2019064554 W 20190604; JP 2020572461 A 20190604; KR 20217001793 A 20190604; TW 108120610 A 20190614; US 201917256138 A 20190604