

Title (en)

METHOD FOR FORMING A DOPED SILICON INGOT OF UNIFORM RESISTIVITY

Title (de)

VERFAHREN ZUM BILDEN EINES DOTIERTEN SILICIUMBLOCKS VON GLEICHMÄSSIGER FESTIGKEIT

Title (fr)

PROCEDE DE FORMATION D'UN LINGOT EN SILICIUM DOPÉ DE RESISTIVITE UNIFORME.

Publication

EP 2912215 A1 20150902 (FR)

Application

EP 13795544 A 20131023

Priority

- FR 1202826 A 20121023
- FR 2013000276 W 20131023

Abstract (en)

[origin: WO2014064347A1] A method for forming a silicon ingot comprises the following steps: providing (F1) a silicon ingot of variable electrical resistivity and containing interstitial oxygen, determining (F2) the concentration of interstitial oxygen in different areas of the silicon ingot, calculating (F3) the concentration of thermal donors to be created in the different areas to achieve a target electrical resistivity value, and subjecting (F5) the different areas of the silicon ingot to annealing so as to form the thermal donors. The annealing temperature in each area is determined (F4) from the concentrations of thermal donors and interstitial oxygen in the area and from a predefined annealing time.

IPC 8 full level

C30B 29/06 (2006.01); **C30B 33/02** (2006.01)

CPC (source: EP US)

B28D 1/22 (2013.01 - US); **B28D 5/0011** (2013.01 - US); **C30B 29/06** (2013.01 - EP US); **C30B 33/02** (2013.01 - EP US); **F27D 19/00** (2013.01 - EP US); **F27D 21/00** (2013.01 - EP US); **G01N 27/041** (2013.01 - US)

Citation (search report)

See references of WO 2014064347A1

Citation (examination)

- JP H04298042 A 19921021 - KOMATSU DENSHI KINZOKU KK
- FR 2974180 A1 20121019 - COMMISSARIAT ENERGIE ATOMIQUE [FR]
- EP 1713118 A1 20061018 - SHINETSU HANDOTAI KK [JP]
- KAZUMI WADA: "unified model for formation kinetics of oxygen thermal donors in silicon", PHYSICAL REVIEW, B. CONDENSED MATTER, AMERICAN INSTITUTE OF PHYSICS. NEW YORK, US, vol. 30, no. 10, 15 November 1984 (1984-11-15), pages 5884 - 5895, XP002696153, ISSN: 0163-1829, DOI: 10.1103/PHYSREVB.30.5884

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)

FR 2997096 A1 20140425; **FR 2997096 B1 20141128**; EP 2912215 A1 20150902; JP 2016500641 A 20160114; JP 6682269 B2 20200415; KR 20150074048 A 20150701; US 2015284875 A1 20151008; US 9938639 B2 20180410; WO 2014064347 A1 20140501

DOCDB simple family (application)

FR 1202826 A 20121023; EP 13795544 A 20131023; FR 2013000276 W 20131023; JP 2015538521 A 20131023; KR 20157012616 A 20131023; US 201314437955 A 20131023