

Title (en)
METHOD FOR IMPROVING THE OHMIC CONTACT BEHAVIOR BETWEEN A CONTACT GRID AND AN EMITTER LAYER OF A SILICON SOLAR CELL

Title (de)
VERFAHREN ZUR VERBESSERUNG DES OHMSCHEN KONTAKTVERHALTENS ZWISCHEN EINEM KONTAKTGITTER UND EINER EMITTERSCHICHT EINER SILIZIUMSOLARZELLE

Title (fr)
PROCÉDÉ POUR AMÉLIORER LE COMPORTEMENT DE CONTACT OHMIQUE ENTRE UNE GRILLE DE CONTACT ET UNE COUCHE D'ÉMISSION D'UNE CELLULE SOLAIRE AU SILICIUM

Publication
EP 4136680 A1 20230222 (DE)

Application
EP 21735846 A 20210401

Priority
• DE 102020002335 A 20200417
• DE 2021000070 W 20210401

Abstract (en)
[origin: WO2021209082A1] The invention relates to a method for improving the ohmic contact behavior between a contact grid and an emitter layer of a silicon solar cell, wherein, in a treatment step with the silicon solar cell being subjected to bias voltage and illumination, a treatment current flow is induced with a current density relative to the treatment segment of 200 A/cm² to 20,000 A/cm². The problem addressed by the invention is that of improving the method for improving the ohmic contact behavior between a contact grid and an emitter layer of a silicon solar cell. In particular, a quantification of the improvement achieved by the method is intended to be possible when the method is carried out. Furthermore, possible damage resulting from the application of unfavorable method parameters is intended to be identified when the method is carried out. This problem is solved by virtue of the fact that a measurement step is performed before and/or after the treatment step and, during this measurement step, by way of illumination of the side of the silicon solar cells facing the sun and a bias voltage, a measurement current flow is induced with a current intensity of 1 mA/cm² to 500 mA/cm² and a current intensity of this measurement current flow is detected by a current measuring device and is stored in a manner assigned to the respective measurement segment.

IPC 8 full level
H01L 31/18 (2006.01); **H01L 31/0224** (2006.01); **H02S 50/15** (2014.01)

CPC (source: EP KR US)
H01L 31/022425 (2013.01 - EP KR US); **H01L 31/1804** (2013.01 - EP KR); **H01L 31/186** (2013.01 - EP KR); **H01L 31/1864** (2013.01 - US); **H02S 50/15** (2014.12 - EP KR US); **Y02E 10/52** (2013.01 - EP); **Y02E 10/547** (2013.01 - EP KR); **Y02P 70/50** (2015.11 - EP KR)

Citation (search report)
See references of WO 2021209082A1

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

Designated validation state (EPC)
KH MA MD TN

DOCDB simple family (publication)
DE 102020002335 A1 20211021; **DE 102020002335 B4 20220224**; CN 115769386 A 20230307; EP 4136680 A1 20230222; JP 2023521992 A 20230526; KR 20230005884 A 20230110; TW 202145593 A 20211201; US 2023335668 A1 20231019; WO 2021209082 A1 20211021

DOCDB simple family (application)
DE 102020002335 A 20200417; CN 202180029010 A 20210401; DE 2021000070 W 20210401; EP 21735846 A 20210401; JP 2022562171 A 20210401; KR 20227040344 A 20210401; TW 110113846 A 20210416; US 202117996373 A 20210401