

Title (en)

VERTICALL STRUCTURED POWER TRANSISTOR WITH TRENCH SUPPLY ELECTRODE

Title (de)

VERTIKALER STRUKTURIERTER LEISTUNGSTRANSISTOR MIT GRABENANSCHLUSSELEKTRODE

Title (fr)

TRANSISTOR DE PUISSANCE A STRUCTURE VERTICALE ET A ÉLECTRODE D'ALIMENTATION EN TRANCHEE

Publication

**EP 3224869 A1 20171004 (FR)**

Application

**EP 15817449 A 20151124**

Priority

- FR 1461381 A 20141124
- FR 2015053189 W 20151124

Abstract (en)

[origin: WO2016083725A1] The invention relates to a vertically structured power transistor, such as a VDMOS or an IGBT, having a cell comprising: two symmetrical source layers (308), preferably N+ doped, which extend from a front surface (312) of the semiconductor substrate; a well layer (307), preferably P doped, comprising an area having a higher doping concentration (307b) that extends from one source layer to the other; a source/well NP junction (J3) between the source layer and the well layer. According to the invention, a cathode formed on the front surface (312) of the semiconductor substrate has a trench portion (309) with a bottom (313) that extends into the area having a higher doping concentration (307b) of the well layer (307) to a certain depth away from the source/well NP junction (J3).

IPC 8 full level

**H01L 29/78** (2006.01); **H01L 21/331** (2006.01); **H01L 21/336** (2006.01); **H01L 29/10** (2006.01); **H01L 29/417** (2006.01); **H01L 29/739** (2006.01)

CPC (source: EP US)

**H01L 29/1095** (2013.01 - EP US); **H01L 29/41766** (2013.01 - EP US); **H01L 29/6634** (2013.01 - EP US); **H01L 29/66727** (2013.01 - EP US); **H01L 29/7396** (2013.01 - EP US); **H01L 29/7802** (2013.01 - EP US)

Citation (search report)

See references of WO 2016083725A1

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 3029014 A1 20160527**; EP 3224869 A1 20171004; US 2017309738 A1 20171026; WO 2016083725 A1 20160602

DOCDB simple family (application)

**FR 1461381 A 20141124**; EP 15817449 A 20151124; FR 2015053189 W 20151124; US 201515528831 A 20151124