

Title (en)  
HETEROJUNCTION TRANSISTOR WITH VERTICAL STRUCTURE

Title (de)  
HETEROÜBERGANGSTRANSISTOR MIT VERTIKALER STRUKTUR

Title (fr)  
TRANSISTOR À HÉTÉROJONCTION À STRUCTURE VERTICALE

Publication  
**EP 3549172 A1 20191009 (FR)**

Application  
**EP 17804252 A 20171114**

Priority  
• FR 1661614 A 20161129  
• FR 2017053114 W 20171114

Abstract (en)  
[origin: WO2018100262A1] The invention concerns a heterojunction field-effect transistor (1) comprising: - a stack of first and second III-N type semiconducting layers (14, 13) forming an electron gas or hole layer (15); - a first conduction electrode (21) in electrical contact with the gas layer and a second conduction electrode (22); - a separation layer (12) positioned vertically in line with the first electrode and under the second semiconducting layer (13); - a third semiconducting layer (11) arranged under the separation layer (12) and in electrical contact with the second electrode; - a conductive element (24) in electrical contact with the gas layer (15) and electrically connecting the third semiconducting layer (11) and the gas layer (15); and - a control gate (23) positioned between the conductive element (24) and the first conduction electrode (21).

IPC 8 full level  
**H01L 29/778** (2006.01); **H01L 21/336** (2006.01); **H01L 29/06** (2006.01); **H01L 29/10** (2006.01); **H01L 29/417** (2006.01)

CPC (source: EP US)  
**H01L 29/0657** (2013.01 - EP); **H01L 29/1083** (2013.01 - EP); **H01L 29/2003** (2013.01 - US); **H01L 29/41766** (2013.01 - EP);  
**H01L 29/4236** (2013.01 - EP); **H01L 29/66462** (2013.01 - EP US); **H01L 29/7786** (2013.01 - EP); **H01L 29/7787** (2013.01 - US);  
**H01L 29/2003** (2013.01 - EP)

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 3059467 A1 20180601**; **FR 3059467 B1 20190517**; CN 110476254 A 20191119; CN 110476254 B 20231003; EP 3549172 A1 20191009; US 11222967 B2 20220111; US 2020295173 A1 20200917; WO 2018100262 A1 20180607

DOCDB simple family (application)  
**FR 1661614 A 20161129**; CN 201780084273 A 20171114; EP 17804252 A 20171114; FR 2017053114 W 20171114; US 201716464190 A 20171114