Title (en)

SEMICONDUCTOR DEVICES INCLUDING HYPER-ABRUPT JUNCTION REGION INCLUDING SPACED-APART SUPERLATTICES AND ASSOCIATED METHODS

Title (de)

HALBLEITERBAUELEMENTE MIT HYPERABRUPTER ÜBERGANGSREGION MIT BEABSTANDETEN ÜBERGITTERN UND ZUGEHÖRIGE VERFAHREN

Title (fr)

DISPOSITIFS À SEMI-CONDUCTEURS COMPRENANT UNE RÉGION DE JONCTION HYPER-ABRUPTE COMPRENANT DES SUPER-RÉSEAUX ESPACÉS ET PROCÉDÉS ASSOCIÉS

Publication

EP 4000101 A1 20220525 (EN)

Application

EP 20751434 A 20200715

Priority

- US 201916513825 A 20190717
- US 201916513832 A 20190717
- US 2020042110 W 20200715

Abstract (en)

[origin: WO2021011635A1] A semiconductor device may include a substrate and a hyper-abrupt junction region carried by the substrate. The hyper-abrupt region may include a first semiconductor layer having a first conductivity type, a first superlattice layer on the first semiconductor layer, a second semiconductor layer on the first superlattice layer and having a second conductivity type different than the first conductivity type, and a second superlattice layer on the second semiconductor layer. The semiconductor device may further include a gate dielectric layer on the second superlattice layer of the hyper-abrupt junction region, a gate electrode on the gate dielectric layer, and spaced apart source and drain regions adjacent the hyper-abrupt junction region.

IPC 8 full level

H01L 29/78 (2006.01); **H01L 29/06** (2006.01); **H01L 29/08** (2006.01); **H01L 29/15** (2006.01); **H01L 29/423** (2006.01); **H01L 29/808** (2006.01); **H01L 29/93** (2006.01)

CPC (source: CN EP)

H01L 29/0634 (2013.01 - CN EP); **H01L 29/0653** (2013.01 - CN EP); **H01L 29/0878** (2013.01 - CN EP); **H01L 29/0886** (2013.01 - CN EP); **H01L 29/1066** (2013.01 - CN); **H01L 29/152** (2013.01 - CN EP); **H01L 29/41766** (2013.01 - CN); **H01L 29/42368** (2013.01 - CN EP); **H01L 29/66174** (2013.01 - CN); **H01L 29/66409** (2013.01 - CN); **H01L 29/66893** (2013.01 - CN); **H01L 29/7813** (2013.01 - CN EP); **H01L 29/808** (2013.01 - CN EP); **H01L 29/93** (2013.01 - CN); H01L 29/1066 (2013.01 - EP); H01L 29/41766 (2013.01 - EP); H01L 29/93 (2013.01 - EP)

Citation (search report)

See references of WO 2021011635A1

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)

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DOCDB simple family (application)

US 2020042110 W 20200715; CN 202080058845 A 20200715; EP 20751434 A 20200715; TW 109123629 A 20200713