

Title (en)

FIELD EFFECT SUPERCONDUCTOR TRANSISTOR AND METHOD FOR MAKING SUCH TRANSISTOR

Title (de)

FELDEFFEKT-SUPRALEITERTRANSISTOR UND VERFAHREN ZUR HERSTELLUNG EINES SOLCHEN TRANSISTORS

Title (fr)

TRANSISTOR SUPRACONDUCTEUR A EFFET DE CHAMP ET PROCEDE DE FABRICATION D'UN TEL TRANSISTOR

Publication

EP 2294637 A1 20110316 (FR)

Application

EP 09769498 A 20090529

Priority

- FR 2009051010 W 20090529
- FR 0853620 A 20080602

Abstract (en)

[origin: WO2009156657A1] The invention relates to a field-effect superconductor transistor (2) that comprises a source electrode (4) and a drain electrode (6) connected by a superconducting channel (12), the channel (12) and the source (4) and drain (6) electrodes being provided on a substrate (6), and a gate electrode (8) covering the channel (12). A layer (14) of a semiconducting material is provided between the channel (12) and the gate electrode (8) in order to control the critical current of the superconducting channel (12) between a minimum value I_{c_min} and a maximum value I_{c_max} by controlling the surface roughness of said channel (12), said surface roughness being controlled by a combination between the proximity effect between the superconducting channel (12) and the layer (14) of semiconducting material, and the field effect in the layer (14) of semiconducting material due to the polarisation of the gate electrode (8).

IPC 8 full level

H10N 60/01 (2023.01); **H10N 60/20** (2023.01); **H01L 29/808** (2006.01); **H10N 60/85** (2023.01)

CPC (source: EP US)

H10N 60/207 (2023.02 - EP US)

Designated contracting state (EPC)

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 SE SI SK TR

Designated extension state (EPC)

AL BA RS

DOCDB simple family (publication)

WO 2009156657 A1 20091230; EP 2294637 A1 20110316; FR 2932012 A1 20091204; FR 2932012 B1 20110422; US 2011254053 A1 20111020

DOCDB simple family (application)

FR 2009051010 W 20090529; EP 09769498 A 20090529; FR 0853620 A 20080602; US 99578109 A 20090529