

Title (en)  
NCFET TRANSISTOR COMPRISING A SEMICONDUCTOR-ON-INSULATOR SUBSTRATE

Title (de)  
NCFET-TRANSISTOR MIT EINEM HALBLEITER-AUF-ISOLATOR-SUBSTRAT

Title (fr)  
TRANSISTOR NC-FET COMPORTANT UN SUBSTRAT DU TYPE SEMI-CONDUCTEUR SUR ISOLANT

Publication  
**EP 4309205 A1 20240124 (FR)**

Application  
**EP 22714482 A 20220317**

Priority  
• FR 2102738 A 20210318  
• FR 2022050479 W 20220317

Abstract (en)  
[origin: WO2022195226A1] The invention relates to an NCFET transistor comprising a semiconductor-on-insulator substrate for a field-effect transistor, successively comprising, from its base to its surface: o a semiconductor carrier substrate (1); o a single ferroelectric layer (2), arranged in direct contact with the carrier substrate (1), which layer is designed to be biased so as to form a negative capacitance; and o an active layer (3) of a semiconductor material, which layer is designed to form the channel of the transistor, and is arranged in direct contact with the ferroelectric layer (2), said NCFET transistor further comprising a channel (3b) which is arranged in the active layer (3a), a source (11) and a drain (12) which are arranged in the active layer (3a) on either side of the channel (3b), and a gate (10) which is arranged on the channel (3b) and is insulated from said channel (3b) by a gate dielectric (30).

IPC 8 full level  
**H01L 21/762** (2006.01); **H01L 21/84** (2006.01); **H01L 27/12** (2006.01); **H01L 29/786** (2006.01)

CPC (source: EP KR US)  
**H01L 21/76254** (2013.01 - EP KR US); **H01L 29/516** (2013.01 - EP KR); **H01L 29/66772** (2013.01 - EP KR); **H01L 29/78603** (2013.01 - US); **H01L 29/78654** (2013.01 - EP KR)

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)  
**FR 3120983 A1 20220923**; CN 116982148 A 20231031; EP 4309205 A1 20240124; JP 2024510706 A 20240311; KR 20230158077 A 20231117; US 2024170577 A1 20240523; WO 2022195226 A1 20220922

DOCDB simple family (application)  
**FR 2102738 A 20210318**; CN 202280021452 A 20220317; EP 22714482 A 20220317; FR 2022050479 W 20220317; JP 2023546294 A 20220317; KR 20237035421 A 20220317; US 202218551104 A 20220317