Title (en)

COMPONENT FOR READING OUT THE STATES OF QUBITS IN QUANTUM DOTS

Title (de)

BAUELEMENT ZUM AUSLESEN DER ZUSTÄNDE VON QUBITS IN QUANTENPUNKTEN

Title (fr)

COMPOSANT PERMETTANT DE LIRE LES ÉTATS DE BITS QUANTIQUES DANS DES POINTS QUANTIQUES

Publication

EP 4031487 A1 20220727 (DE)

Application

EP 20792278 A 20200921

Priority

- DE 102019125351 A 20190920
- DE 102020115493 A 20200610
- DE 2020100809 W 20200921

Abstract (en)

[origin: WO2021052539A1] The invention relates to an electronic component (10) which is formed by a semiconductor component or a semiconductor-like structure with gate electrode arrangements (16, 18, 20) for the transport of a quantum dot (52). The electronic component (10) contains a substrate (12) comprising a two-dimensional electron gas or electron hole gas. Electrical contacts connect the gate electrode arrangements (16, 18, 20) to voltage sources. A first gate electrode arrangement (16) having gate electrodes (22, 24) is provided on a surface (14) of the electronic component in order to create a potential well (50) in the substrate (12). The gate electrode arrangement (16) has parallel electrode fingers (32, 34), said electrode fingers (32, 34) being alternately connected together at intervals which causes almost continuous transport of the potential well (50) through the substrate (12), a quantum dot (52) being translated together with this potential well (50) in one direction.

IPC 8 full level

B82Y 10/00 (2011.01); **G06N 10/00** (2022.01); **H01L 21/334** (2006.01); **H01L 29/16** (2006.01); **H01L 29/20** (2006.01); **H01L 29/40** (2006.01); **H01L 29/423** (2006.01); **H01L 29/76** (2006.01); **H01L 29/762** (2006.01); **H10N 69/00** (2023.01)

CPC (source: CN EP US)

B82Y 10/00 (2013.01 - CN); **G06F 13/20** (2013.01 - US); **G06N 10/00** (2019.01 - CN EP); **G06N 10/40** (2022.01 - US); **H01L 29/205** (2013.01 - CN); **H01L 29/401** (2013.01 - EP); **H01L 29/423** (2013.01 - EP US); **H01L 29/42316** (2013.01 - CN US); **H01L 29/66977** (2013.01 - CN EP US); **H01L 29/7613** (2013.01 - EP); **H01L 29/778** (2013.01 - CN); **H03K 17/92** (2013.01 - US); **H10N 60/11** (2023.02 - US); **H10N 60/128** (2023.02 - US); **H10N 69/00** (2023.02 - US); B82Y 10/00 (2013.01 - EP); G06F 2213/40 (2013.01 - US); H01L 29/762 (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)

WO 2021052539 A1 20210325; CN 114402440 A 20220426; CN 114402441 A 20220426; CN 114424344 A 20220429; CN 114424345 A 20220429; CN 114514618 A 20220517; EP 4031487 A1 20220727; EP 4031488 A1 20220727; EP 4031489 A1 20220727; EP 4031490 A1 20220727; EP 4031491 A1 20220727; US 11687473 B2 20230627; US 11983126 B2 20240514; US 12072819 B2 20240827; US 2022327072 A1 20221013; US 2022335322 A1 20221020; US 2022344565 A1 20221027; US 2022414516 A1 20221229; US 2023006669 A1 20230105; WO 2021052536 A1 20210325; WO 2021052537 A1 20210325; WO 2021052538 A1 20210325; WO 2021052541 A1 20210325

DOCDB simple family (application)

DE 2020100812 W 20200921; CN 202080065541 A 20200921; CN 202080065544 A 20200921; CN 202080065546 A 20200921; CN 202080065558 A 20200921; CN 202080065560 A 20200921; DE 2020100809 W 20200921; DE 2020100810 W 20200921; DE 2020100811 W 20200921; DE 2020100814 W 20200921; EP 20792278 A 20200921; EP 20792279 A 20200921; EP 20792280 A 20200921; EP 20792281 A 20200921; EP 20793561 A 20200921; US 202017642484 A 20200921; US 202017642527 A 20200921; US 202017642677 A 20200921; US 202017761832 A 20200921; US 202017761885 A 20200921