

## (19) United States

# (12) Patent Application Publication (10) Pub. No.: US 2024/0178648 A1

May 30, 2024 (43) **Pub. Date:** 

### (54) INTEGRATED CIRCUIT-BASED **NANO-RELAY**

(71) Applicant: DIGITAL GRID RES. INST., CHINA SOUTHERN PWR. GRID, Guangzhou

(CN)

(72) Inventors: Peng LI, Guangzhou (CN); Xiangjun

ZENG, Guangzhou (CN); Wei XI, Guangzhou (CN); Xiaobo LI, Guangzhou (CN); Hao YAO, Guangzhou (CN); Yang YU, Guangzhou (CN); Tiantian CAI,

Guangzhou (CN)

(73) Assignee: DIGITAL GRID RES. INST., CHINA

SOUTHERN PWR. GRID, Guangzhou

(CN)

(21) Appl. No.: 18/282,172

(22) PCT Filed: Mar. 11, 2022

(86) PCT No.: PCT/CN2022/080260

§ 371 (c)(1),

Sep. 14, 2023 (2) Date:

#### (30)Foreign Application Priority Data

Jun. 18, 2021 (CN) ...... 202110682417.0

### **Publication Classification**

(51) Int. Cl.

H02H 3/08 (2006.01)H02H 3/30 (2006.01)

U.S. Cl.

CPC ...... H02H 3/08 (2013.01); H02H 3/305

(2013.01)

#### (57)ABSTRACT

An integrated circuit-based nano-relay, comprising: an integrated circuit system of the nano-relay constructed according to an integrated circuit module built from a combinational logic circuit. An integrated power data processing algorithm is called by means of the integrated circuit module to perform signal processing on an input power signal, and power service data is output, that is, an integrated circuit is mainly constructed by means of the combinational logic circuit, the protection logic of the nano-relay is achieved by means of a hardware circuit module, and a response speed of the relay is improved.

# nano relay based on integrated circuits

integrated circuit module

> combinational logic circuit module