

# (19) United States

## (12) Patent Application Publication (10) Pub. No.: US 2024/0213977 A1 Yamato

Jun. 27, 2024 (43) **Pub. Date:** 

#### (54) LOAD DRIVING DEVICE, ELECTRONIC APPARATUS AND VEHICLE

(71) Applicant: **ROHM CO., LTD.**, KYOTO (JP)

Inventor: Tetsuo Yamato, KYOTO (JP)

(21)Appl. No.: 18/393,494

(22)Filed: Dec. 21, 2023

(30)Foreign Application Priority Data

(JP) ...... 2022-209857

#### **Publication Classification**

(51) Int. Cl. H03K 17/0812 (2006.01)H03K 17/18 (2006.01)

### (52) U.S. Cl.

CPC ...... H03K 17/08122 (2013.01); H03K 17/18 (2013.01); B60R 16/02 (2013.01); H03K 2217/0027 (2013.01); H03K 2217/0072 (2013.01)

#### ABSTRACT (57)

The present disclosure provides a load driving device. The load driving device includes a load, a resistor configured to be connected in parallel to the load, and a switch device. The switch device includes an output terminal, a ground terminal, a first switch element and an abnormality detection circuit. The output terminal is configured to connect the load and the resistor. The ground terminal is configured to connect to a ground potential. The first switch element is configured to be connected between the output terminal and the ground terminal. The abnormality detection circuit is configured to distinguish between a load open at the output terminal and a ground fault at the output terminal based on a magnitude relationship between an output current flowing through the first switch element, a first threshold value and a second threshold value greater than the first threshold

