



US 20240213245A1

(19) **United States**

(12) **Patent Application Publication**  
**FUKUDA et al.**

(10) **Pub. No.: US 2024/0213245 A1**

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

(54) **SEMICONDUCTOR DEVICE**

**Publication Classification**

(71) Applicant: **ROHM CO., LTD.**, Kyoto-shi (JP)

(51) **Int. Cl.**  
**H01L 27/092** (2006.01)

**H01L 29/78** (2006.01)

(72) Inventors: **Yoshinori FUKUDA**, Kyoto-shi (JP);  
**Hajime OKUDA**, Kyoto-shi (JP); **Keiji**  
**YAMAMOTO**, Kyoto-shi (JP)

(52) **U.S. Cl.**  
CPC ..... **H01L 27/092** (2013.01); **H01L 29/7813**  
(2013.01)

(73) Assignee: **ROHM CO., LTD.**, Kyoto-shi (JP)

(57) **ABSTRACT**

(21) Appl. No.: **18/544,458**

The present disclosure provides a semiconductor device. The semiconductor device includes a semiconductor chip having an element main surface; a first element disposed on the element main surface; a second element disposed on the element main surface and separated from the first element; and a third element disposed on the element main surface and separated from the first element and the second element. The first element includes a DTI structure as a part of an element structure. The second element includes an STI structure. The third element includes a LOCOS structure.

(22) Filed: **Dec. 19, 2023**

(30) **Foreign Application Priority Data**

Dec. 21, 2022 (JP) ..... 2022-204050

