



US 20240215227A1

(19) **United States**

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

(10) **Pub. No.: US 2024/0215227 A1**

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

(54) **SEMICONDUCTOR DEVICE AND METHOD  
FOR FABRICATING THE SAME**

(52) **U.S. Cl.**

CPC ..... **H10B 12/488** (2023.02); **H10B 12/03**  
(2023.02); **H10B 12/05** (2023.02)

(71) Applicant: **SK hynix Inc.**, Gyeonggi-do (KR)

(72) Inventors: **Dong Yean OH**, Gyeonggi-do (KR);  
**Jin Sun CHO**, Gyeonggi-do (KR)

(57)

**ABSTRACT**

(21) Appl. No.: **18/324,159**

(22) Filed: **May 26, 2023**

A semiconductor device includes a horizontal layer spaced apart from a lower structure to extend in a direction parallel to the lower structure; a vertical conductive line extending in a direction perpendicular to the lower structure and coupled to a first-side end of the horizontal layer; a data storage element coupled to a second-side end of the horizontal layer; and a horizontal conductive line including a first horizontal conductive line and a second horizontal conductive line that are vertically asymmetrical with the horizontal layer interposed therebetween.

(30) **Foreign Application Priority Data**

Dec. 22, 2022 (KR) ..... 10-2022-0181583

**Publication Classification**

(51) **Int. Cl.**

**H10B 12/00** (2006.01)

