



US 20230230922A1

(19) **United States**(12) **Patent Application Publication**  
**Matsumoto et al.**(10) **Pub. No.: US 2023/0230922 A1**(43) **Pub. Date: Jul. 20, 2023**(54) **SEMICONDUCTOR DEVICE HAVING  
PLURAL MEMORY CELL MATS**(52) **U.S. Cl.**CPC ..... **H01L 23/5286** (2013.01); **H01L 27/108**  
(2013.01)(71) Applicant: **MICRON TECHNOLOGY, INC.,**  
Boise, ID (US)(72) Inventors: **Hirokazu Matsumoto**, Hachioji (JP);  
**Makoto Sato**, Sagami-hara (JP); **Ryota Suzuki**, Sagami-hara (JP); **Kyoka Egami**, Yokohama (JP)

(57)

**ABSTRACT**

Disclosed herein is an apparatus that includes: a memory cell array including a plurality of first memory cell mats arranged in a first direction; a first voltage line supplied with a first voltage, the first voltage line extending in the first direction and being connected to a plurality of first vias each arranged over a corresponding one of even numbered ones of the plurality of first memory cell mats; and a second voltage line supplied with a second voltage different from the first voltage, the second voltage line extending in the first direction and being connected to a plurality of second vias each arranged over a corresponding one of odd numbered ones of the plurality of first memory cell mats.

(73) Assignee: **MICRON TECHNOLOGY, INC.,**  
Boise, ID (US)(21) Appl. No.: **17/579,501**(22) Filed: **Jan. 19, 2022****Publication Classification**(51) **Int. Cl.****H01L 23/528** (2006.01)