

# (19) United States

## (12) Patent Application Publication (10) Pub. No.: US 2024/0215234 A1 Wang et al.

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

### (54) MEMORY DEVICES AND METHODS FOR FORMING THE SAME

(71) Applicant: YANGTZE MEMORY

TECHNOLOGIES CO., LTD., Wuhan

(CN)

(72) Inventors: Di Wang, Wuhan (CN); Lei Liu,

Wuhan (CN); Yuancheng Yang, Wuhan (CN); Wenxi Zhou, Wuhan (CN); Kun Zhang, Wuhan (CN); Tao Yang, Wuhan (CN); Dongxue Zhao, Wuhan (CN); Zhiliang Xia, Wuhan (CN); Zongliang

Huo, Wuhan (CN)

(21) Appl. No.: 18/090,931

(22)Filed: Dec. 29, 2022

Foreign Application Priority Data (30)

Dec. 26, 2022 (CN) ...... 202211677042.X

### **Publication Classification**

(51)	Int. Cl.	
` ′	H10B 41/40	(2006.01)
	H01L 23/528	(2006.01)
	H10B 41/27	(2006.01)
	H10B 43/27	(2006.01)
	H10B 43/40	(2006.01)

(52) U.S. Cl.

H10B 41/40 (2023.02); H01L 23/5283 (2013.01); H10B 41/27 (2023.02); H10B 43/27 (2023.02); H10B 43/40 (2023.02)

#### ABSTRACT (57)

A memory device includes an array of memory cells disposed on a first side of a first semiconductor layer, and a peripheral circuit bonded to the array of memory cells. Each of the memory cells includes a semiconductor body extending in a first direction, a first terminal and a second terminal are formed at both ends of the semiconductor body; a word line extending in a second direction perpendicular to the first direction; plate lines extending in the second direction; and a first dielectric layer disposed between the semiconductor body and the word line and the plate line.

