

(19) United States

(12) Patent Application Publication (10) Pub. No.: US 2023/0232639 A1 MOSENDZ et al.

Jul. 20, 2023 (43) **Pub. Date:**

(54) OVONIC THRESHOLD SWITCH SELECTORS WITH HIGH-CONDUCTIVITY **CURRENT SPREADING LAYER**

(71) Applicant: WESTERN DIGITAL TECHNOLOGIES, INC., San Jose, CA (US)

(72) Inventors: Oleksandr MOSENDZ, Campbell, CA

(US); James REINER, Palo Alto, CA (US); Bruce TERRIS, Sunnyvale, CA (US); John READ, San Jose, CA (US)

(21) Appl. No.: 17/579,147

(22) Filed: Jan. 19, 2022

Publication Classification

(51) Int. Cl. H01L 27/24 (2006.01)H01L 45/00 (2006.01)

(52) U.S. Cl. CPC H01L 27/2427 (2013.01); H01L 45/06 (2013.01); H01L 45/144 (2013.01); H01L **45/1226** (2013.01)

(57)ABSTRACT

A memory device includes a memory material portion, and an ovonic threshold switch selector element. The ovonic threshold switch selector element includes a first carboncontaining electrode comprising carbon and a metal, a second carbon-containing electrode comprising the carbon and the metal, and an ovonic threshold switch material portion located between the first electrode and the second electrode.

