



US 20240215228A1

(19) **United States**(12) **Patent Application Publication**
KANG(10) **Pub. No.: US 2024/0215228 A1**(43) **Pub. Date: Jun. 27, 2024**(54) **SEMICONDUCTOR INTEGRATED CIRCUIT
DEVICE INCLUDING A WORD LINE WITH
VARIABLE WIDTHS**(52) **U.S. Cl.**CPC **H10B 12/488** (2023.02); **H10B 12/34**
(2023.02)(71) Applicant: **SK hynix Inc.**, Gyeonggi-do (KR)

(57)

ABSTRACT(72) Inventor: **Seok Young KANG**, Gyeonggi-do (KR)(21) Appl. No.: **18/353,110**(22) Filed: **Jul. 17, 2023**(30) **Foreign Application Priority Data**

Dec. 22, 2022 (KR) 10-2022-0181643

Publication Classification(51) **Int. Cl.****H10B 12/00**

(2006.01)

A semiconductor integrated circuit device includes a semiconductor substrate, an active region and a word line. The active region is defined by an isolation region formed in the semiconductor substrate. The active region includes at least one contact region. The word line includes a main gate and a pass gate. The main gate is arranged in the active region. The pass gate is positioned away from the main gate. The pass gate is positioned in the isolation region. The contact region is arranged at one side of the main gate. A sidewall of the main gate includes a first recessed portion configured to surround the contact region. The first recessed portion may be spaced apart from the contact region by a first distance.

