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CHO et al.(10) **Pub. No.: US 2024/0179890 A1**(43) **Pub. Date: May 30, 2024**(54) **SEMICONDUCTOR DEVICE**(52) **U.S. Cl.**(71) Applicant: **SAMSUNG ELECTRONICS CO., LTD.**, Suwon-si (KR)CPC **H10B 12/315** (2023.02); **H10B 12/482** (2023.02); **H10B 12/50** (2023.02)(72) Inventors: **Byunghoon CHO**, Suwon-si (KR);
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(57)

ABSTRACT

A semiconductor device includes a peripheral circuit transistor disposed in a peripheral circuit region. First connection lines and second connection lines are disposed on a same plane above the peripheral circuit transistor. The second connection lines including a cutting portion. A cell capacitor is disposed on the substrate in a cell region. A first plate pattern is on the cell capacitor. A second plate pattern is on a portion of a surface of the first plate pattern. A first contact plug directly contacts an upper surface of the second plate pattern. A third connection line is disposed above the second connection line. The third connection line faces the cutting portion. Second contact plugs extend vertically to directly contact both sidewalls of the third connection line and upper surfaces of the second connection lines. The third connection line is disposed on a same plane as the second plate pattern.

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