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KIM et al.(10) **Pub. No.: US 2024/0213119 A1**(43) **Pub. Date: Jun. 27, 2024**(54) **INTEGRATED CIRCUIT DEVICE**
INCLUDING A POWER RAIL**H01L 29/775** (2006.01)**H01L 29/786** (2006.01)(52) **U.S. CL.**CPC **H01L 23/481** (2013.01); **H01L 27/088**
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Dawoon Choi, Suwon-si (KR)(21) Appl. No.: **18/230,710**(22) Filed: **Aug. 7, 2023**(30) **Foreign Application Priority Data**

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ABSTRACT

An integrated circuit device includes: a substrate having a backside surface; a pair of fin-type active regions protruding from the substrate and defining a trench region in the substrate; a pair of source/drain regions disposed, one-by-one, on the pair of fin-type active regions, respectively; a device isolation film covering a sidewall of each of the pair of fin-type active regions and disposed in the trench region; a via power rail disposed between the pair of fin-type active regions and between the pair of source/drain regions, wherein the via power rail passes through the device isolation film in a vertical direction; a backside power rail passing through the substrate in the vertical direction and disposed at a position overlapping the via power rail, wherein the backside power rail is connected to the via power rail; and an air spacer disposed between the substrate and the backside power rail.

