

(19) United States

(12) Patent Application Publication (10) Pub. No.: US 2024/0213200 A1

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

(54) SEMICONDUCTOR DEVICE AND SEMICONDUCTOR PACKAGE INCLUDING

(71) Applicant: ROHM CO., LTD., Kyoto (JP)

Inventor: Reona TAKEOKA, Kyoto (JP)

Assignee: ROHM CO., LTD., Kyoto (JP) (73)

Appl. No.: 18/391,351 (21)

Filed: (22)Dec. 20, 2023

(30)Foreign Application Priority Data

Dec. 22, 2022 (JP) 2022-205692

Publication Classification

(51) Int. Cl. H01L 23/00 (2006.01)H01L 23/31 (2006.01)

(52)U.S. Cl.

CPC H01L 24/13 (2013.01); H01L 23/3121 (2013.01); H01L 24/05 (2013.01); H01L 24/16 (2013.01); H01L 2224/0401 (2013.01); H01L 2224/05548 (2013.01); H01L 2224/13017 (2013.01); H01L 2224/13111 (2013.01); H01L 2224/13139 (2013.01); H01L 2224/13147 (2013.01); H01L 2224/13155 (2013.01); H01L 2224/16245 (2013.01)

(57)ABSTRACT

A semiconductor device includes: a semiconductor device main body; and an electrode terminal provided at a side of a main surface of the semiconductor device main body and partially protruding outward from the main surface, wherein the electrode terminal includes: a pillar layer made of copper and electrically connected to a wiring layer disposed within the semiconductor device main body; and a bonding layer formed over a surface of the pillar layer on an opposite side of the pillar layer from the wiring layer, and wherein the pillar layer includes: a disc-shaped first portion; and a columnar second portion formed over a central portion of a surface of the first portion on an opposite side of the first portion from the wiring layer.

