

(19) United States

(12) Patent Application Publication (10) Pub. No.: US 2022/0386479 A1

Dec. 1, 2022 (43) **Pub. Date:**

(54) BATCH JOINING TYPE MULTI-LAYER PRINTED CIRCUIT BOARD AND MANUFACTURING METHOD OF THE SAME

(71) Applicant: TSE CO., LTD., Chungcheongnam-do (KR)

(72) Inventors: Doo Hwan PARK,

Chungcheongnam-do (KR); Sung Jun Kim, Chungcheongnam-do (KR); Han Eol Seo, Chungcheongnam-do (KR); Jong Geun Park, Chungcheongnam-do (KR); Kum Sun Park,

Chungcheongnam-do (KR); Chung Hyeon Kim, Chungcheongnam-do (KR)

(73) Assignee: TSE CO., LTD., Chungcheongnam-do (KR)

(21)Appl. No.: 17/556,253

(22)Filed: Dec. 20, 2021

(30)Foreign Application Priority Data

May 28, 2021 (KR) 10-2021-0069276

Publication Classification

(51) Int. Cl. H05K 3/46 (2006.01)H05K 1/02 (2006.01)

U.S. Cl.

CPC H05K 3/4688 (2013.01); H05K 1/0298 (2013.01); H05K 3/462 (2013.01); H05K 1/0306 (2013.01)

ABSTRACT (57)

A multilayer circuit board including a ceramic substrate part and a unit circuit board coupled to one surface of the ceramic substrate part. The unit circuit board includes an insulating layer with a circuit pattern formed on one side, an adhesive layer adhered to another surface of the insulating layer, a via hole passing through the insulating layer and the adhesive layer and connected to one surface of the circuit pattern, and conductive paste filled in the via hole.

A manufacturing method including batch bonding a circuit board part, which includes a plurality of unit circuit boards, and a ceramic substrate part, wherein each unit circuit board includes providing an insulating layer having a circuit layer, forming an adhesive layer on the insulating layer, forming a circuit pattern, forming a via hole in the insulating and adhesive layers, and filling the via hole with conductive

