



US 20240237310A1

(19) **United States**(12) **Patent Application Publication**
NAGUMO(10) **Pub. No.: US 2024/0237310 A1**(43) **Pub. Date: Jul. 11, 2024**(54) **ELECTRIC POWER CONVERSION UNIT****Publication Classification**(71) Applicant: **TOSHIBA MITSUBISHI-ELECTRIC
INDUSTRIAL SYSTEMS
CORPORATION**, Tokyo (JP)(51) **Int. Cl.**
H05K 7/20 (2006.01)(72) Inventor: **Kenshi NAGUMO**, Tokyo (JP)(52) **U.S. Cl.**
CPC **H05K 7/20909** (2013.01); **H05K 7/20145**
(2013.01); **H05K 7/20409** (2013.01)(73) Assignee: **TOSHIBA MITSUBISHI-ELECTRIC
INDUSTRIAL SYSTEMS
CORPORATION**, Tokyo (JP)(57) **ABSTRACT**(21) Appl. No.: **18/580,732**(22) PCT Filed: **Jun. 17, 2022**(86) PCT No.: **PCT/JP2022/024341**

§ 371 (c)(1),

(2) Date: **Jan. 19, 2024**

An electric power conversion unit includes a housing, a plurality of fans, a heat sink, and a plurality of semiconductor elements. The fan generates a flow of air at an inside of the housing. The heat sink forms a flow path of the air on an upstream side of a flow route of the air at the inside of the housing. The plurality of semiconductor elements is arranged and aligned along a direction which intersects a flow direction of the air in the heat sink on an element arrangement plane of the heat sink.

