



US 20230230865A1

(19) **United States**
(12) **Patent Application Publication** (10) **Pub. No.: US 2023/0230865 A1**
CHOI et al. (43) **Pub. Date: Jul. 20, 2023**

(54) **SEMICONDUCTOR SUBSTRATE
PROCESSING APPARATUS**

Publication Classification

(51) **Int. Cl.**
H01L 21/677 (2006.01)
H01L 21/67 (2006.01)

(71) Applicant: **Samsung Electronics Co., Ltd**, Suwon-si (KR)

(52) **U.S. Cl.**
CPC H01L 21/67742 (2013.01); **H01L 21/67178**
(2013.01); **H01L 21/67184** (2013.01); **H01L**
21/67201 (2013.01);
H01L 21/67745 (2013.01)

(72) Inventors: **Jinhyuk CHOI**, Suwon-si (KR);
Kongwoo Lee, Seoul (KR); **Beomsoo**
Hwang, Seoul (KR); **Myungki Song**,
Hwaseong-si (KR); **Duckjin Kim**,
Seongnam-si (KR); **Kyusang Lee**,
Suwon-si (KR); **Hyunjoo Jeon**,
Hwaseong-si (KR)

(73) Assignee: **Samsung Electronics Co., Ltd**, Suwon-si (KR)

(21) Appl. No.: **18/062,285**

(22) Filed: **Dec. 6, 2022**

(30) **Foreign Application Priority Data**

Jan. 18, 2022 (KR) 10-2022-0007281

(57) **ABSTRACT**

A semiconductor substrate processing apparatus includes a substrate transfer module including a chamber having an internal space extending in a first direction within the chamber, at least one pair of first load ports at opposite sides of the chamber, to face in a second direction intersecting the first direction, and configured to rotate and move a substrate carrier, a load lock at a rear surface of the chamber, and a robot arm configured to move in the first direction in the internal space of the chamber, a transfer chamber connected to the load lock of the substrate transfer module, a plurality of processing chambers connected to the transfer chamber, and a transfer arm inside the transfer chamber, and configured to unload the semiconductor substrate from the load lock and to load the semiconductor substrate into at least one of the plurality of processing chambers.

