



US 20220360174A1

(19) **United States**

(12) **Patent Application Publication**
WANG et al.

(10) **Pub. No.: US 2022/0360174 A1**

(43) **Pub. Date: Nov. 10, 2022**

(54) **BASIC UNIT FOR POWER CONVERTER,
POWER CONVERTER, AND UNIVERSAL
POWER INTERFACE**

Publication Classification

(51) **Int. Cl.**

H02M 3/158 (2006.01)

H02M 7/219 (2006.01)

H02M 7/5387 (2006.01)

(52) **U.S. Cl.**

CPC *H02M 3/1582* (2013.01); *H02M 3/1584*

(2013.01); *H02M 7/219* (2013.01); *H02M*

7/53875 (2013.01)

(71) Applicant: **Tianjin University**, Tianjin (CN)

(72) Inventors: **Yifeng WANG**, Tianjin (CN);
Xiaoyong MA, Tianjin (CN); **Ping**
WANG, Tianjin (CN); **Long TAO**,
Tianjin (CN); **Pengyu CHENG**, Tianjin
(CN); **Ningyi LIANG**, Tianjin (CN);
Danfeng ZHAO, Tianjin (CN)

(21) Appl. No.: **17/462,940**

(22) Filed: **Aug. 31, 2021**

(30) **Foreign Application Priority Data**

May 6, 2021 (CN) 202110490270.5

(57)

ABSTRACT

A basic unit for a power converter, a power converter, and a universal power interface are disclosed. The basic unit includes an inductor, a power half-bridge, a first terminal, a second terminal, a third terminal, and a fourth terminal, where an end of the inductor is connected to a midpoint of the power half-bridge, and the other end of the inductor is connected to the first terminal; a source terminal of a lower bridge arm of the power half-bridge is connected to the second terminal and the fourth terminal; and a drain terminal of an upper bridge arm of the power half-bridge is connected to the third terminal. The manufacturing costs of a microgrid system and the difficulty of later maintenance can be reduced.

