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**FACANHA DE OLIVEIRA**(10) **Pub. No.: US 2024/0213885 A1**(43) **Pub. Date: Jun. 27, 2024**(54) **AC-DC CONVERSION DEVICE AND  
VOLTAGE CONVERTER CIRCUIT**(52) **U.S. Cl.**CPC ..... *H02M 5/4585* (2013.01); *H02M 1/4283*  
(2021.05); *H02M 1/44* (2013.01)(71) Applicant: **HUAWEI TECHNOLOGIES CO.,  
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**ABSTRACT**(72) Inventor: **Eduardo FACANHA DE OLIVEIRA**,  
Nuremberg (DE)(21) Appl. No.: **18/598,821**(22) Filed: **Mar. 7, 2024****Related U.S. Application Data**(63) Continuation of application No. PCT/EP2021/  
078335, filed on Oct. 13, 2021.**Publication Classification**(51) **Int. Cl.***H02M 5/458* (2006.01)*H02M 1/42* (2006.01)*H02M 1/44* (2006.01)

The disclosure relates to an AC-DC conversion device for converting an alternating current (AC) voltage into a direct current (DC) voltage, the AC-DC conversion device including an AC input terminal for receiving an AC voltage and an AC-DC conversion stage being configured to convert the AC voltage into a first DC voltage, convert the AC voltage into a second DC voltage, and output the second DC voltage at an output of the AC-DC conversion device. The AC-DC conversion device further includes a partial power DC-DC converter configured to regulate the second DC voltage based on a required voltage across the output of the AC-DC conversion device. The disclosure further relates to a voltage converter circuit comprising such an AC-DC conversion device and an output for providing an isolated output voltage.

