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Harrison(10) **Pub. No.: US 2022/0360187 A1**(43) **Pub. Date: Nov. 10, 2022**(54) **GALLIUM NITRIDE BI-DIRECTIONAL
HIGH ELECTRON MOBILITY TRANSISTOR
IN SWITCHED-MODE NEUTRAL FORMING
DEVICE APPLICATIONS**(71) Applicant: **Enphase Energy, Inc.**, Petaluma, CA
(US)(72) Inventor: **Michael J. Harrison**, Petaluma, CA
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1/08 (2013.01)(57) **ABSTRACT**

A switched-mode neutral forming device is provided herein and comprises one or more windings coupled to (i) a plurality of line terminals via a plurality of switches and (ii) a neutral terminal, wherein each switch of the plurality of switches is a native four quadrant bi-directional switch and a controller, coupled to the plurality of switches, for driving the switches at a frequency orders or magnitude greater than an AC mains frequency.

102