

Title (en)

POWER OUTPUT STAGE FOR A DEVICE FOR SUPPLYING ENERGY TO AN ELECTRICAL LOAD

Title (de)

LEISTUNGSENDSTUFE FÜR EINE VORRICHTUNG ZUR ENERGIEVERSORGUNG EINER ELEKTRISCHEN LAST

Title (fr)

ÉTAGE DE SORTIE DE PUISSANCE DESTINÉ À UN DISPOSITIF POUR ALIMENTER EN ÉNERGIE UNE CHARGE ÉLECTRIQUE

Publication

EP 4173123 A1 20230503 (DE)

Application

EP 21735208 A 20210617

Priority

- DE 102020207886 A 20200625
- EP 2021066429 W 20210617

Abstract (en)

[origin: WO2021259758A1] The invention relates to a power output stage (10) for a device (1) for supplying energy to an electrical load (3), having a power switching device (12) which comprises at least one half-bridge (12.1) and is designed on the basis of gallium-nitride-on-silicon technology, and a control circuit (15) for the power switching device (12), wherein semiconductor power switches of the at least one half-bridge (12. 1) are formed as gallium-nitride semiconductors on a front face of a carrier substrate; the invention also relates to a device (1) for supplying energy to an electrical load (3), which device comprises such a power output stage (10), and to a method for determining a voltage-free switching time point for such a power output stage (10). The control circuit (15) comprises an auxiliary resonant commutated pole (ARCP) module (16B) each for the at least one half-bridge (12.1), which ARCP module has two auxiliary switches and a choke coil and is designed to switch the semiconductor power switches of the corresponding half-bridge (12.1) at a voltage-free switching time point, the control circuit (15) being designed to determine the voltage-free switching time point by means of integrated power measurement and/or by means of an adaptive delay chain.

IPC 8 full level

H02M 1/00 (2006.01); **H01L 21/8252** (2006.01); **H01L 27/06** (2006.01); **H02M 1/08** (2006.01); **H02M 7/48** (2007.01); **H02M 7/5387** (2007.01)

CPC (source: EP)

H02M 1/0009 (2021.05); **H02M 1/0058** (2021.05); **H02M 1/08** (2013.01); **H02M 7/4811** (2021.05); **H02M 7/4815** (2021.05); **H02M 7/5387** (2013.01); **H01L 21/8252** (2013.01); **H01L 27/0605** (2013.01); **H01L 27/085** (2013.01); **Y02B 70/10** (2013.01)

Designated contracting state (EPC)

AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

Designated extension state (EPC)

BA ME

Designated validation state (EPC)

KH MA MD TN

DOCDB simple family (publication)

DE 102020207886 A1 20211230; CN 115943546 A 20230407; EP 4173123 A1 20230503; JP 2023531061 A 20230720; JP 7535604 B2 20240816; WO 2021259758 A1 20211230

DOCDB simple family (application)

DE 102020207886 A 20200625; CN 202180044465 A 20210617; EP 2021066429 W 20210617; EP 21735208 A 20210617; JP 2022580026 A 20210617