

Inverter : Bosch Porsche Macan (2024) PCB Circuit Analysis Report



Macan Turbo Electric(2024)

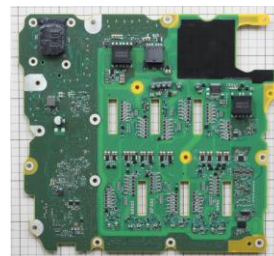
<https://www.porsche.com/japan/jp/models/macan/macan-electric-models/macan-turbo-electric/>



Rear Inverter Overview



PCB(Top View)



PCB(Bottom View)

Product Overview

In 2024, Porsche launched the second-generation Macan Electric, a battery electric vehicle (BEV) in the SUV segment. The top-of-the-line Macan Turbo Electric delivers a maximum output of 470 kW and accelerates from 0 to 100 km/h in 3.3 seconds, making it a high-performance BEV. The vehicle features an 800 V electrical system and a 100 kWh battery, supporting DC fast charging at up to 270 kW.

This report provides an analysis of the components and circuitry of the inverter control board installed in the rear of the Macan Turbo Electric.

This report provides insight into the latest trends in Porsche's inverter circuit design technologies for achieving high efficiency and high power output in next-generation 800 V BEV inverters, including the configurations of gate-drive circuits (high-voltage side) for SiC power semiconductors supporting 800 V high-power systems, isolation and power supply circuits between the high-voltage and low-voltage control sides, protection circuits, and gate resistors.

Product Features

- Bosch Inverter Module (W)358mm x (L)330mm x (H)94mm, Water-Cooling System
- An FPC (Flexible Printed Circuit) is used to connect the PCB to the power module.
- Bosch-Made Power Module (SiC MOSFET)
- The gate drivers and main MCU are supplied by Infineon.

Report contents

1. Partial Circuit Analysis Report (1) (Common Circuits + One Phase (Analysis of the portion of the overall circuit excluding the two-phase driver circuits))
 2. Partial Circuit Analysis Report (2) (One Phase of the Gate Driver Circuit Only)
- Product teardown and investigation of components mounted on the PCBs
 - PCB schematics and block diagrams
 - Layer-by-layer PCB routing layouts and circuit connectivity information (netlist and viewer tool)
Note: Inter-component connection tracing is possible

Report price and schedule

Please contact us for report pricing.

Both reports will be released on October 16, 2026