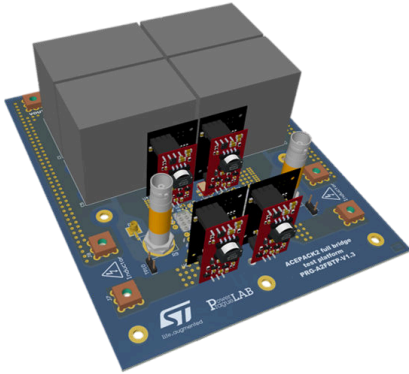


Testing platform for SiC based full bridge topology in ACEPACK 2 power module A2F20M65W3-FC



Fully assembled board developed for performance evaluation only, **not available for sale**

Features

- Testing platform for 650 V, 20 mΩ type, SiC based full bridge power module
- The power module is driven by STGAP3SXS. Isolated gate driver optimized for SiC MOSFETs
- Isolated gate drivers are supplied by isolated flyback-buck converter based on L6986I
- Preset 18 V/-3 V supply voltage for output stage of isolated drivers
- Possibility to set a specific gate voltage for both positive and negative level
- Possibility to adjust gate resistor
- Prepared for performance evaluation of the power module

Description

The **STDES-A2F20M65W3** is a testing board for the SiC based full bridge topology in ACEPACK 2 power module.

It is designed to test and evaluate the power module **A2F20M65W3-FC**.

The **STDES-A2F20M65W3** contains the necessary parts to operate the high-power module such as input and output capacitors and high current terminals to connect the module to the rest of the circuit.

Power inductors are connected to the testing platform via high current terminals.

The inductors are not part of the test platform. This allows versatility when evaluating and testing the power module at different conditions and configurations.

The **A2F20M65W3-FC** power module contains full bridge topology with embedded DC link ceramic capacitor.

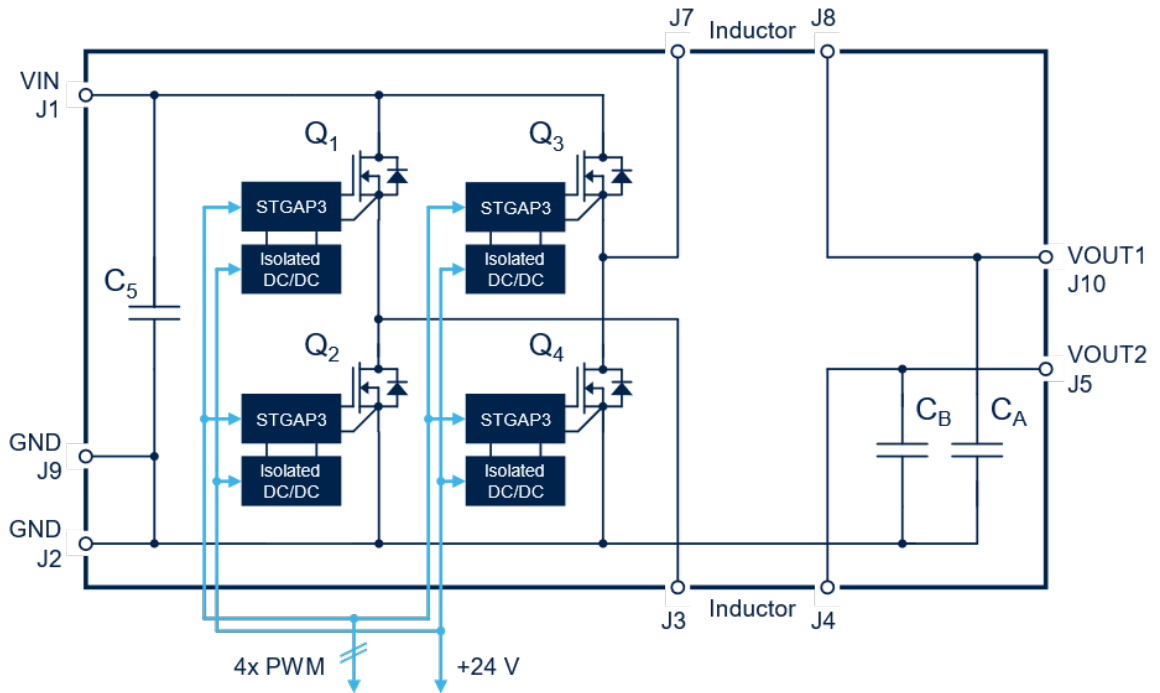
The ceramic capacitor inside the module helps to improve the switching performance and mitigates the voltage overshoot and ringing across the switches as it minimizes stray inductance of the commutation loop.

Product summary	
Testing platform for SiC based full bridge topology in ACEPACK 2 power module A2F20M65W3-FC	STDES-A2F20M65W3
ACEPACK 2 power module	A2F20M65W3-FC
Galvanically isolated gate driver for SiC MOSFETs	STGAP3SXS
38 V, 5W synchronous iso-buck converter	L6986I
Applications	Solar inverters Microinverter Uninterruptable power supplies

1 Concept of the testing platform

The testing platform provides a simple yet effective environment for fast and easy evaluation of high-power module A2F20M65W3-FC.

Figure 1. Simplified block diagram of the testing platform



The test platform is assembled with four isolated gate driver modules each with its own isolated DC-DC converter. The DC-DC converter supplies the secondary side of the gate drivers.

The input signals of the drivers are accessible through the header pins and are used to connect external control equipment to the test platform.

2 Schematic diagrams

Figure 2. STDES-A2F20M65W3 main board circuit schematic (1 of 2)

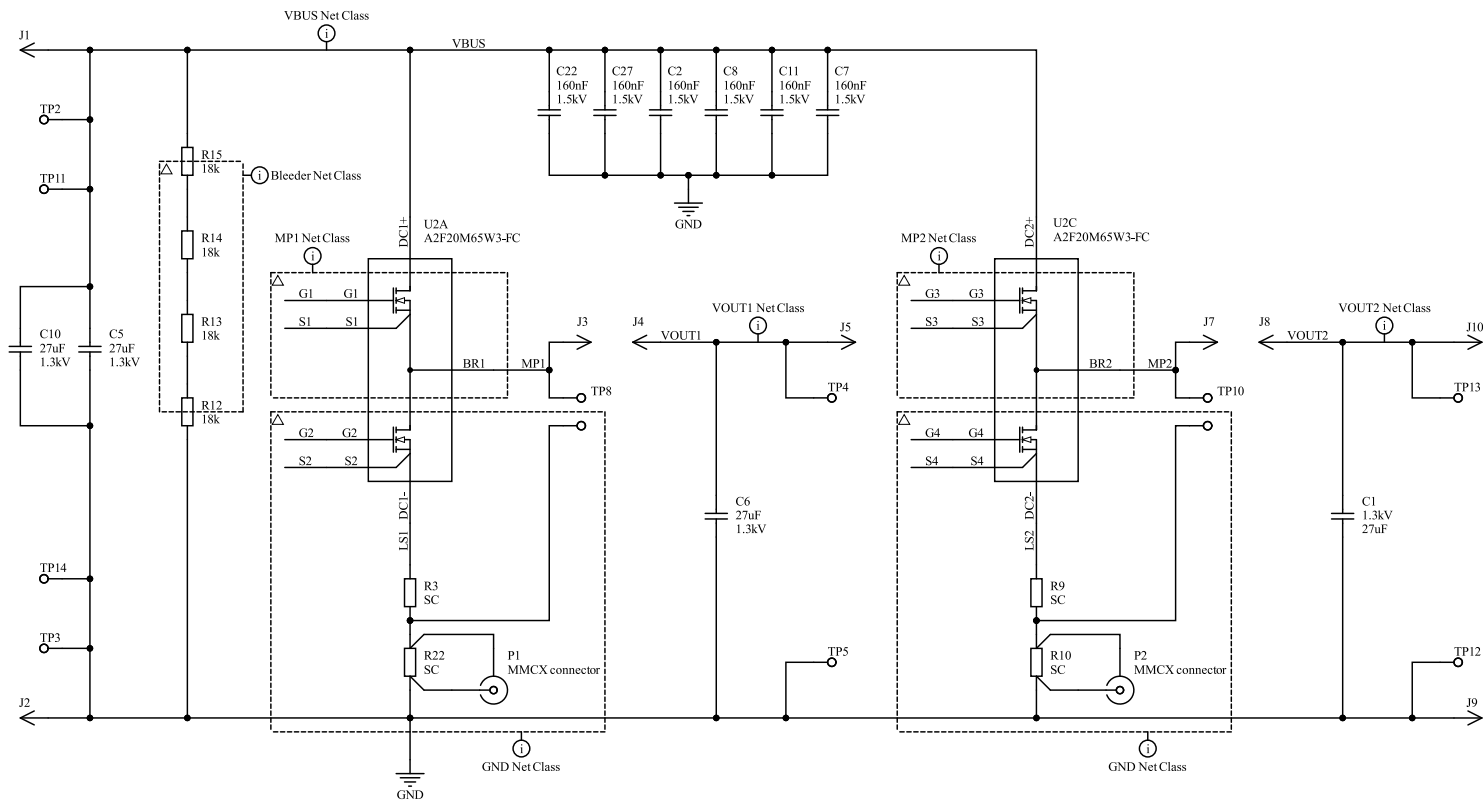


Figure 3. STDES-A2F20M65W3 main board circuit schematic (2 of 2)

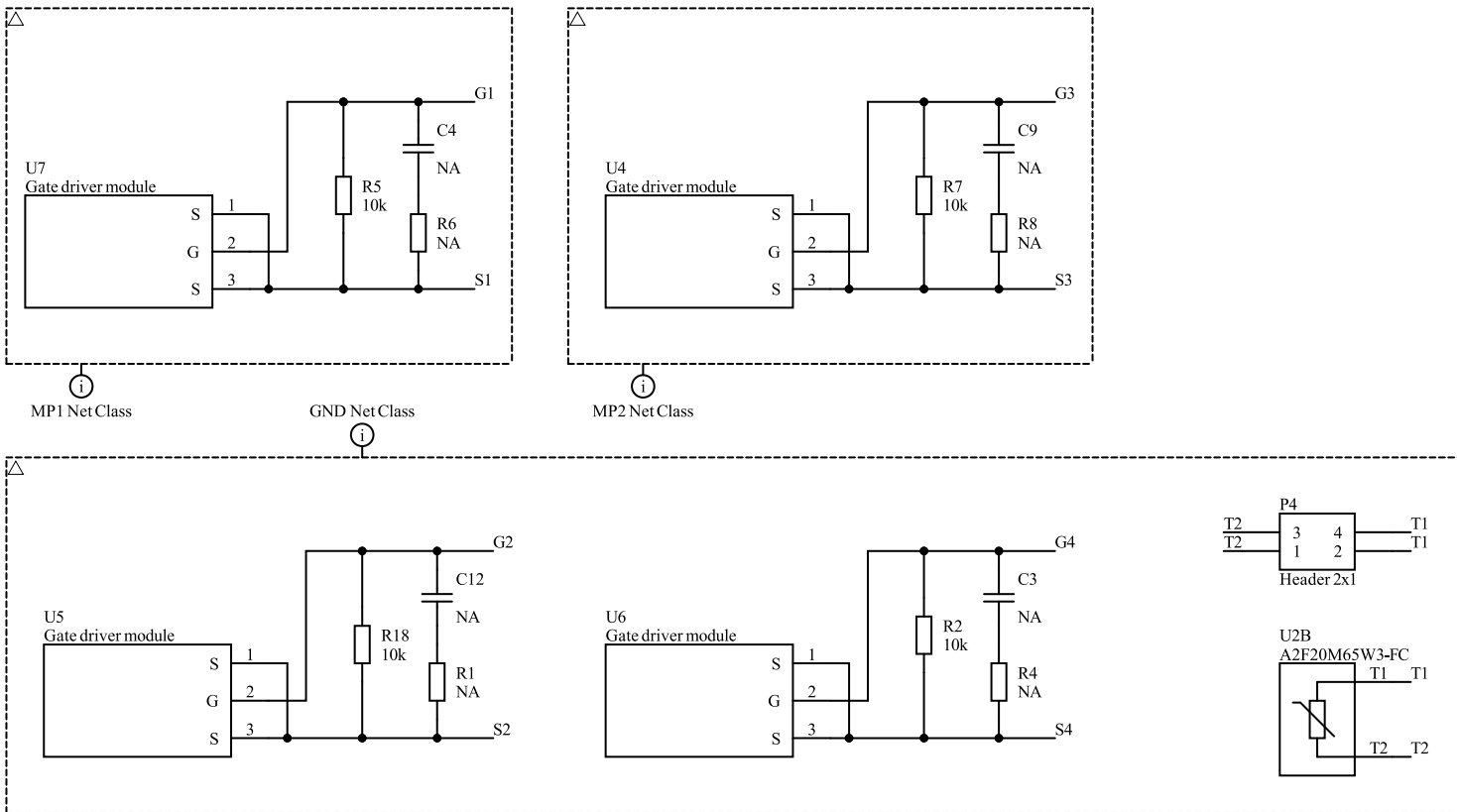


Figure 4. STDES-A2F20M65W3 gate driver circuit schematic

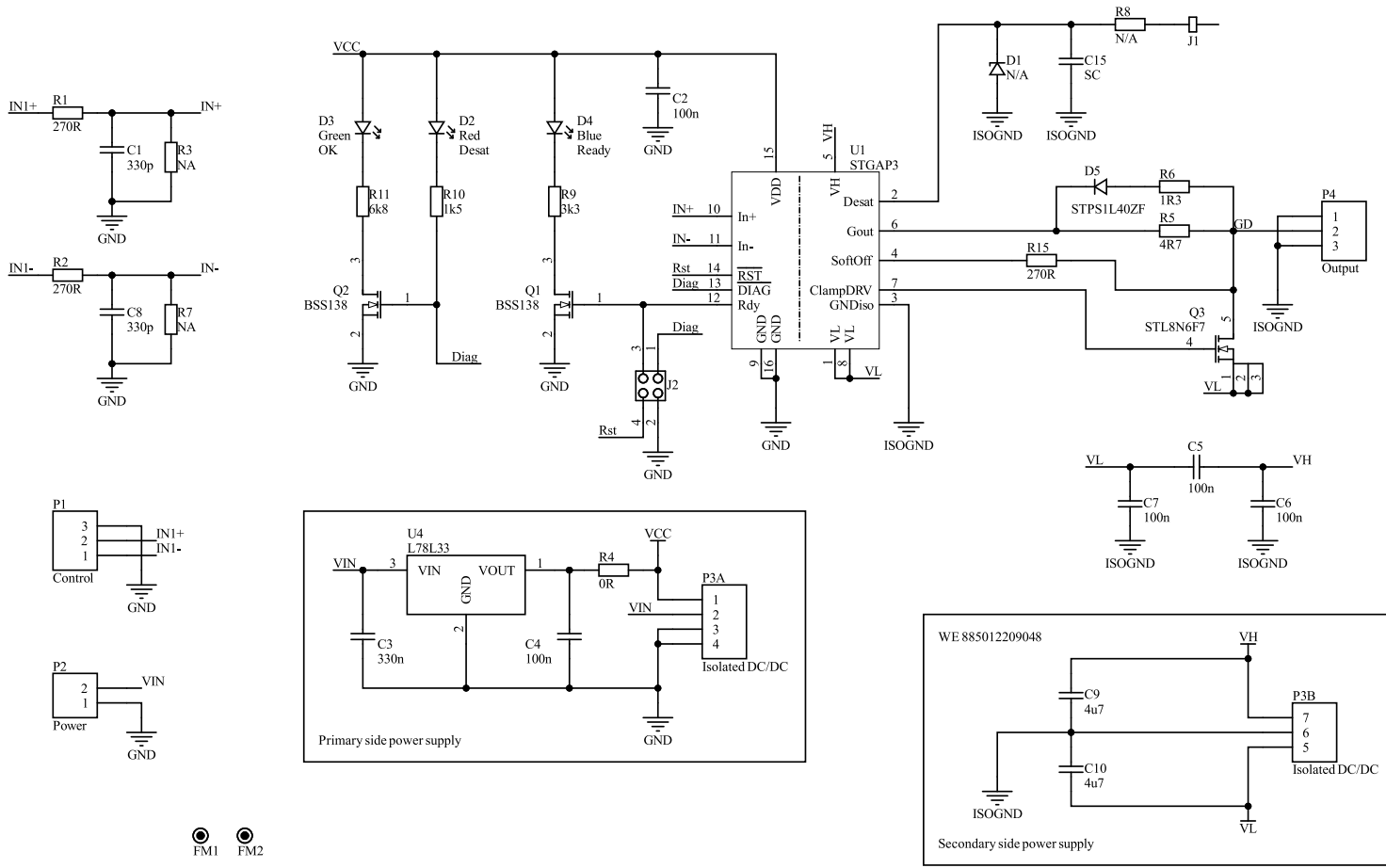
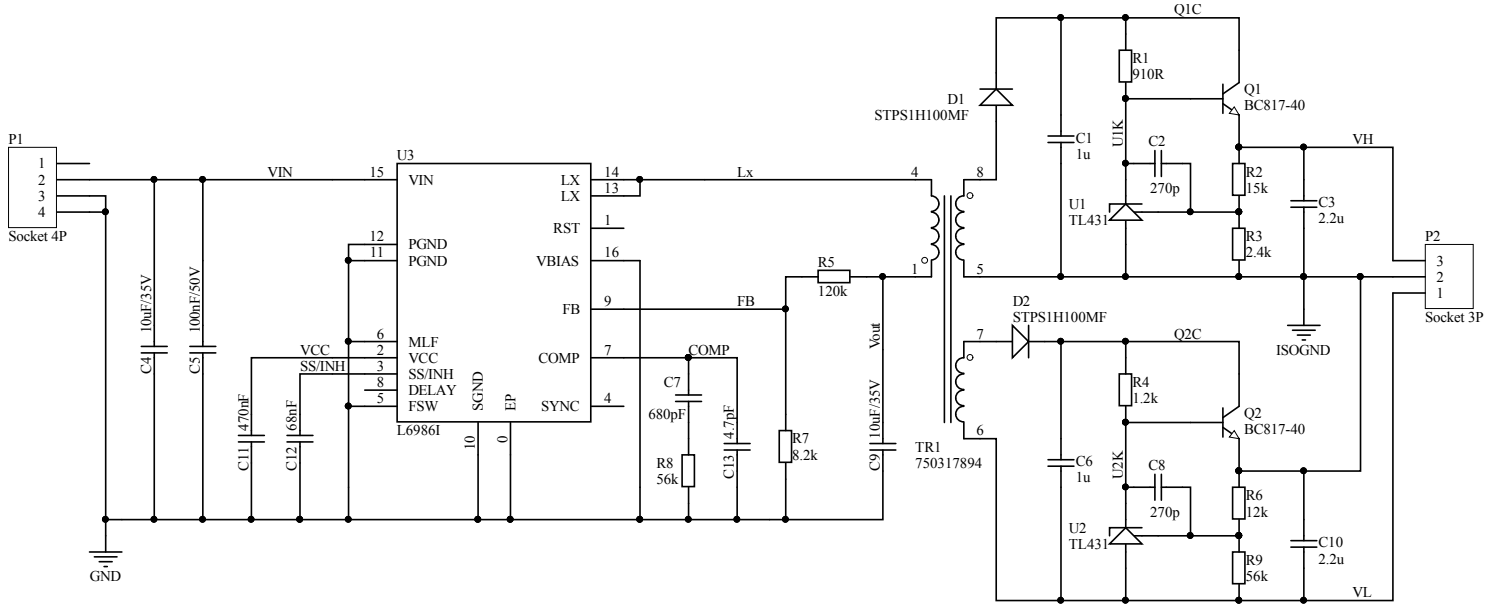


Figure 5. STDES-A2F20M65W3 fly-buck circuit schematic



Revision history

Table 1. Document revision history

Date	Revision	Changes
09-Apr-2025	1	Initial release.

IMPORTANT NOTICE – READ CAREFULLY

STMicroelectronics NV and its subsidiaries (“ST”) reserve the right to make changes, corrections, enhancements, modifications, and improvements to ST products and/or to this document at any time without notice. Purchasers should obtain the latest relevant information on ST products before placing orders. ST products are sold pursuant to ST’s terms and conditions of sale in place at the time of order acknowledgment.

Purchasers are solely responsible for the choice, selection, and use of ST products and ST assumes no liability for application assistance or the design of purchasers’ products.

No license, express or implied, to any intellectual property right is granted by ST herein.

Resale of ST products with provisions different from the information set forth herein shall void any warranty granted by ST for such product.

ST and the ST logo are trademarks of ST. For additional information about ST trademarks, refer to www.st.com/trademarks. All other product or service names are the property of their respective owners.

Information in this document supersedes and replaces information previously supplied in any prior versions of this document.

© 2025 STMicroelectronics – All rights reserved