BeFAST - Evaluation Kit Doublepulse test for SiC semiconductors

Ordering number: AP-EVAL-UF3SC120009K4S

AP-EVAL-UF3SC120009K4S can be used for the following applications

- Measuring the dynamic properties of SiC MOSFET's
- DC/DC-Converter
- Reverse

AP-EVAL-UF3SC120009K4S ane half bridge with the following components:

- Isolated gate control
- Isolated gate driver supply voltages
- SiC MOSFET's TO-247-4P
- DC Link Capacitor
- DESAT Function
- Error Feedback path
- Snubber

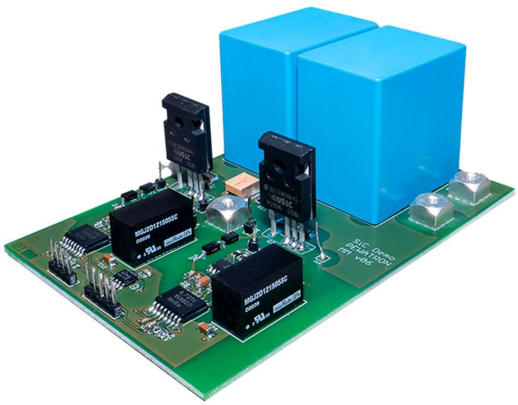
Technical data

Input voltage V_{DC}	24-800V_{DC}
Output voltage	up to 800V
Peak output current (1ms)	100A
Switching frequency	1-150kHz
Intermediate circuit capacity	60-F/800V
Supply voltage-	12Vdc
Gate Driver	
Digital inputs	0-5V
Digital outputs	0-5V

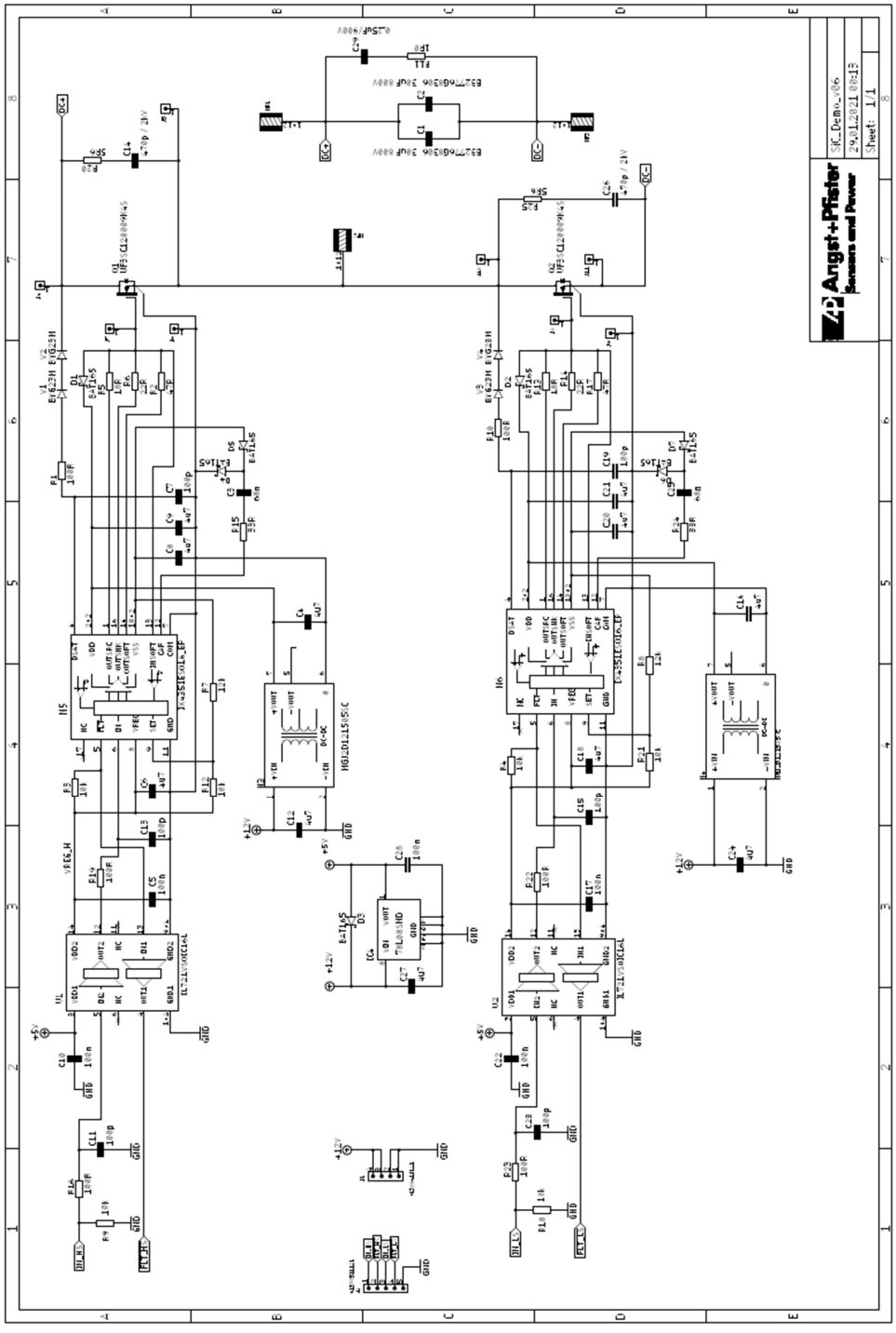
Weight:	0.2 kg
Dimensions (LxWxH)	121mm x 82mm x 49mm

Cooling

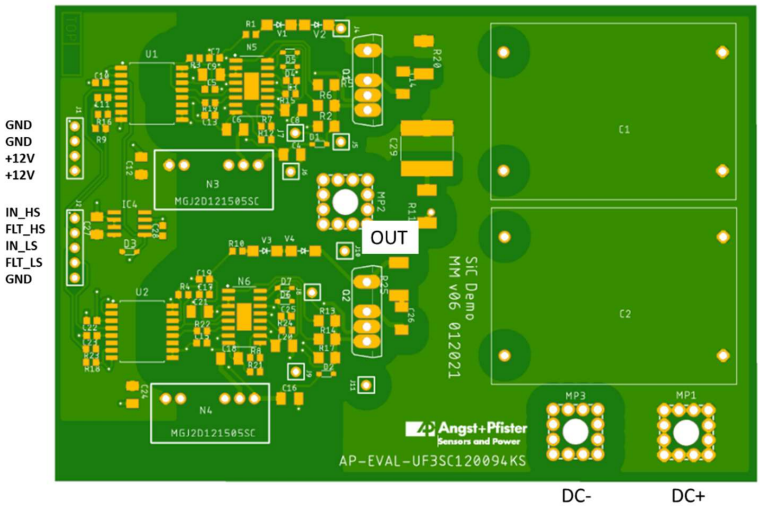
Heat sink must be provided on the customer's side

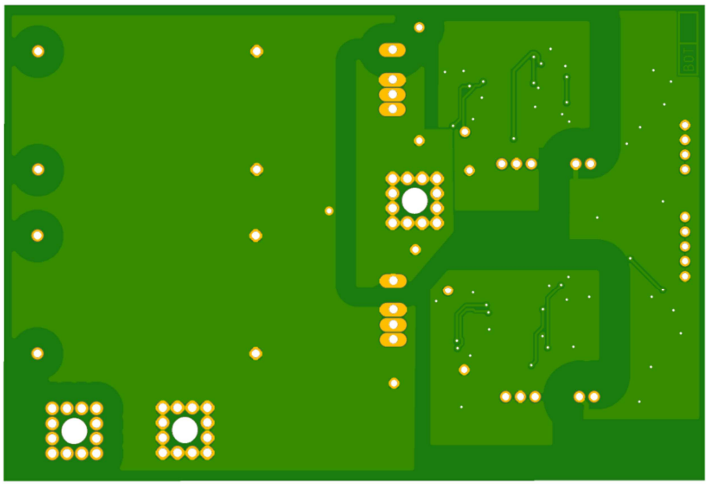


Schematic

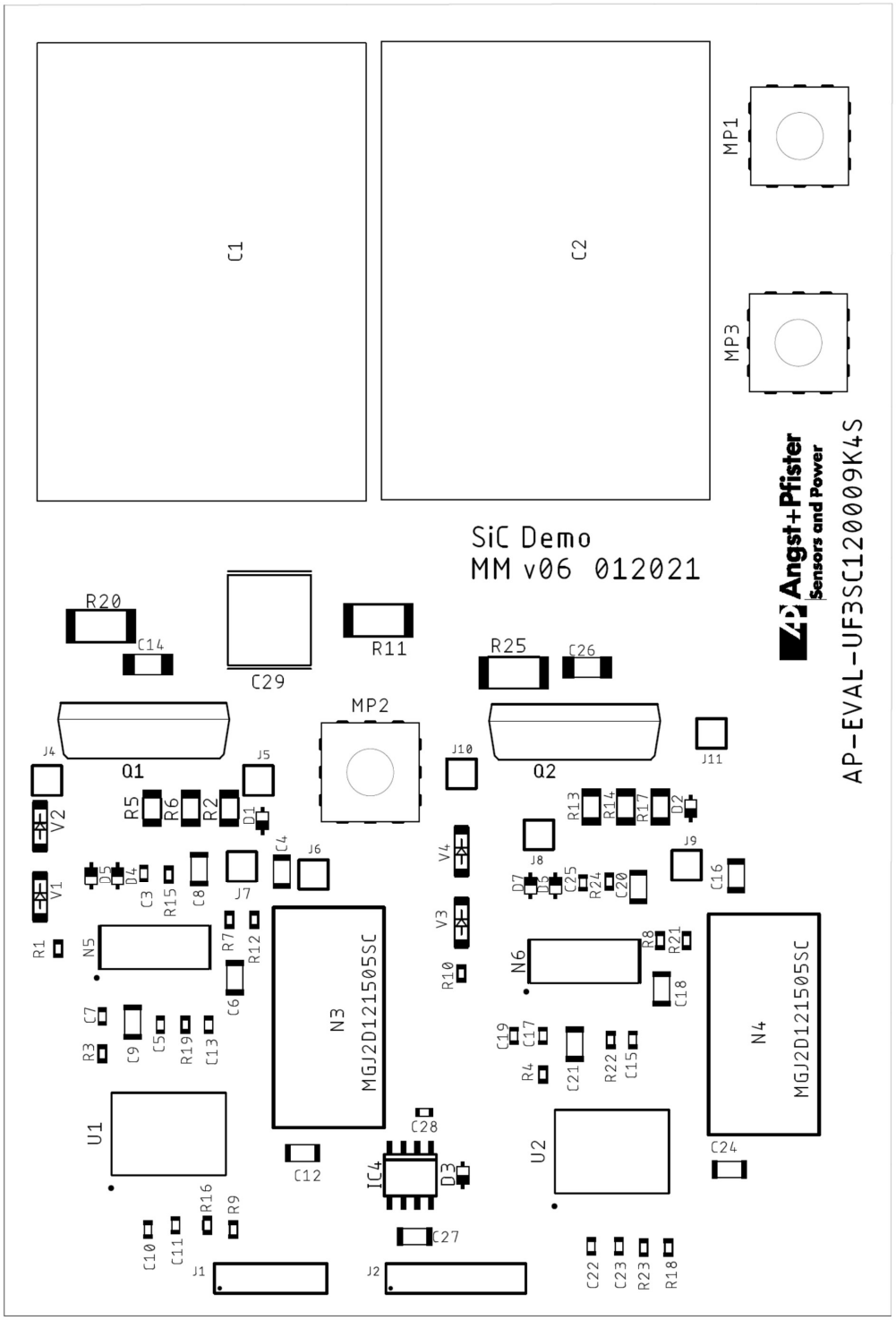


Printed circuitboard:

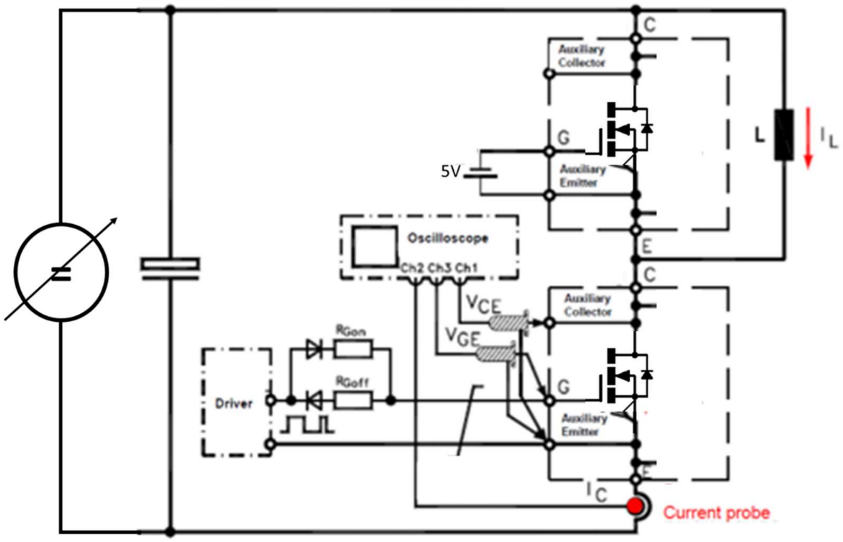




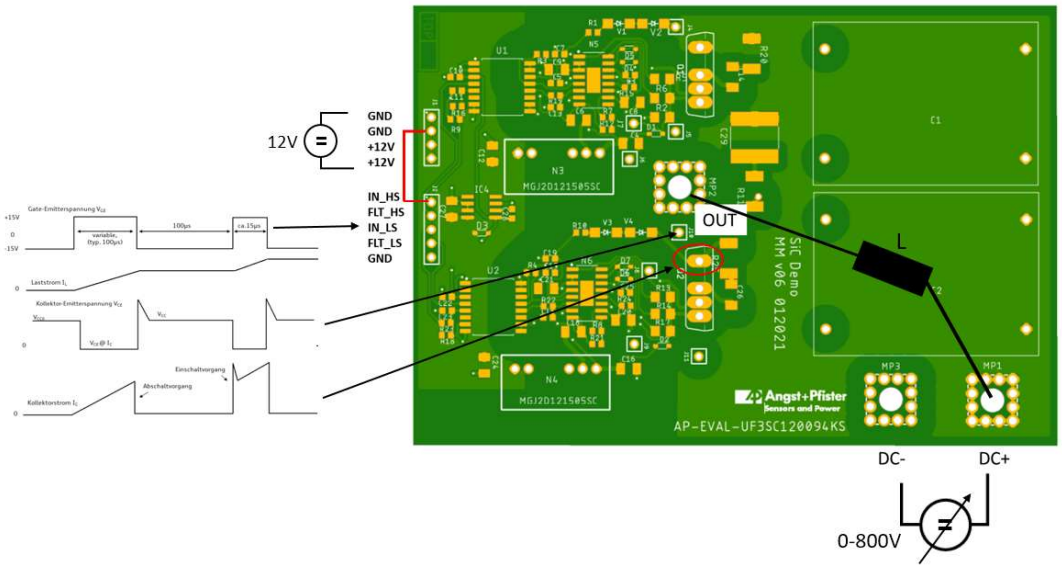
Board layout:



Blockschaltbild Doppelpulstest:



Connection plan and pulse sequence double pulse test:

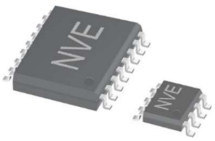


UF3SC120009KS

- *Lowest available $R_{DS(on)}$ <9mΩ at 1200V*
- *Balanced On-State current for paralleling due to positive $R_{DS(on)}$ coefficient*
- *Very low Body Diode temperature dependence Q_{RR}*
- *Low E_{on} E_{off} switching energy*
- *Simplified use of standard Gate drivers*

MGJ2D121505C

- *High CMTI of 80V/ns provide no measurable impact on Performance and isolation Barrier*
- *High safety with Isolation of 5.2kV*
- *5x smaller design compared to discrete solutions*
- *Good DC-Link capability due to low coupling capacitance 3pF*



IL721VE

- *Robust galvanic Interface of 6kV and super-long lifetime*
- *Very high CMTI 150V/ns aligned to SiC Operation*
- *Simple digital Interface to non- isolated Gate Drivers*
- *Bi-directional for Diagnosis and Control of SiC Gate*
- *Any device distortion of 3ns due to symmetric Barrier design*

NTC_999 Series

- *Extremely small sized product for fast response times*
- *Very low thermal Time constant < 3s*
- *Consumer & Automotive Grade AEC-Q200*
- *Customization*

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Precautions and warnings

This module is a ready-to-use power electronic half-bridge. Due to its functionality and operating requirements, the assembly can be operatedwith high voltages and currents. When operating with high voltages (>60Vdc), therefore it is essential to make sure

- that you comply with the vDE regulations
- all safety guidelines are adhered to
- all connections are carefully executed
- suitable measuring instruments with regard to electrical voltage resistance and insulation strength can be used

and the commissioning may only be carried out by an appropriately trained specialist!
The assembly may only be operated in the laboratory area.

Since the application of the assembly is beyond our control, we do not assume any claims arising from consequential damages.

Important notes:
This data sheet contains statements about the suitability of our product for specific applications. These statements are based on our knowledge of typical requirements that are often made to our products in the relevant application areas. However, we expressly point out that such statements cannotbe considered as binding statements about the suitability of our products for a particular customerapplication, as we are usually unfamiliar with the targeted use.

Therefore, it is ultimately always up to the customer to check and decide whether a product with the properties described in the product specification is suitable for use in a particular customer application. We would also like to point out that in individual cases the electronics maymalfunction, since componenteerrors or failures of the components cannot be completely excluded before the end of their normal service life according to the current state of the art, even if they are operated as indicated. In the case of customer applications that require a very high level of operational safety, and in particular in the case of customer applications where a malfunction or failure of an electronic component may endanger the life or health of human beings, appropriate measures mustbe takento ensure that third parties do not suffer injury or damage if an electronic component does not function or fails.

We are constantly striving to improve our products. Therefore, the product and product specification described in thism datasheet may change from time to time.

Angst+Pfister
Sensors and Power

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