



Product brief

Automotive CoolSiC™ EasyPACK™ 1B

Robust SiC-Technology meets flexible half bridge concept

The new EasyPACK™ 1B, 7.33 mΩ halfbridge module FF08MR12W1MA1_B11A combines the new CoolSiC™ Automotive Trench-MOSFET 1200V technology, a NTC temperature sensor and the PressFIT contact technology. With the full automotive qualification, the field of applications for CoolSiC™ is now extended to high voltage automotive applications with high efficiency and switching frequency requirements, such as HV/HV DC-DC step-up converters, multiphase inverters and fast-switching auxiliary drives like fuel-cell compressors.

The trench MOSFET structure enables a higher cell density compared to planar structures, leading to best-in-class figure of merit. As a result, trench MOSFETs can be operated at lower gate-oxide field strengths for higher reliability. Infineon's first-generation CoolSiC™ automotive MOSFET technology is optimized for lowest possible conduction losses, especially under partial load conditions. Combined with the low switching losses of silicon carbide MOSFETs, this enables losses in inverter operation to be reduced by around 60 percent compared to silicon IGBTs.

In addition to optimizing performance, Infineon focuses on reliability, thus testing CoolSiC automotive MOSFETs with the aim of achieving high short-circuit, cosmic ray, and gate-oxide robustness, which is key for designing efficient and reliable high-voltage applications in electric cars.

Moreover, the FF08MR12W1MA1_B11A product layout allows low inductive designs. Additionally, Infineon's PressFIT contact technology enables solder-less mounting for our customers, saving time and money for their assembly process.

Applications

- > Hybrid and battery electric vehicles
- > Commercial, construction and agriculture vehicles
- > HV/HV DC-DC converter
- > Main inverter
- > Auxiliary drives

Key features

- > High gate threshold voltage preventing parasitic turn-on ($V_{th} = 4.4 \text{ V}$)
- > IGBT compatible driving voltage ($V_{GS} = -5/+15 \text{ V}$)
- > Intrinsic diode with low reverse recovery
- > $R_{DS(on)} = 7.33 \text{ m}\Omega$ (typical)
- > Low stray inductance 5 nH
- > Blocking voltage 1200 V
- > Low switching losses
- > Low Q_g and C_{rss}
- > $T_{vjop} = 150^\circ\text{C}$
- > Integrated NTC temperature sensor
- > RoHS compliant

Key benefits

- > **Easy system assembly** (PressFIT contact technology for solder-less mounting)
- > **Easy design** (Integrated module solution with optimized thermal management)
- > **Superior reliability** (gate oxide and cosmic ray robustness)
- > **Flexibility** (half bridge concept for flexible inverter design)
- > **Automotive qualified** according AQC 324



Automotive CoolSiC™ EasyPACK™ 1B

Robust SiC-Technology meets flexible half bridge concept

Our customers chose Easy power module because of



Easy system assembly
Easy mounting (PressFIT™)



Easy design
Integrated module solution with optimized thermal management



Reliability
Integrated isolation



Flexibility
Platform for different topologies

Our customers chose Infineon Easy module because of



High volume manufacturing experience
Over 50 million EasyPACK™ sold



Seamless traceability
Given for every individual module



Quality excellence
Quality clearly seen as industry benchmark by automotive world

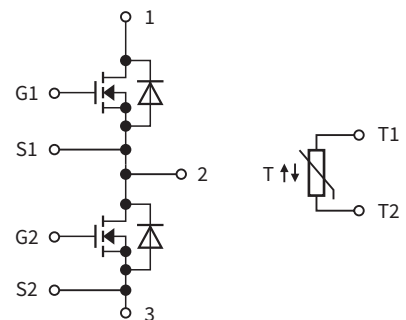


Technical advance and support
Market innovator with extensive local technical support

Order information

Type	Description	Electrical characteristics	OPN
FF08MR12W1MA1_B11A	EasyPACK™ 1B	1200 V/150 A/7.33 mΩ	FF08MR12W1MA1B11ABPSA1

Block diagram



Published by
Infineon Technologies AG
81726 Munich, Germany

© 2020 Infineon Technologies AG.
All Rights Reserved.

Please note!

This Document is for information purposes only and any information given herein shall in no event be regarded as a warranty, guarantee or description of any functionality, conditions and/or quality of our products or any suitability for a particular purpose. With regard to the technical specifications of our products, we kindly ask you to refer to the relevant product data sheets provided by us. Our customers and their technical departments are required to evaluate the suitability of our products for the intended application.

We reserve the right to change this document and/or the information given herein at any time.

Additional information

For further information on technologies, our products, the application of our products, delivery terms and conditions and/or prices, please contact your nearest Infineon Technologies office (www.infineon.com).

Warnings

Due to technical requirements, our products may contain dangerous substances. For information on the types in question, please contact your nearest Infineon Technologies office.

Except as otherwise explicitly approved by us in a written document signed by authorized representatives of Infineon Technologies, our products may not be used in any life-endangering applications, including but not limited to medical, nuclear, military, life-critical or any other applications where a failure of the product or any consequences of the use thereof can result in personal injury.