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 ($V_{th} = 4.4$ V)
› IGBT compatible driving voltage ($V_{GS} = -5/+15$ V)
› Intrinsic diode with low reverse recovery
› $R_{D(on)} = 7.33$ mΩ (typical)
› Low stray inductance 5 nH
› Blocking voltage 1200 V
› Low switching losses
› Low $Q_{d}$ and $C_{ss}$
› $T_{j,op} = 150°C$
› 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 AQG 324

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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

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
<th>Electrical characteristics</th>
<th>OPN</th>
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<tr>
<td>FF08MR12W1MA1_B11A</td>
<td>EasyPACK™ 1B</td>
<td>1200 V/150 A/7.33 mΩ</td>
<td>FF08MR12W1MA1B11ABPSA1</td>
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Block diagram

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