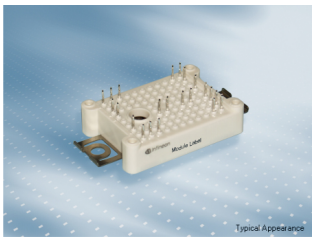
## EasyBRIDGE module with CoolSiC™ Schottky diode and PressFIT / NTC




### Features

- Electrical features
  - $V_{CES}$ = 1200 V
  - $I_{C\ nom}$ = 40 A / $I_{CRM}$ = 80 A
  - CoolSiC™ Schottky diode gen 5
  - High dynamic robustness
  - $T_{vj\ op}$ = 150 °C
- Mechanical features
  - Compact design
  - Rugged mounting due to integrated mounting clamps
  - PressFIT contact technology
  - Integrated NTC temperature sensor
  - $Al_2O_3$ substrate with low thermal resistance

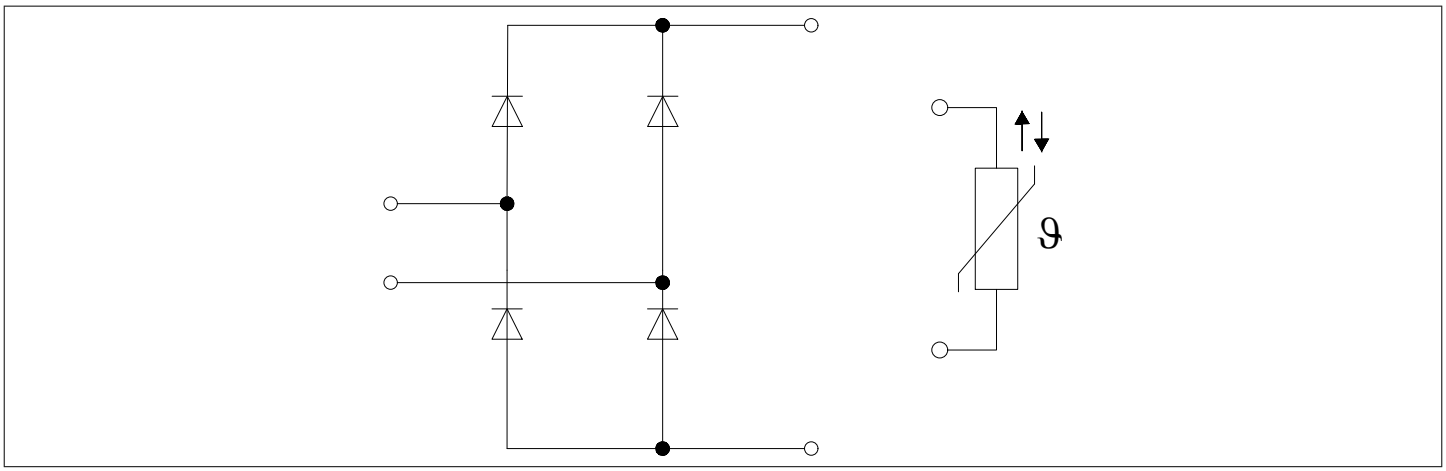
### Potential applications

- DC charger for EV

### Product validation

- Qualified for industrial applications according to the relevant tests of IEC 60747, 60749 and 60068

### Description



# Table of contents

# 1 Package

**Table 1 Insulation Coordination**

| Parameter | Symbol | Note or test condition | Values | Unit |
|---|---|---|---|---|
| Isolation test voltage | $V_{ISOL}$ | RMS, f = 50 Hz, $t$ = 1 min | 3.0 | kV |
| Internal Isolation | | basic insulation (class 1, IEC 61140) | $Al_2O_3$ | |
| Creepage distance | $d_{Creep}$ | terminal to heatsink | 11.5 | mm |
| Creepage distance | $d_{Creep}$ | terminal to terminal | 6.3 | mm |
| Clearance | $d_{Clear}$ | terminal to heatsink | 10.0 | mm |
| Clearance | $d_{Clear}$ | terminal to terminal | 5.0 | mm |
| Comparative tracking index | *CTI* | | > 200 | |
| RTI Elec. | *RTI* | housing | 140 | °C |

**Table 2 Characteristic Values**

| Parameter | Symbol | Note or test condition | Values | | | Unit |
|---|---|---|---|---|---|---|
| | | | Min. | Typ. | Max. | |
| Stray inductance module | $L_{sCE}$ | | | 10 | | nH |
| Module lead resistance, terminals - chip | $R_{AA'+CC'}$ | $T_H$=25°C, per switch | | 1.9 | | mΩ |
| Storage temperature | $T_{stg}$ | | -40 | | 125 | °C |
| Mounting force per clamp | *F* | | 20 | | 50 | N |
| Weight | *G* | | | 22 | | g |

*Note: The current under continuous operation is limited to 25 A rms per connector pin.*
*Designed for storage conditions according to Infineon TR14 (Application Note “Storage of Products Supplied by Infineon Technologies) .*
*Designed for climate conditions without condensation or precipitation.*

# 2 Diode, Rectifier

**Table 3 Maximum Rated Values**

| Parameter | Symbol | Note or test condition | Values | Unit |
|---|---|---|---|---|
| Repetitive peak reverse voltage | $V_{RRM}$ | $T_{vj}$ = 25 °C | 1200 | V |
| Maximum RMS forward current per chip | $I_{FRMSM}$ | $T_H$ = 55 °C | 40 | A |
| Maximum RMS current at rectifier output | $I_{RMSM}$ | $T_H$ = 55 °C | 55 | A |

**Table 3 Maximum Rated Values (continued)**

| Parameter | Symbol | Note or test condition | | Values | Unit |
|---|---|---|---|---|---|
| Surge forward current | $I_{FSM}$ | $t_P$ = 10 ms | $T_{vj}$ = 25 °C | 295 | A |
| | | | $T_{vj}$ = 150 °C | 240 | |
| $I^2t$ - value | $I^2t$ | $t_P$ = 10 ms | $T_{vj}$ = 25 °C | 435 | $A^2s$ |
| | | | $T_{vj}$ = 150 °C | 285 | |

**Table 4 Characteristic Values**

| Parameter | Symbol | Note or test condition | | Values | | | Unit |
|---|---|---|---|---|---|---|---|
| | | | | Min. | Typ. | Max. | |
| Forward voltage | $V_F$ | $I_F$ = 40 A | $T_{vj}$ = 150 °C | | 1.85 | | V |
| Reverse current | $I_r$ | $T_{vj}$ = 150 °C, $V_R$ = 1200 V | | | 0.116 | | mA |
| Thermal resistance, junction to heatsink | $R_{thJH}$ | per diode | | | 0.960 | | K/W |
| Temperature under switching conditions | $T_{vj, op}$ | | | -40 | | 150 | °C |

# 3 NTC-Thermistor

**Table 5 Characteristic Values**

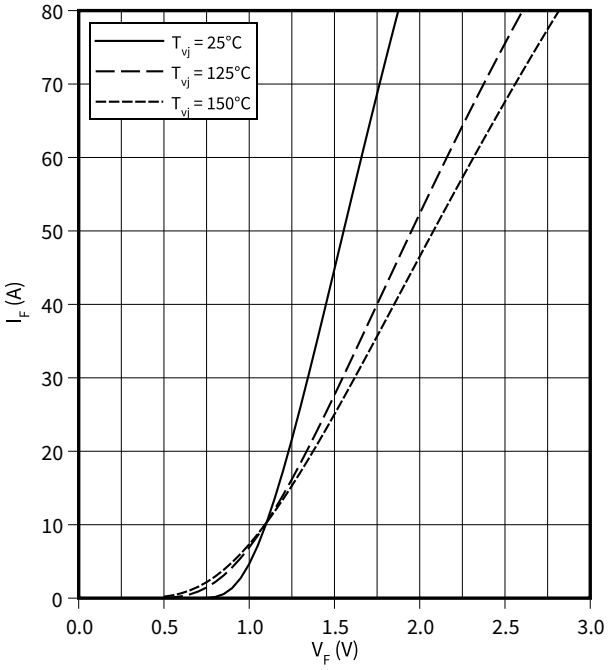
| Parameter | Symbol | Note or test condition | Values | | | Unit |
|---|---|---|---|---|---|---|
| | | | Min. | Typ. | Max. | |
| Rated resistance | $R_{25}$ | $T_{NTC}$ = 25 °C | | 5 | | kΩ |
| Deviation of $R_{100}$ | $\Delta R/R$ | $T_{NTC}$ = 100 °C, $R_{100}$ = 493 Ω | -5 | | 5 | % |
| Power dissipation | $P_{25}$ | $T_{NTC}$ = 25 °C | | | 20 | mW |
| B-value | $B_{25/50}$ | $R_2 = R_{25} \exp[B_{25/50}(1/T_2\text{-}1/(298{,}15\ K))]$ | | 3375 | | K |
| B-value | $B_{25/80}$ | $R_2 = R_{25} \exp[B_{25/80}(1/T_2\text{-}1/(298{,}15\ K))]$ | | 3411 | | K |
| B-value | $B_{25/100}$ | $R_2 = R_{25} \exp[B_{25/100}(1/T_2\text{-}1/(298{,}15\ K))]$ | | 3433 | | K |

*Note: Specification according to the valid application note.*

# 4 Characteristics diagrams

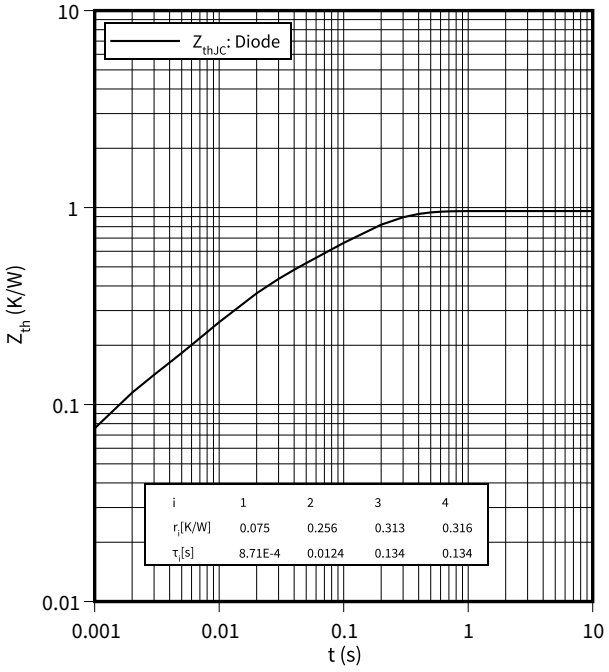
**forward characteristic (typical), Diode, Rectifier**

$I_F = f(V_F)$



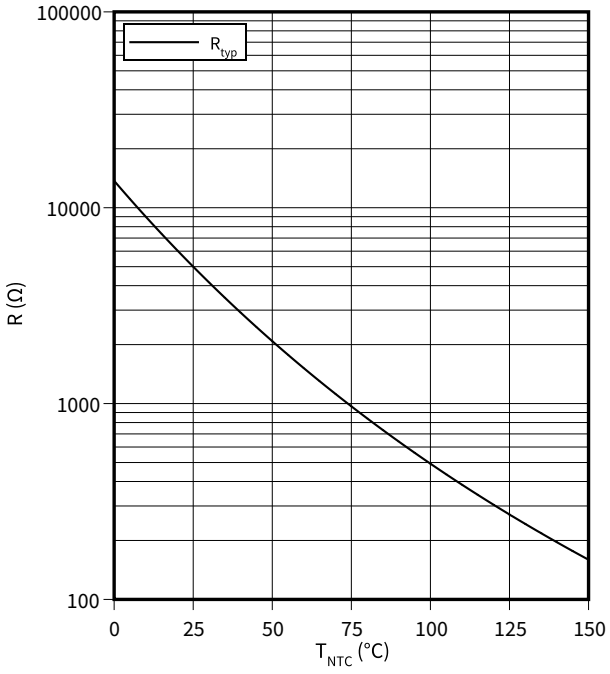

**transient thermal impedance, Diode, Rectifier**

$Z_{th} = f(t)$




**temperature characteristic (typical), NTC-Thermistor**

$R = f(T_{NTC})$



# 5 Circuit diagram

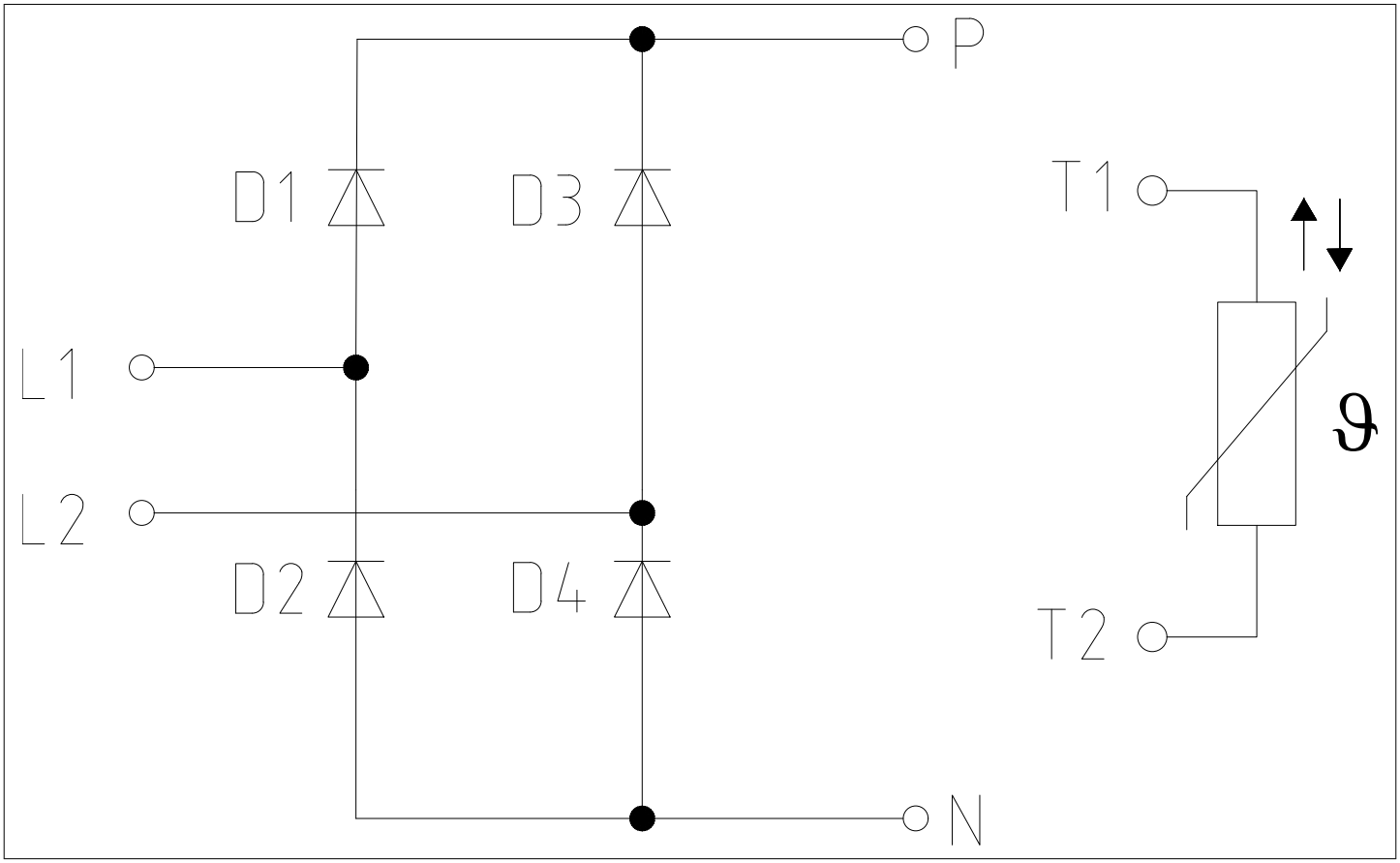



**Figure 2**

# 6 Package outlines

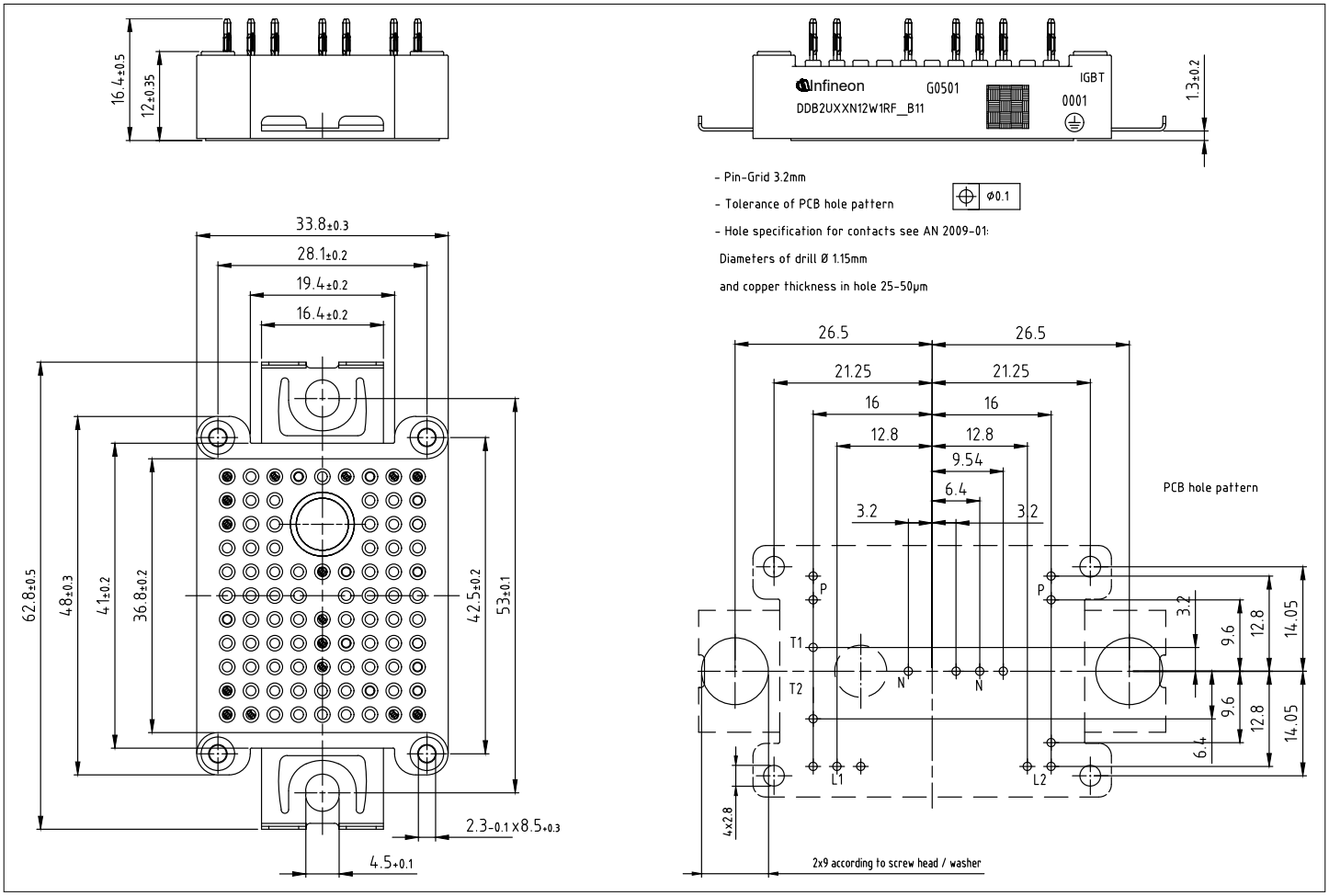



**Figure 3**

# 7 Module label code

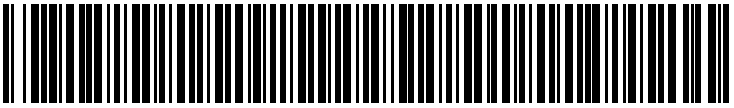
| **Module label code** | | | |
|---|---|---|---|
| Code format | Data Matrix | | Barcode Code128 |
| Encoding | ASCII text | | Code Set A |
| Symbol size | 16x16 | | 23 digits |
| Standard | IEC24720 and IEC16022 | | IEC8859-1 |
| Code content | *Content*<br>Module serial number<br>Module material number<br>Production order number<br>Date code (production year)<br>Date code (production week) | *Digit*<br>1 – 5<br>6 - 11<br>12 - 19<br>20 – 21<br>22 – 23 | *Example*<br>71549<br>142846<br>55054991<br>15<br>30 |
| Example |  7154914284655054991530 |  7154914284655054991530 | |

**Figure 4**

**Trademarks**

All referenced product or service names and trademarks are the property of their respective owners.

**Edition 2021-02-10**

**Published by**

**Infineon Technologies AG**

**81726 Munich, Germany**



**Do you have a question about any aspect of this document?**

**Email: erratum@infineon.com**

**Document reference**
**IFX-**

**IMPORTANT NOTICE**

The information given in this document shall in no event be regarded as a guarantee of conditions or characteristics ("Beschaffenheitsgarantie") .

With respect to any examples, hints or any typical values stated herein and/or any information regarding the application of the product, Infineon Technologies hereby disclaims any and all warranties and liabilities of any kind, including without limitation warranties of non-infringement of intellectual property rights of any third party.

In addition, any information given in this document is subject to customer's compliance with its obligations stated in this document and any applicable legal requirements, norms and standards concerning customer's products and any use of the product of Infineon Technologies in customer's applications.

The data contained in this document is exclusively intended for technically trained staff. It is the responsibility of customer's technical departments to evaluate the suitability of the product for the intended application and the completeness of the product information given in this document with respect to such application.

Please note that this product is not qualified according to the AEC Q100 or AEC Q101 documents of the Automotive Electronics Council.

**WARNINGS**

Due to technical requirements 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 Infineon Technologies in a written document signed by authorized representatives of Infineon Technologies, Infineon Technologies' products may not be used in any applications where a failure of the product or any consequences of the use thereof can reasonably be expected to result in personal injury.