

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

### Features

- Electrical features
  - $V_{CES} = 1200\text{ V}$
  - $I_{C\text{ nom}} = 40\text{ A} / I_{CRM} = 80\text{ A}$
  - CoolSiC™ Schottky diode gen 5
  - High dynamic robustness
  - $T_{vj\text{ op}} = 150\text{ °C}$
- Mechanical features
  - Compact design
  - Rugged mounting due to integrated mounting clamps
  - PressFIT contact technology
  - Integrated NTC temperature sensor
  - $\text{Al}_2\text{O}_3$  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

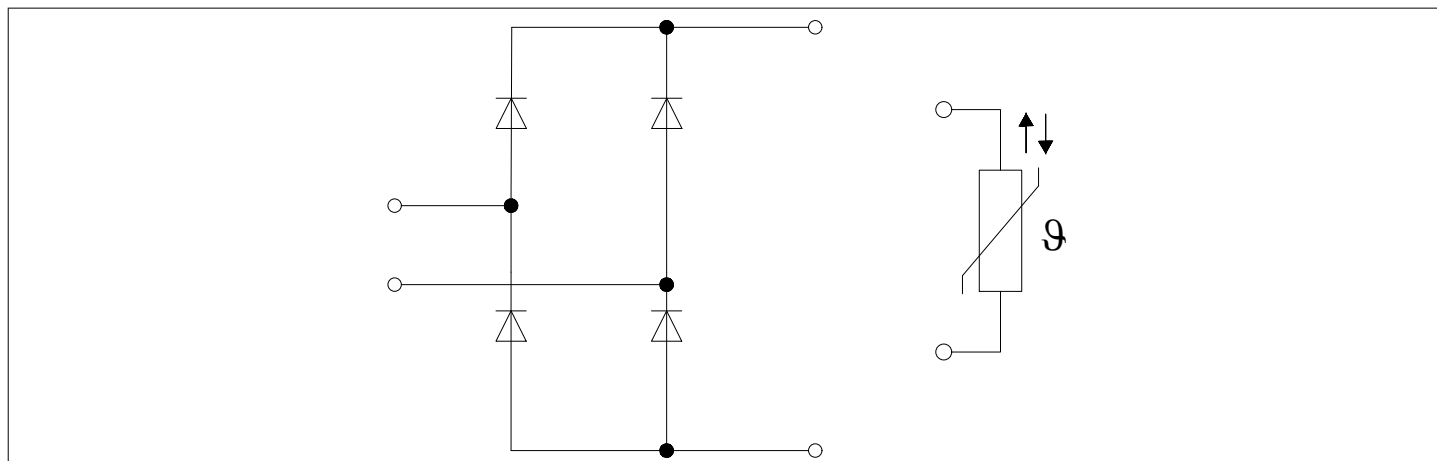


Table of contents

|   |                                |   |
|---|--------------------------------|---|
|   | Description .....              | 1 |
|   | Features .....                 | 1 |
|   | Potential applications .....   | 1 |
|   | Product validation .....       | 1 |
|   | Table of contents .....        | 2 |
| 1 | Package .....                  | 3 |
| 2 | Diode, Rectifier .....         | 3 |
| 3 | NTC-Thermistor .....           | 4 |
| 4 | Characteristics diagrams ..... | 5 |
| 5 | Circuit diagram .....          | 6 |
| 6 | Package outlines .....         | 7 |
| 7 | Module label code .....        | 8 |
|   | Disclaimer .....               | 9 |

## 1 Package

**Table 1** Insulation Coordination

| Parameter                  | Symbol      | Note or test condition                | Values    | Unit |
|----------------------------|-------------|---------------------------------------|-----------|------|
| Isolation test voltage     | $V_{ISOL}$  | RMS, $f = 50$ Hz,<br>$t = 1$ 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 | $R_{AA'+CC'}$ | $T_H = 25^\circ\text{C}$ , 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         | $V_{RRM}$   | $T_{vj} = 25^\circ\text{C}$ | 1200   | V    |
| Maximum RMS forward current per chip    | $I_{FRMSM}$ | $T_H = 55^\circ\text{C}$    | 40     | A    |
| Maximum RMS current at rectifier output | $I_{RMSM}$  | $T_H = 55^\circ\text{C}$    | 55     | A    |

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

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

**Table 4 Characteristic Values**

| Parameter                                | Symbol       | Note or test condition                                              | Values |       |      | Unit               |
|------------------------------------------|--------------|---------------------------------------------------------------------|--------|-------|------|--------------------|
|                                          |              |                                                                     | Min.   | Typ.  | Max. |                    |
| Forward voltage                          | $V_F$        | $I_F = 40 \text{ A}$<br>$T_{vj} = 150 \text{ }^{\circ}\text{C}$     |        | 1.85  |      | V                  |
| Reverse current                          | $I_r$        | $T_{vj} = 150 \text{ }^{\circ}\text{C}$ ,<br>$V_R = 1200 \text{ V}$ |        | 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  | $^{\circ}\text{C}$ |

### 3 NTC-Thermistor

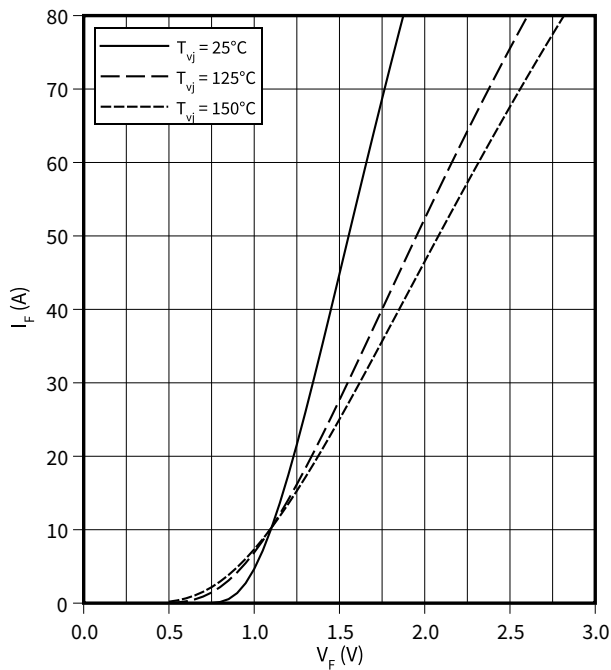
**Table 5 Characteristic Values**

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

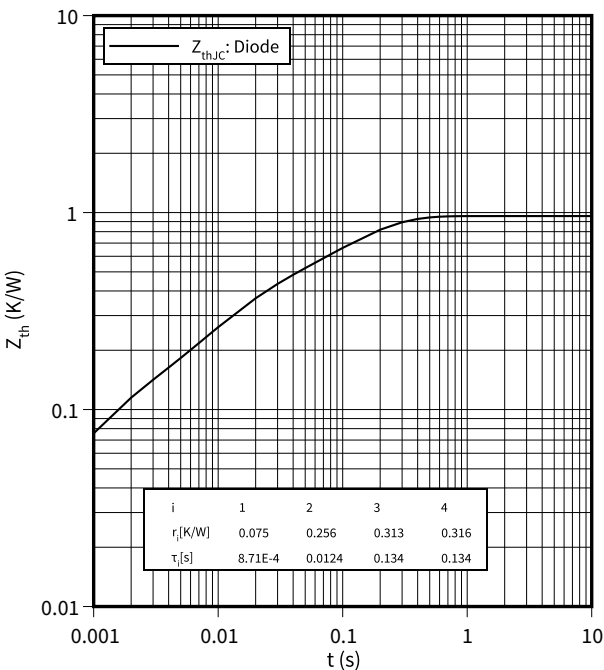
Note: Specification according to the valid application note.

4 Characteristics diagrams

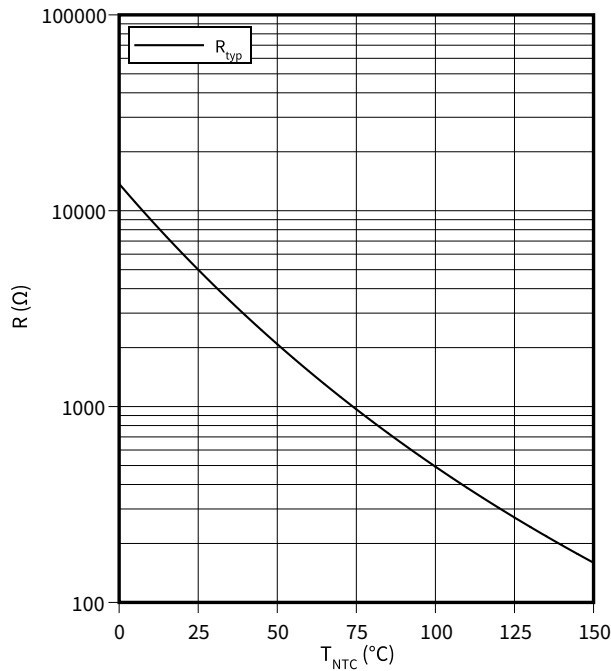
forward characteristic (typical), Diode, Rectifier  
 $I_F = f(V_F)$



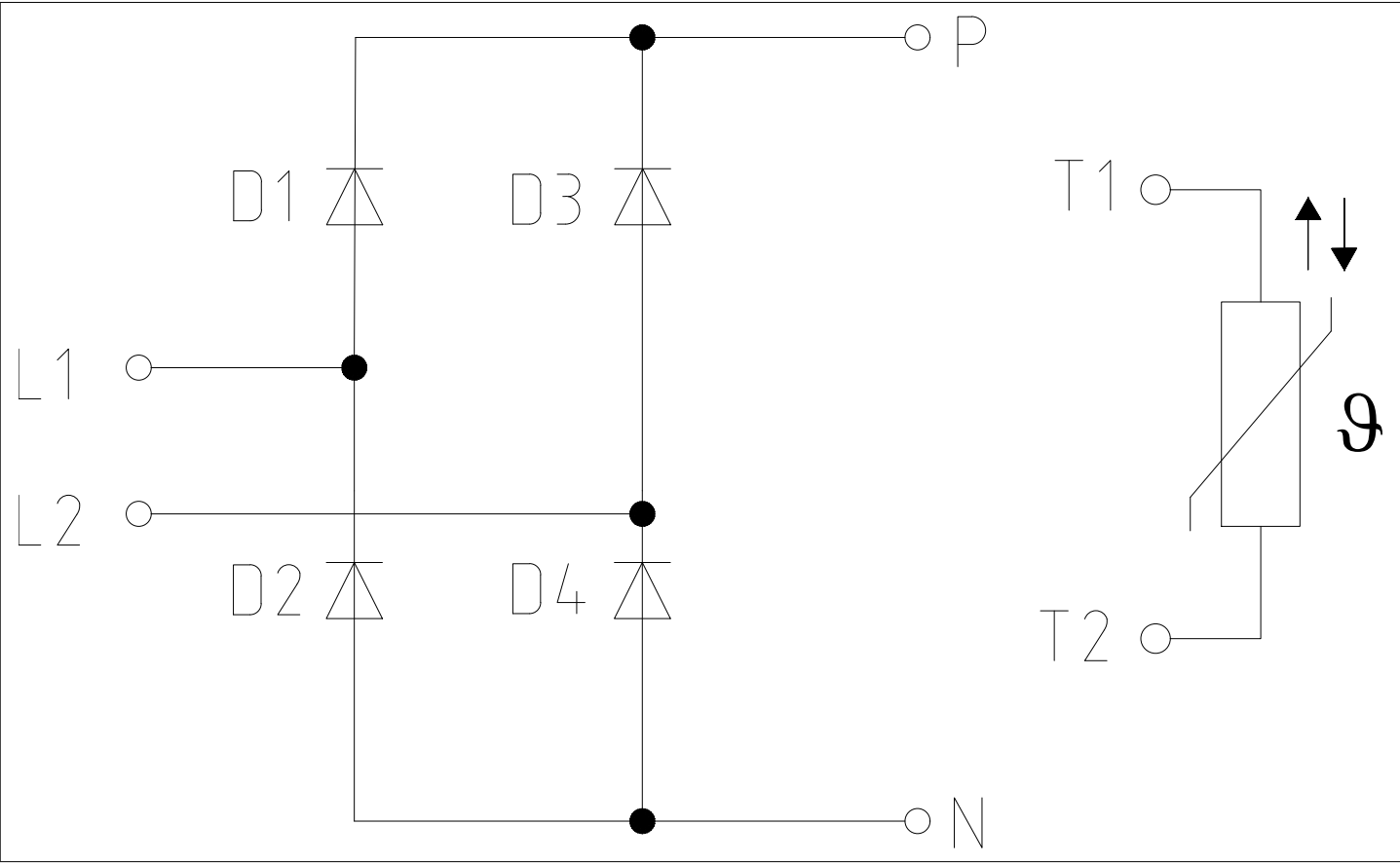
transient thermal impedance, Diode, Rectifier  
 $Z_{th} = f(t)$



temperature characteristic (typical), NTC-Thermistor  
 $R = f(T_{NTC})$

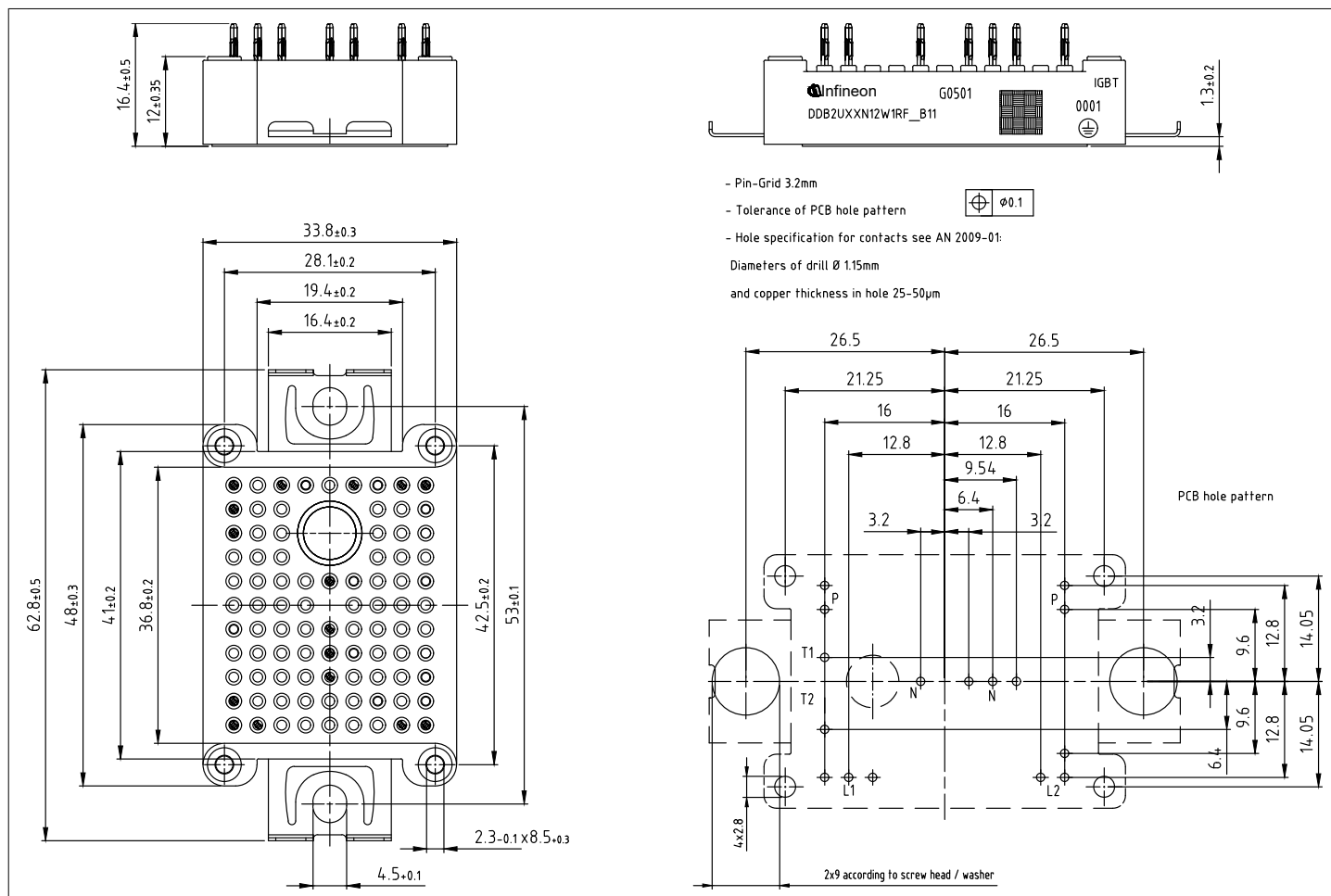


5      **Circuit diagram**



**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            | <i>Content</i>                                                                      | <i>Digit</i>            | <i>Example</i>  |
|                         | Module serial number                                                                | 1 – 5                   | 71549           |
|                         | Module material number                                                              | 6 - 11                  | 142846          |
|                         | Production order number                                                             | 12 - 19                 | 55054991        |
|                         | Date code (production year)                                                         | 20 – 21                 | 15              |
|                         | Date code (production week)                                                         | 22 – 23                 | 30              |
| Example                 |   |                         |                 |
|                         |  |                         |                 |
| 71549142846550549911530 |                                                                                     | 71549142846550549911530 |                 |

Figure 4

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