

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
 - 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

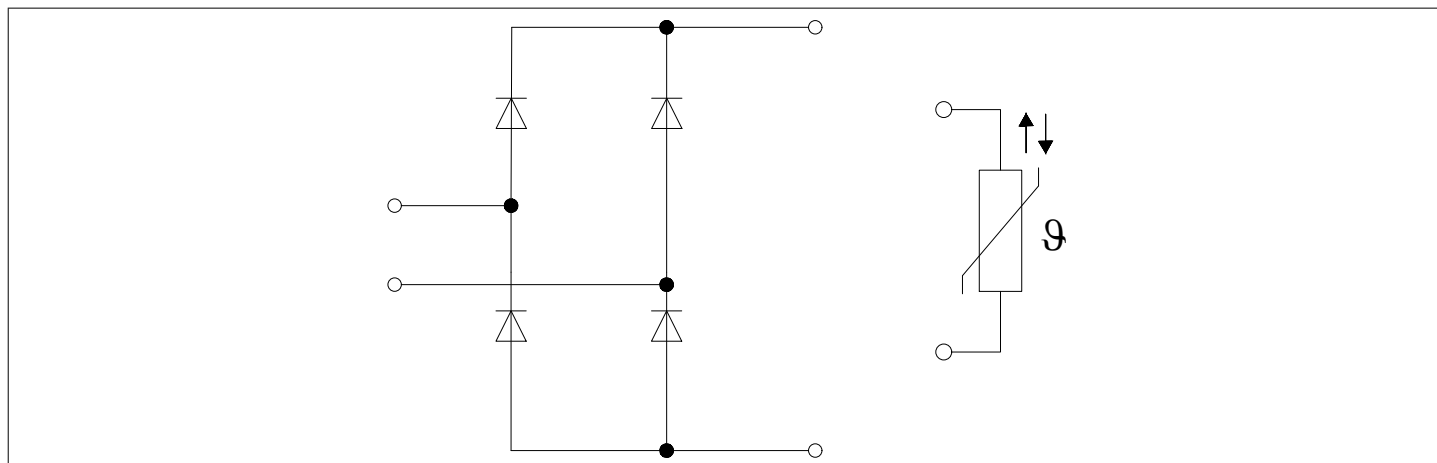


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1 Package

Table 1 Insulation Coordination

Parameter	Symbol	Note or test condition	Values	Unit
Isolation test voltage	V_{ISOL}	RMS, $f = 50 \text{ Hz}$, $t = 1 \text{ min}$	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}	$t_P = 10 \text{ ms}$ $T_{vj} = 25 \text{ }^{\circ}\text{C}$ $T_{vj} = 150 \text{ }^{\circ}\text{C}$	295	A
			240	
I^2t - value	I^2t	$t_P = 10 \text{ ms}$ $T_{vj} = 25 \text{ }^{\circ}\text{C}$ $T_{vj} = 150 \text{ }^{\circ}\text{C}$	435	A^2s
			285	

Table 4 Characteristic Values

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

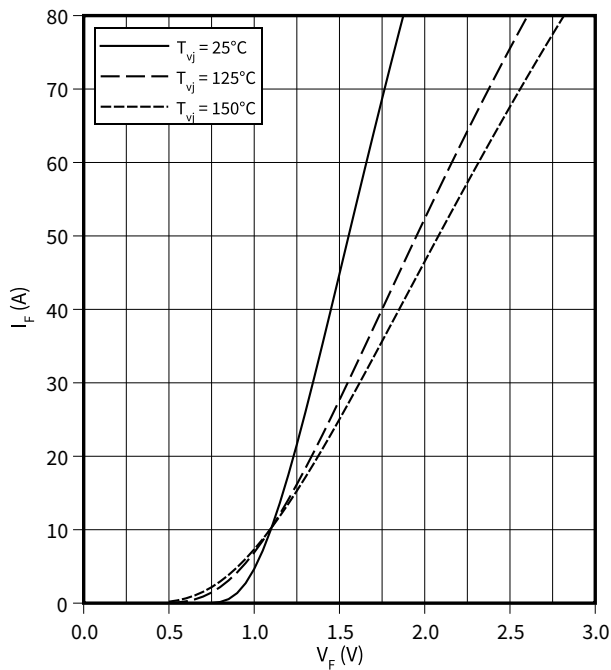
Table 5 Characteristic Values

Parameter	Symbol	Note or test condition	Values			Unit
			Min.	Typ.	Max.	
Rated resistance	R_{25}	$T_{NTC} = 25 \text{ }^{\circ}\text{C}$		5		k Ω
Deviation of R_{100}	$\Delta R/R$	$T_{NTC} = 100 \text{ }^{\circ}\text{C}$, $R_{100} = 493 \text{ } \Omega$	-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

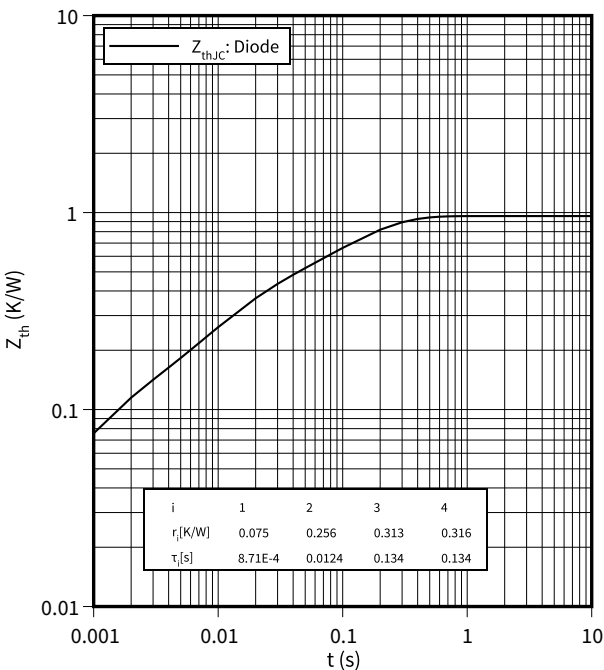
Note: Specification according to the valid application note.

4 Characteristics diagrams

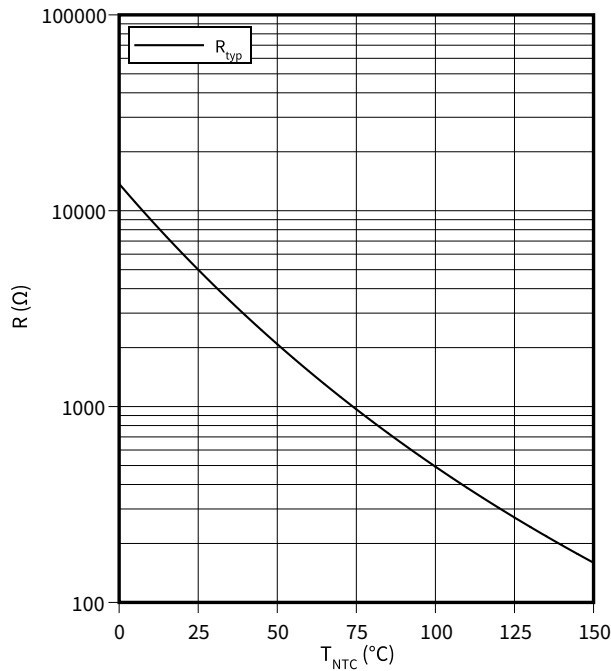
forward characteristic (typical), Diode, Rectifier
 $I_F = f(V_F)$



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



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



5 Circuit diagram

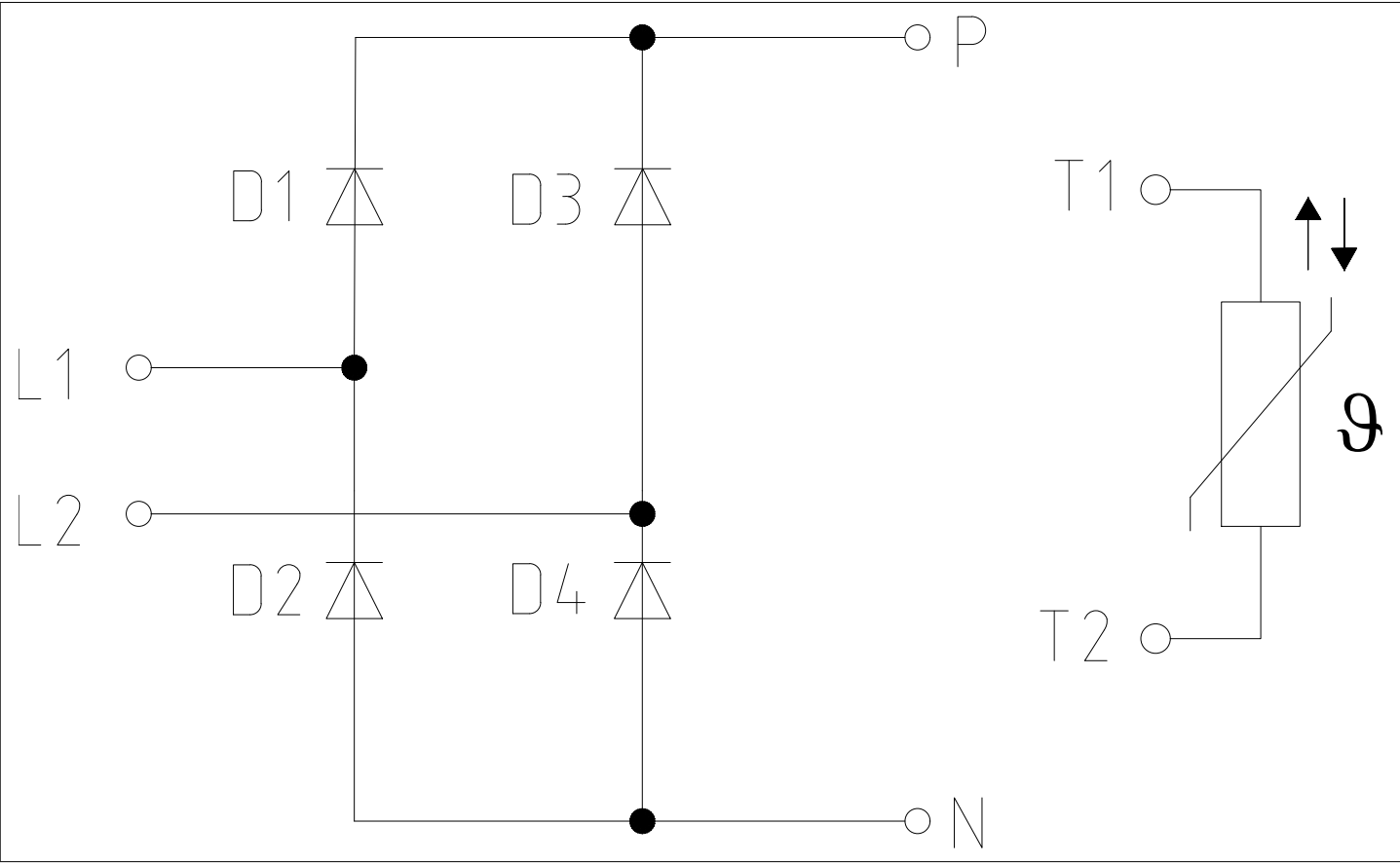


Figure 2

6 Package outlines

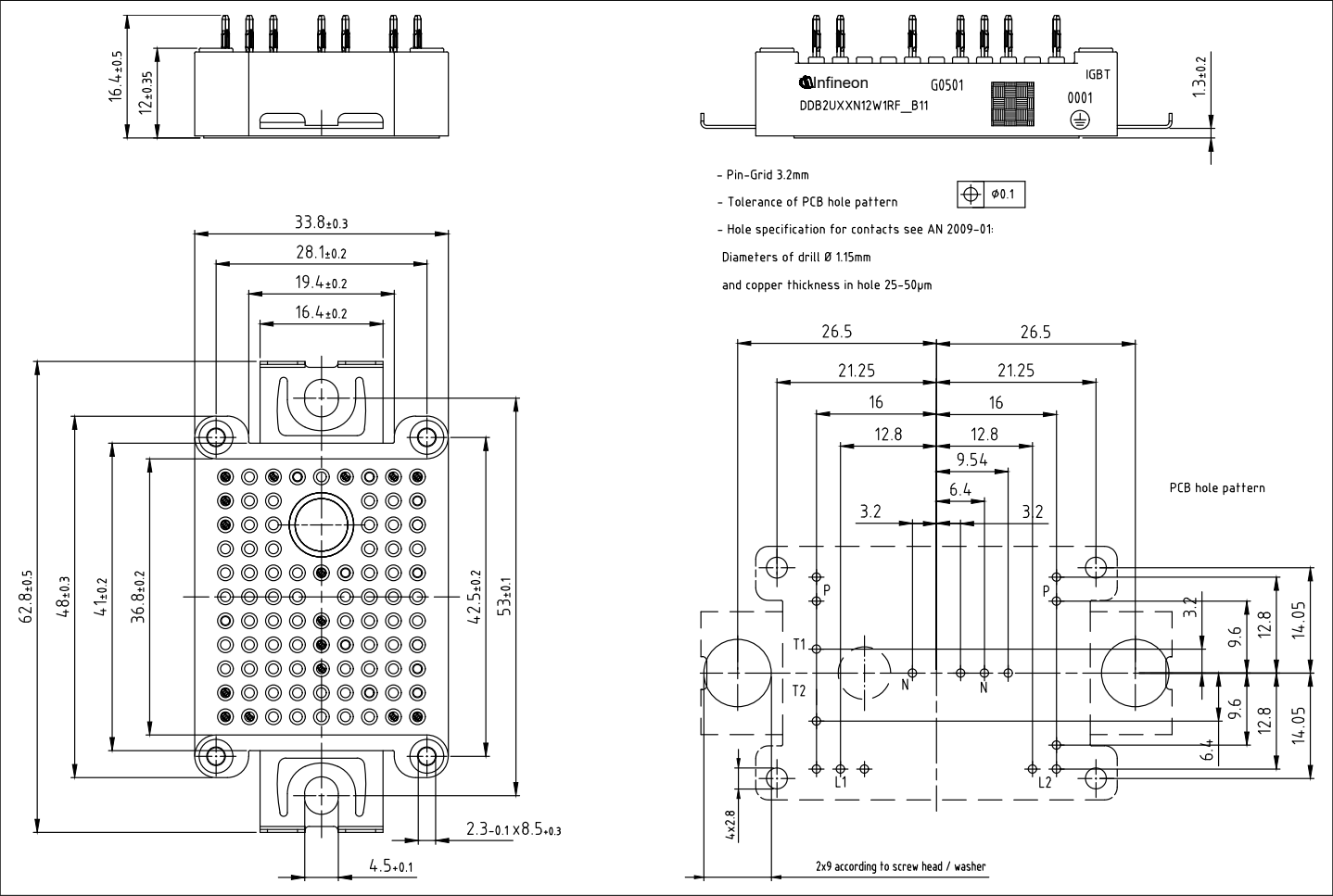


Figure 3

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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