EasyBRIDGE module with CoolSiC™ Schottky diode and PressFIT / NTC

Features

- Electrical features
  - V_{CES} = 1200 V
  - $I_{C\ nom}$ = 60 A / I_{CRM} = 120 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

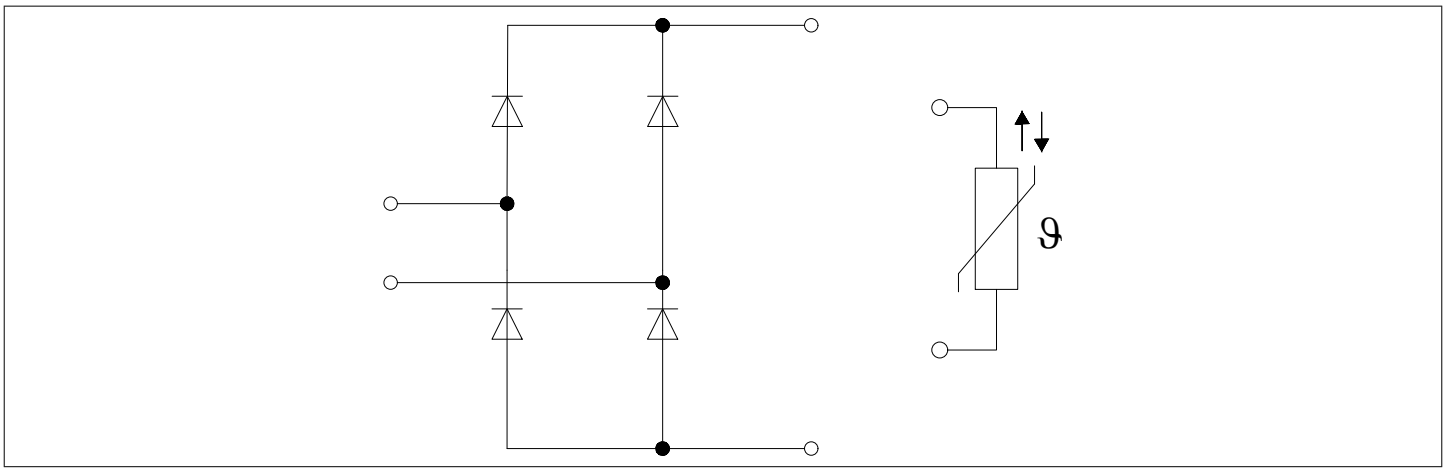
Potential applications

- DC charger for EV

Product validation

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

Description



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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 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		1.7		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 = 40 °C	60	A
Maximum RMS current at rectifier output	I_{RMSM}	T_H = 40 °C	85	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	415	A
			T_{vj} = 150 °C	370	
I^2t - value	I^2t	t_P = 10 ms	T_{vj} = 25 °C	875	A^2s
			T_{vj} = 150 °C	700	

Table 4 Characteristic Values

Parameter	Symbol	Note or test condition		Values			Unit
				Min.	Typ.	Max.	
Forward voltage	V_F	I_F = 60 A	T_{vj} = 150 °C		1.85		V
Reverse current	I_r	T_{vj} = 150 °C, V_R = 1200 V			0.174		mA
Thermal resistance, junction to heatsink	R_{thJH}	per diode			0.713		K/W
Temperature under switching conditions	$T_{vj, op}$			-40		150	°C

3 NTC-Thermistor

Table 5 Characteristic Values

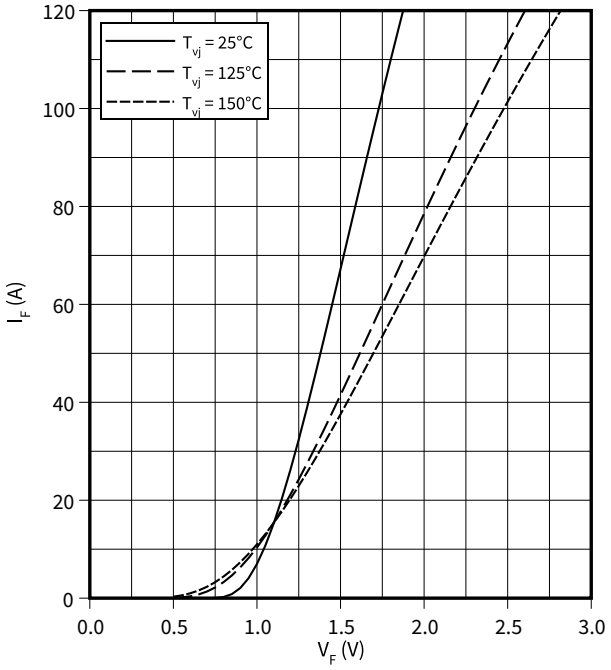
Parameter	Symbol	Note or test condition	Values			Unit
			Min.	Typ.	Max.	
Rated resistance	R_{25}	T_{NTC} = 25 °C		5		kΩ
Deviation of R_{100}	$\Delta R/R$	T_{NTC} = 100 °C, R_{100} = 493 Ω	-5		5	%
Power dissipation	P_{25}	T_{NTC} = 25 °C			20	mW
B-value	$B_{25/50}$	$R_2 = R_{25} \exp[B_{25/50}(1/T_2\text{-}1/(298{,}15\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

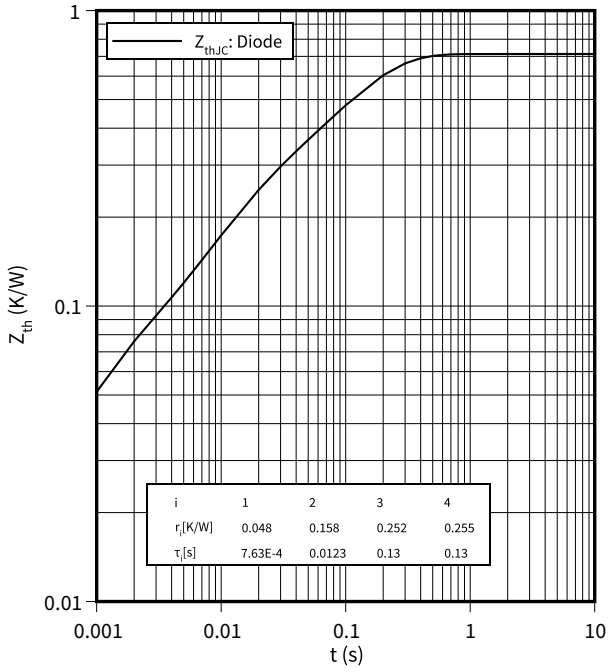
forward characteristic (typical), Diode, Rectifier

$I_F = f(V_F)$



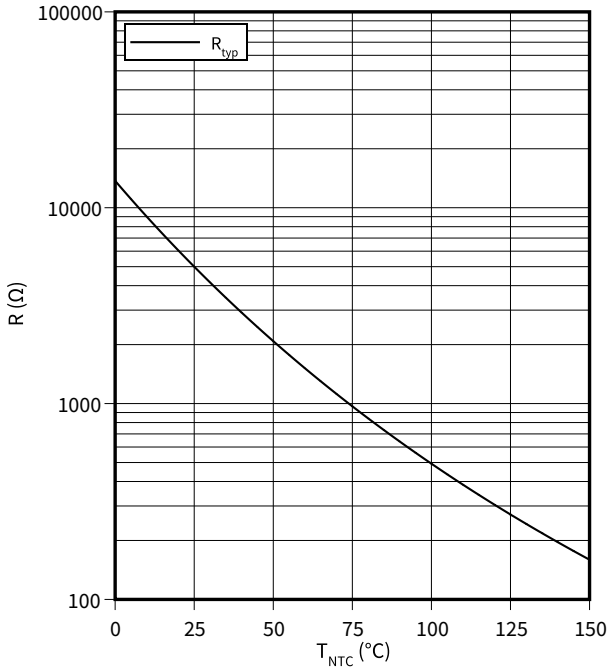
transient thermal impedance, Diode, Rectifier

$Z_{th} = f(t)$



temperature characteristic (typical), NTC-Thermistor

$R = f(T_{NTC})$



5 Circuit diagram

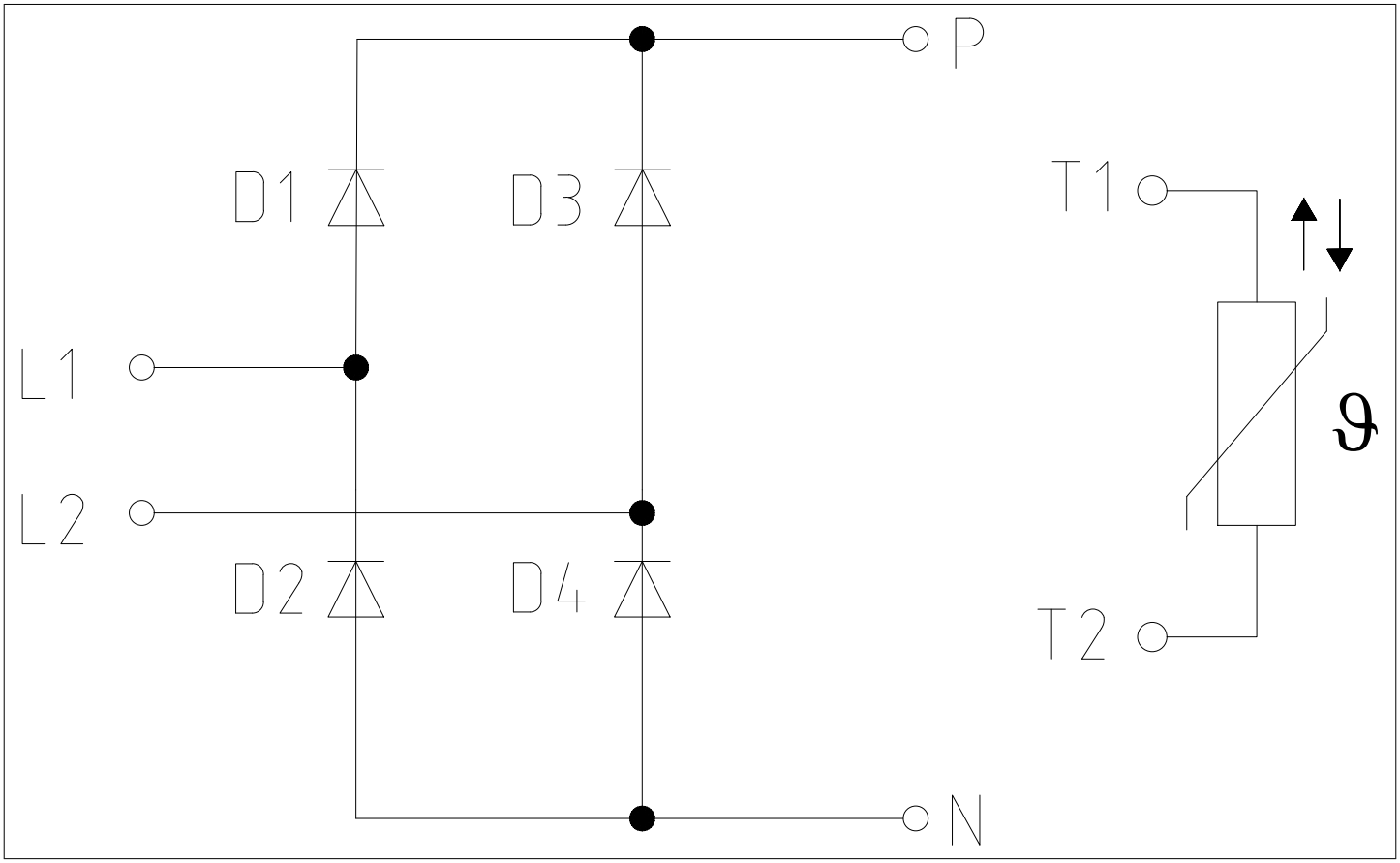


Figure 2

6 Package outlines

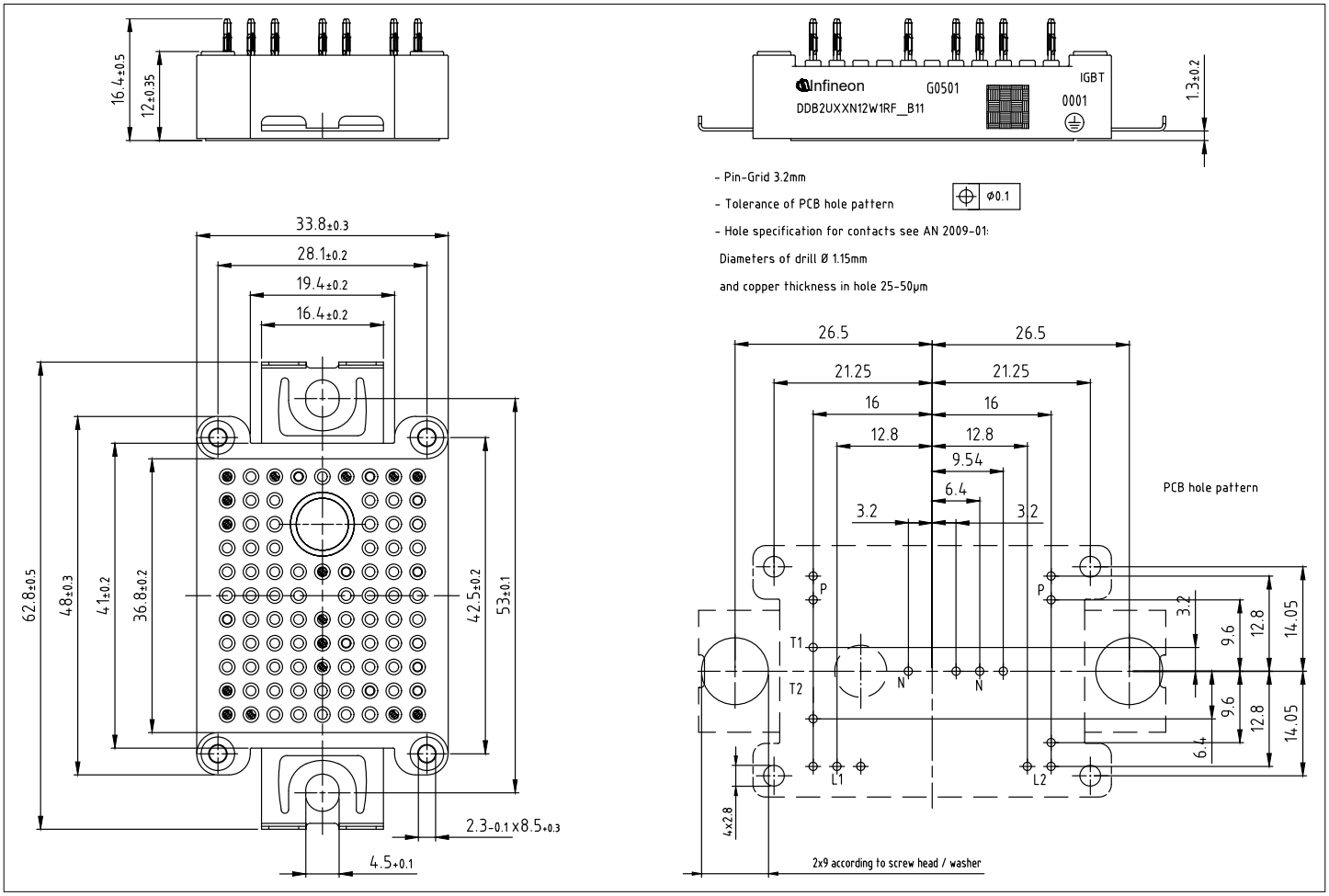


Figure 3

7 Module label code

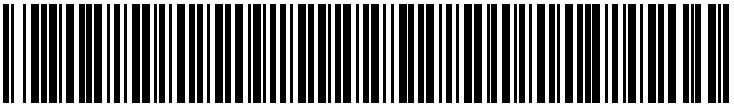
Module label code			
Code format	Data Matrix		Barcode Code128
Encoding	ASCII text		Code Set A
Symbol size	16x16		23 digits
Standard	IEC24720 and IEC16022		IEC8859-1
Code content	*Content* Module serial number Module material number Production order number Date code (production year) Date code (production week)	*Digit* 1 – 5 6 - 11 12 - 19 20 – 21 22 – 23	*Example* 71549 142846 55054991 15 30
Example	 71549142846550549911530	 71549142846550549911530	

Figure 4

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