Preliminary datasheet
EasyPACK™ module with CoolSiC™ Trench MOSFET and PressFIT / NTC

Features



- Electrical features
  - V_{DSS} = 3300 V
  - I_{DN} = 120 A / I_{DRM} = 300 A
  - Low inductive design
  - Low switching losses
  - High current density
  - Suitable Infineon gate drivers can be found under https://www.infineon.com/gdfinder
  - Silicon carbide MOSFET with .XT
- Mechanical features
  - PressFIT contact technology
  - Integrated NTC temperature sensor
  - AlN substrate with low thermal resistance
  - Package with CTI > 600
  - High current pin
  - High power cycling capability due to .XT

Potential applications

- High-frequency switching application
- DC/DC converter
- DC charger for EV
- Energy storage systems
- Solid state transformers
- Solar applications

Product validation

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

Description

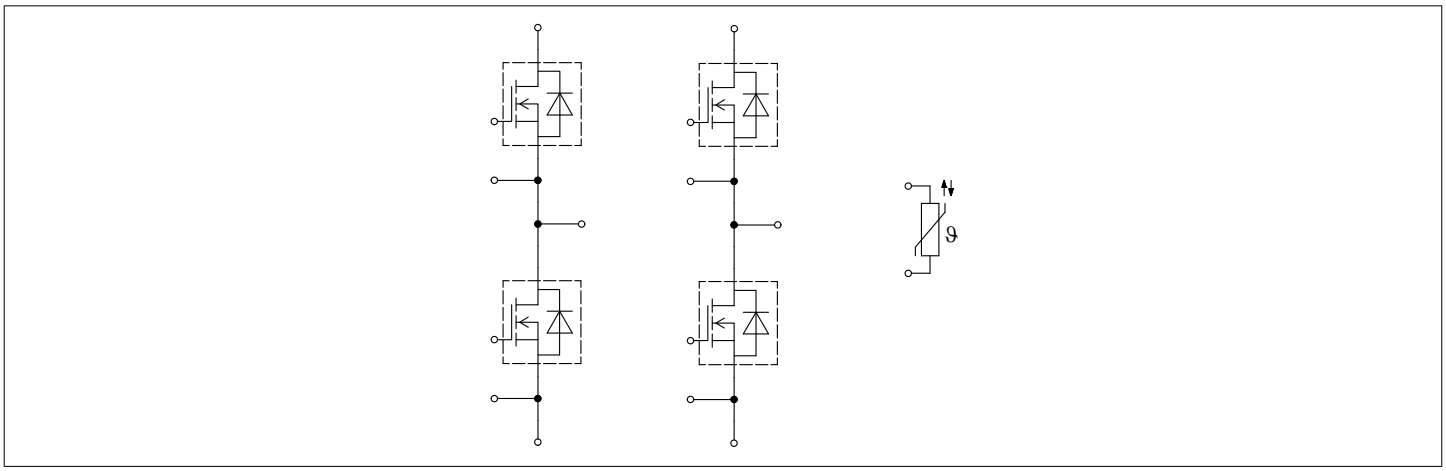


Table of contents

Description . . . 1
Features . . . 1
Potential applications . . . 1
Product validation . . . 1
Table of contents . . . 2
1 Package . . . 3
2 MOSFET, T1-T4 . . . 3
3 Body diode (MOSFET, T1-T4) . . . 5
4 NTC-Thermistor . . . 6
5 Characteristics diagrams . . . 7
6 Circuit diagram . . . 14
7 Package outlines . . . 15
8 Module label code . . . 16
Revision history . . . 17
Disclaimer . . . 18

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	5.0	kV
Isolation test voltage NTC	$V_{ISOL(NTC)}$	RMS, f = 50 Hz, *t* = 1 min	3.6	kV
Internal isolation		basic insulation (class 1, IEC 61140)	AlN	
Comparative tracking index	*CTI*		> 600	
Relative thermal index (electrical)	*RTI*	frame	180	°C
		lid	150	

Table 2 Characteristic values

Parameter	Symbol	Note or test condition	Values			Unit
			Min.	Typ.	Max.	
Stray inductance module	L_{sDS}			24		nH
Module lead resistance, terminals - chip	$R_{DD'+SS'}$	T_H = 25 °C, per switch		1.5		mΩ
Storage temperature	T_{stg}		-40		150	°C
Mounting force per clamp	*F*		40		80	N
Weight	*G*			38		g

***Note**: The current up to 50A per pin is limited by the interaction of the pins with the PCB design and cooling conditions.*

2 MOSFET, T1-T4

Table 3 Maximum rated values

Parameter	Symbol	Note or test condition		Values	Unit
Drain-source voltage	V_{DSS}		T_{vj} = 25 °C	3300	V
Implemented drain current	I_{DN}			120	A
Continuous DC drain current	I_{DDC}	T_{vj} = 175 °C, V_{GS} = 18 V	T_H = 25 °C	100	A
Repetitive peak drain current	I_{DRM}	verified by design, t_p limited by T_{vjmax}		300	A
Gate-source voltage, max. transient voltage	V_{GS}	*D* < 0.01		-10/23	V
Gate-source voltage, max. static voltage	V_{GS}			-7/20	V

Table 4 Recommended values

Parameter	Symbol	Note or test condition	Values	Unit
On-state gate voltage	$V_{GS(on)}$		15...18	V
Off-state gate voltage	$V_{GS(off)}$		-5...0	V

Table 5 Characteristic values

Parameter	Symbol	Note or test condition		Values			Unit
				Min.	Typ.	Max.	
Drain-source on-resistance	$R_{DS(on)}$	I_D = 120 A	V_{GS} = 15 V, T_{vj} = 25 °C		17.3		mΩ
			V_{GS} = 18 V, T_{vj} = 25 °C		16.6		
			V_{GS} = 18 V, T_{vj} = 125 °C		37.5		
			V_{GS} = 18 V, T_{vj} = 175 °C		52.4		
Gate threshold voltage	$V_{GS(th)}$	I_D = 84 mA, V_{DS} = V_{GS}, (tested after 1ms pulse at V_{GS} = +20 V), T_{vj} = 25 °C		3.45	4.1	5.15	V
Total gate charge	Q_G	V_{DD} = 1800 V, V_{GS} = -4/18 V, T_{vj} = 25 °C			0.5		µC
Internal gate resistor	R_{Gint}	T_{vj} = 25 °C			1.6		Ω
Input capacitance	C_{ISS}	f = 100 kHz, V_{DS} = 1800 V, V_{GS} = 0 V	T_{vj} = 25 °C		15.6		nF
Output capacitance	C_{OSS}	f = 100 kHz, V_{DS} = 1800 V, V_{GS} = 0 V	T_{vj} = 25 °C		0.252		nF
Reverse transfer capacitance	C_{rss}	f = 100 kHz, V_{DS} = 1800 V, V_{GS} = 0 V	T_{vj} = 25 °C		0.019		nF
C_{OSS} stored energy	E_{OSS}	V_{DS} = 1800 V, V_{GS} = -4/18 V, T_{vj} = 25 °C			516		µJ
Drain-source leakage current	I_{DSS}	V_{DS} = 3300 V, V_{GS} = -4 V	T_{vj} = 25 °C		0.03		µA
Gate-source leakage current	I_{GSS}	V_{DS} = 0 V, T_{vj} = 25 °C	V_{GS} = 20 V			400	nA
Turn-on delay time (inductive load)	$t_{d\,on}$	I_D = 120 A, R_{Gon}=0.75 Ω, V_{DD} = 1800 V, V_{GS} = -4/18 V, t_{dead} = 4000 ns, 0.1 V_{GS} to 0.1 I_D	T_{vj} = 25 °C		30		ns
			T_{vj} = 125 °C		29		
			T_{vj} = 175 °C		29		
Rise time (inductive load)	t_r	I_D = 120 A, R_{Gon}=0.75 Ω, V_{DD} = 1800 V, V_{GS} = -4/18 V, t_{dead} = 4000 ns, 0.1 I_D to 0.9 I_D	T_{vj} = 25 °C		9		ns
			T_{vj} = 125 °C		9		
			T_{vj} = 175 °C		8		

(table continues...)

Table 5 (continued) Characteristic values

Parameter	Symbol	Note or test condition		Values			Unit
				Min.	Typ.	Max.	
Turn-off delay time (inductive load)	$t_{d\,off}$	I_D = 120 A, R_{Goff} = 0.5 Ω, V_{DD} = 1800 V, V_{GS} = -4/18 V, 0.9 V_{GS} to 0.9 I_D	T_{vj} = 25 °C		47		ns
			T_{vj} = 125 °C		51		
			T_{vj} = 175 °C		54		
Fall time (inductive load)	t_f	I_D = 120 A, R_{Goff} = 0.5 Ω, V_{DD} = 1800 V, V_{GS} = -4/18 V, 0.9 I_D to 0.1 I_D	T_{vj} = 25 °C		22		ns
			T_{vj} = 125 °C		26		
			T_{vj} = 175 °C		26		
Turn-on energy loss per pulse	E_{on}	I_D = 120 A, V_{DD} = 1800 V, L_σ = 20 nH, V_{GS} = -4/18 V, R_{Gon}=0.75 Ω, di/dt = 17.2 kA/µs (T_{vj} = 175 °C), t_{dead} = 4000 ns	T_{vj} = 25 °C		5.4		mJ
			T_{vj} = 125 °C		7.2		
			T_{vj} = 175 °C		11		
Turn-on energy loss per pulse, optimized	$E_{on,o}$	I_D = 120 A, V_{DD} = 1800 V, L_σ = 20 nH, V_{GS} = -4/18 V, $R_{Gon,o}$ = 0.25 Ω, di/dt = 19.9 kA/µs (T_{vj} = 175 °C), t_{dead} = 200 ns	T_{vj} = 25 °C		4.3		mJ
			T_{vj} = 125 °C		4.9		
			T_{vj} = 175 °C		5.8		
Turn-off energy loss per pulse	E_{off}	I_D = 120 A, V_{DD} = 1800 V, L_σ = 20 nH, V_{GS} = -4/18 V, R_{Goff} = 0.5 Ω, dv/dt = 78 kV/µs (T_{vj} = 175 °C)	T_{vj} = 25 °C		1.9		mJ
			T_{vj} = 125 °C		2.3		
			T_{vj} = 175 °C		2.5		
Thermal resistance, junction to heat sink	R_{thJH}	per MOSFET, λ_{grease} = 5 W/(m·K)			0.2		K/W
Temperature under switching conditions	$T_{vj\,op}$			-40		175	°C
Temperature under overload switching conditions	$T_{vj\,over}$	Overload, cumulative max. 200 h				200	°C

***Note**: The selection of positive and negative gate-source voltages impacts losses and the long-term behavior of the MOSFET and body diode. The design guidelines described in Application Notes AN 2018-09 and AN 2025-02 must be considered to ensure sound operation of the device over the planned lifetime.*

3 Body diode (MOSFET, T1-T4)

Table 6 Maximum rated values

Parameter	Symbol	Note or test condition		Values	Unit
DC body diode forward current	I_{SD}	T_{vj} = 175 °C, V_{GS} = -4 V	T_H = 45 °C	120	A
Pulsed body diode current	$I_{SD\,pulse}$			300	A

Table 7 Characteristic values

Parameter	Symbol	Note or test condition		Values			Unit
				Min.	Typ.	Max.	
Forward voltage	V_{SD}	I_{SD} = 120 A, V_{GS}=-4 V	T_{vj} = 25 °C		5		V
			T_{vj} = 125 °C		4.4		
			T_{vj} = 175 °C		3.9		
Peak reverse recovery current	I_{rrm}	I_{SD} = 120 A, di_s/dt = 17.2 kA/µs, V_{DD} = 1800 V, V_{GS} = -4 V, t_{dead} = 4000 ns	T_{vj} = 25 °C		180		A
			T_{vj} = 125 °C		225		
			T_{vj} = 175 °C		305		
Recovered charge	Q_{rr}	I_{SD} = 120 A, di_s/dt = 17.2 kA/µs, V_{DD} = 1800 V, V_{GS} = -4 V, t_{dead} = 4000 ns	T_{vj} = 25 °C		3.9		µC
			T_{vj} = 125 °C		7.1		
			T_{vj} = 175 °C		11.4		
Reverse recovery energy	E_{rec}	I_{SD} = 120 A, di_s/dt = 17.2 kA/µs (T_{vj} = 175 °C), V_{DD} = 1800 V, V_{GS} = -4 V, t_{dead} = 4000 ns	T_{vj} = 25 °C		1.9		mJ
			T_{vj} = 125 °C		6.3		
			T_{vj} = 175 °C		12.3		
Reverse recovery energy, optimized	$E_{rec,o}$	I_{SD} = 120 A, di_s/dt = 19.9 kA/µs (T_{vj} = 175 °C), V_{DD} = 1800 V, V_{GS} = -4 V, t_{dead} = 200 ns	T_{vj} = 25 °C		2		mJ
			T_{vj} = 125 °C		4		
			T_{vj} = 175 °C		5.4		

4 NTC-Thermistor

Table 8 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	$B_{25/50}$	$R_2 = R_{25} \exp[B_{25/50}(1/T_2-1/(298{,}15\ K))]$		3375		K
B-value	$B_{25/80}$	$R_2 = R_{25} \exp[B_{25/80}(1/T_2-1/(298{,}15\ K))]$		3411		K
B-value	$B_{25/100}$	$R_2 = R_{25} \exp[B_{25/100}(1/T_2-1/(298{,}15\ K))]$		3433		K

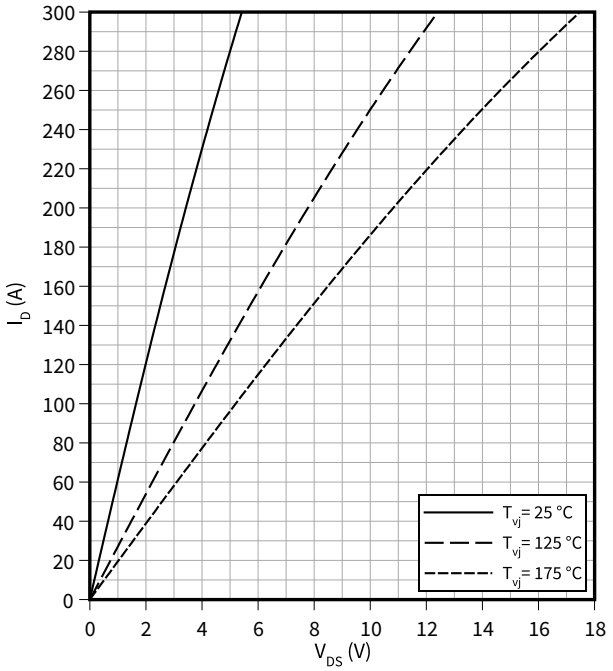
***Note**: For an analytical description of the NTC characteristics please refer to AN2009-10, chapter 4*

5 Characteristics diagrams

Output characteristic (typical), MOSFET, T1-T4

$I_D = f(V_{DS})$

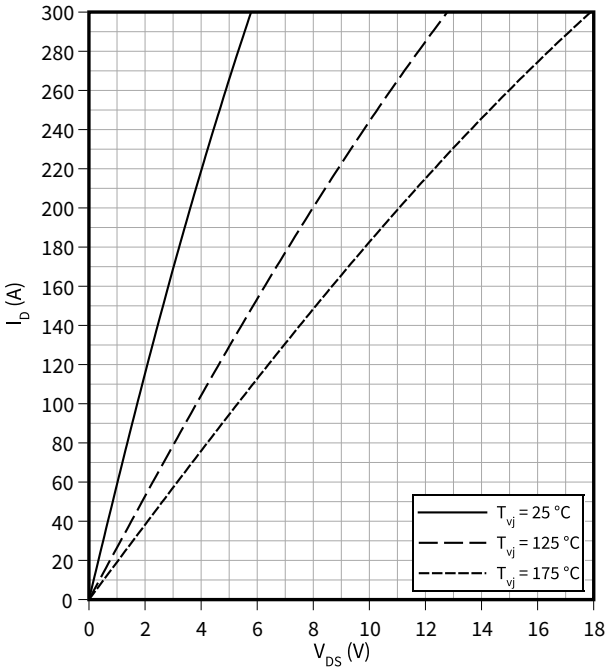
V_{GS} = 18 V



Output characteristic (typical), MOSFET, T1-T4

$I_D = f(V_{DS})$

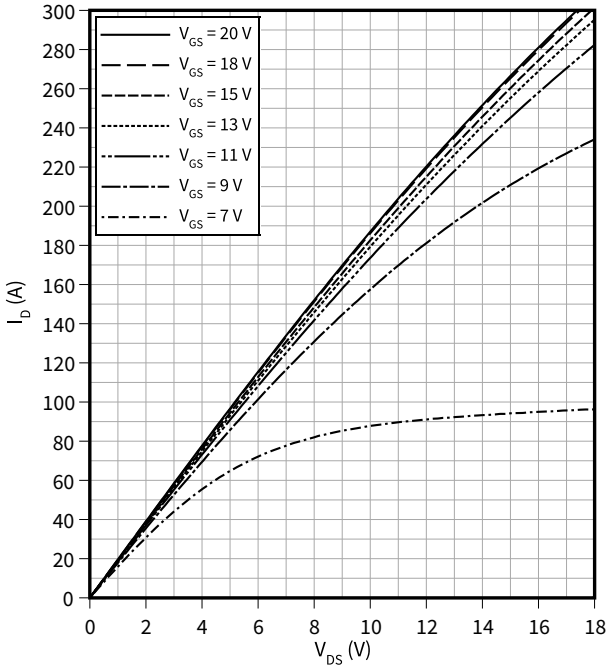
V_{GS} = 15 V



Output characteristic field (typical), MOSFET, T1-T4

$I_D = f(V_{DS})$

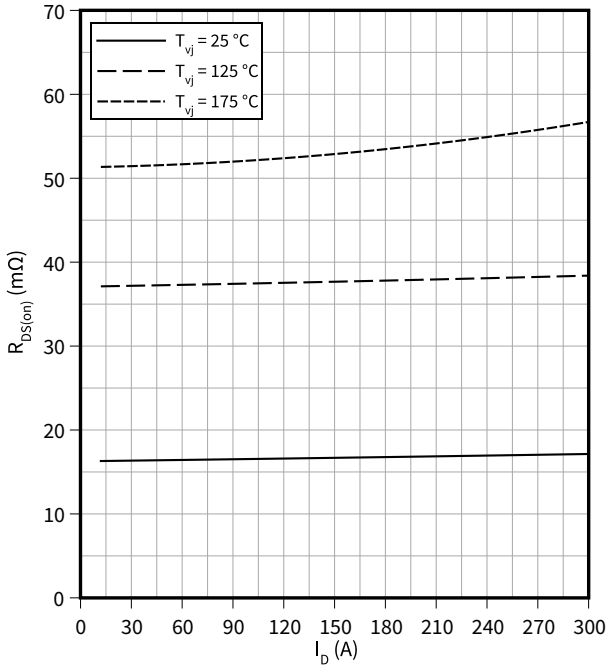
T_{vj} = 175 °C



Drain source on-resistance (typical), MOSFET, T1-T4

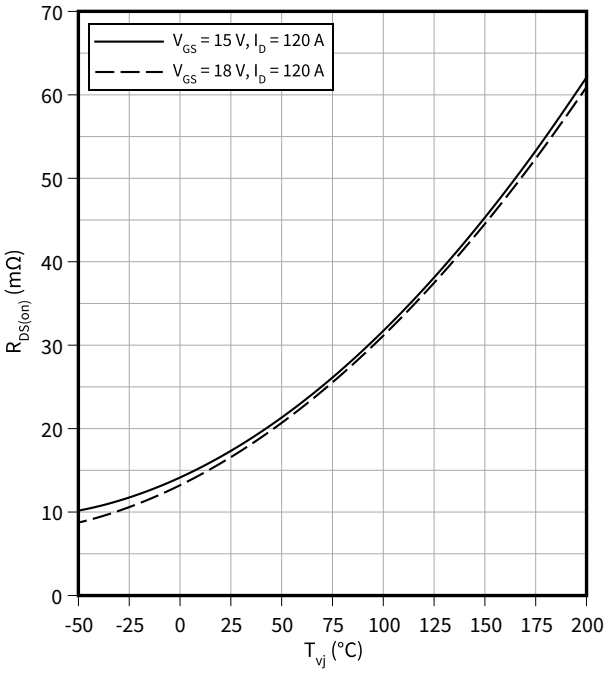
$R_{DS(on)} = f(I_D)$

V_{GS} = 18 V



Drain source on-resistance (typical), MOSFET, T1-T4

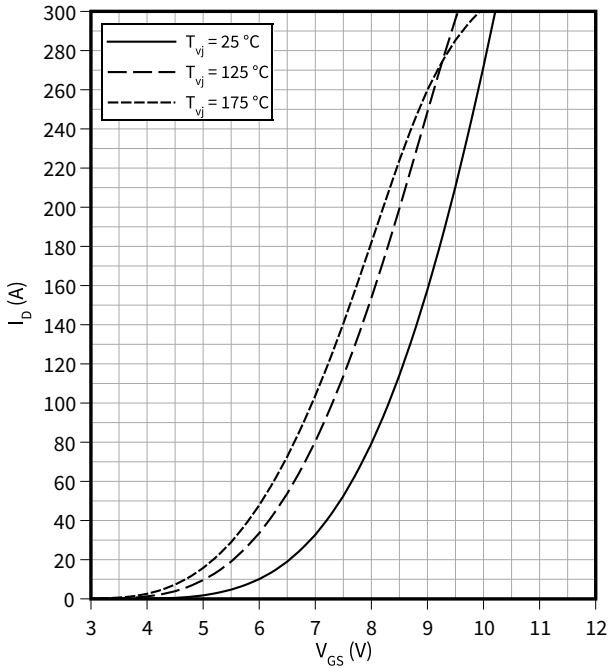
$R_{DS(on)} = f(T_{vj})$



Transfer characteristic (typical), MOSFET, T1-T4

$I_D = f(V_{GS})$

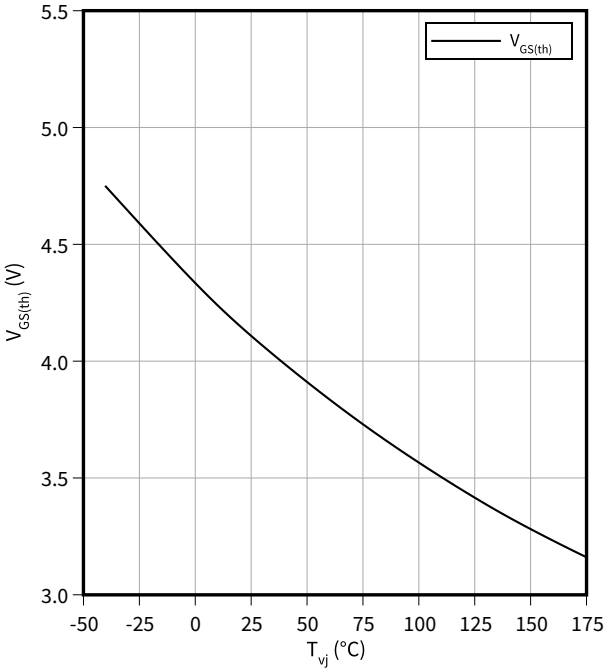
$V_{DS} = 20$ V



Gate-source threshold voltage (typical), MOSFET, T1-T4

$V_{GS(th)} = f(T_{vj})$

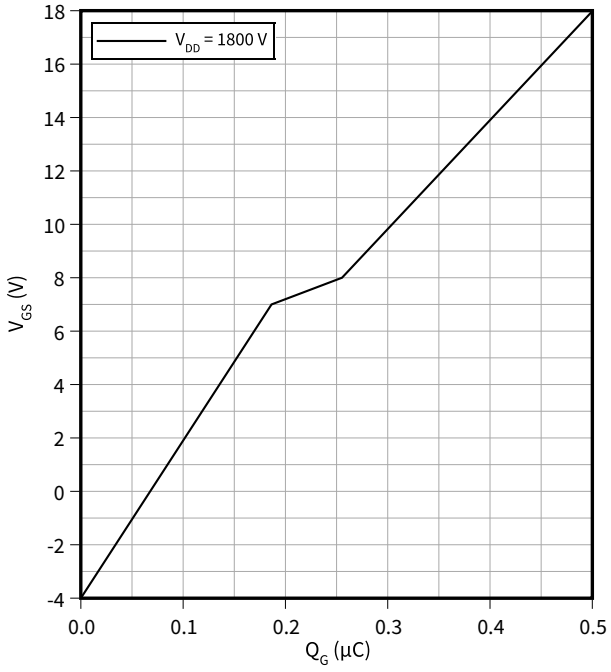
$I_D = 84$ mA, $V_{GS} = V_{DS}$



Gate charge characteristic (typical), MOSFET, T1-T4

$V_{GS} = f(Q_G)$

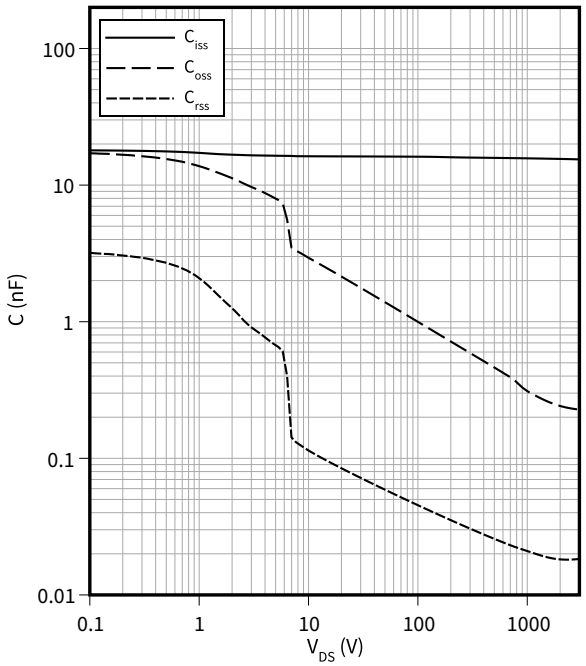
$I_D = 120$ A, $T_{vj} = 25$ °C



Capacity characteristic (typical), MOSFET, T1-T4

$C = f(V_{DS})$

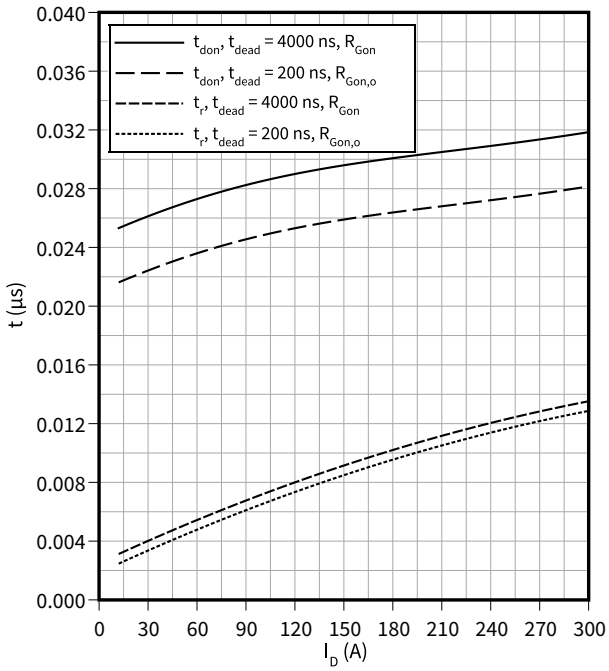
$f = 100$ kHz, $T_{vj} = 25$ °C, $V_{GS} = 0$ V



Switching times (typical), MOSFET, T1-T4

$t = f(I_D)$

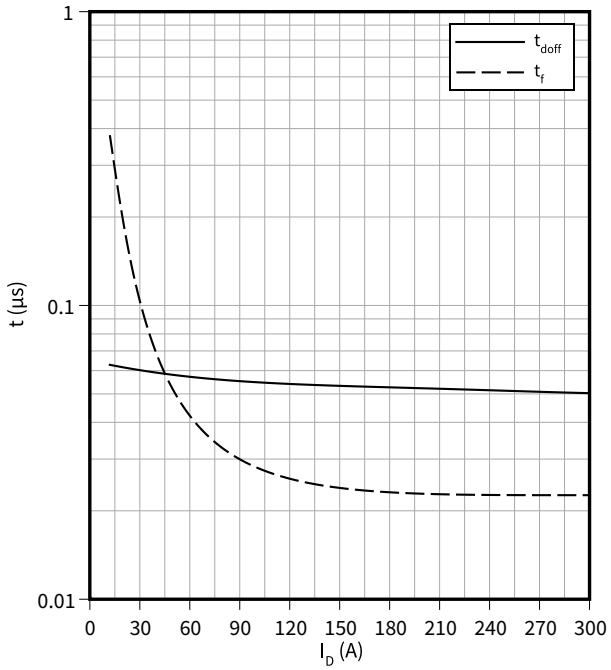
$V_{DD} = 1800$ V, $R_{Gon} = 0.75\ \Omega$, $R_{Gon,o} = 0.25\ \Omega$, $T_{vj} = 175$ °C, $V_{GS} = -4/18$ V



Switching times (typical), MOSFET, T1-T4

$t = f(I_D)$

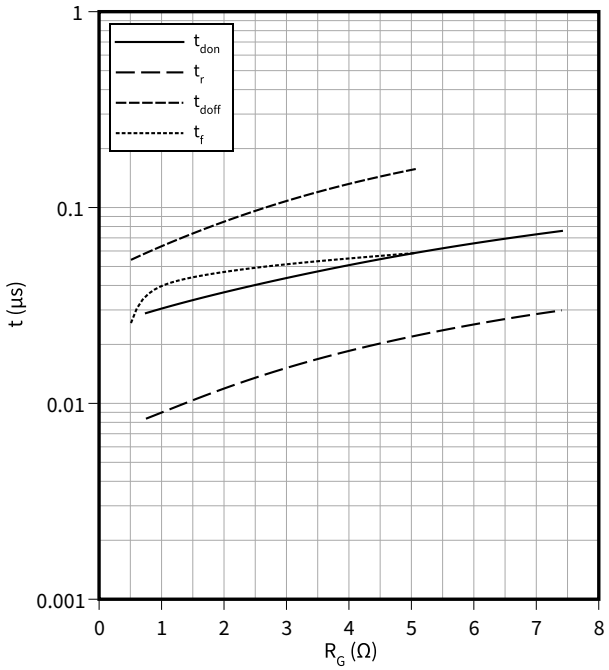
$R_{Goff} = 0.5\ \Omega$, $V_{DD} = 1800$ V, $T_{vj} = 175$ °C, $V_{GS} = -4/18$ V



Switching times (typical), MOSFET, T1-T4

$t = f(R_G)$

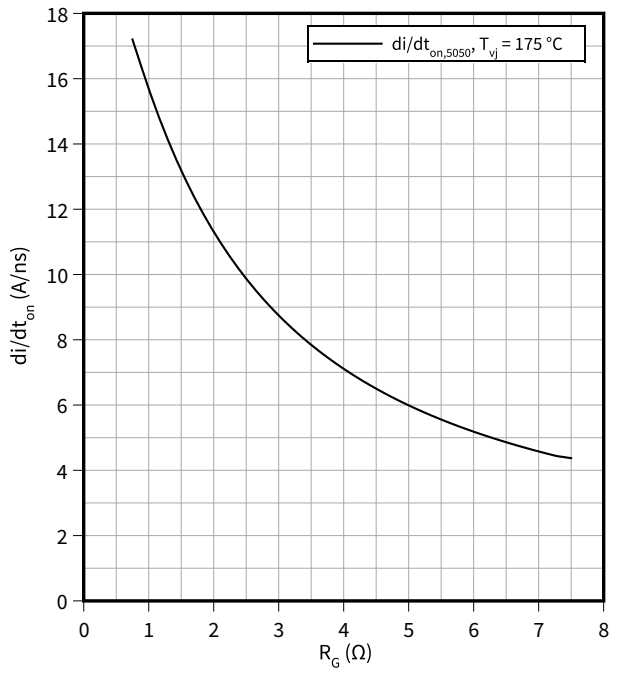
$V_{DD} = 1800$ V, $t_{dead} = 4000$ ns, $I_D = 120$ A, $T_{vj} = 175$ °C, $V_{GS} = -4/18$ V



Current slope (typical), MOSFET, T1-T4

$di/dt_{on} = f(R_G)$

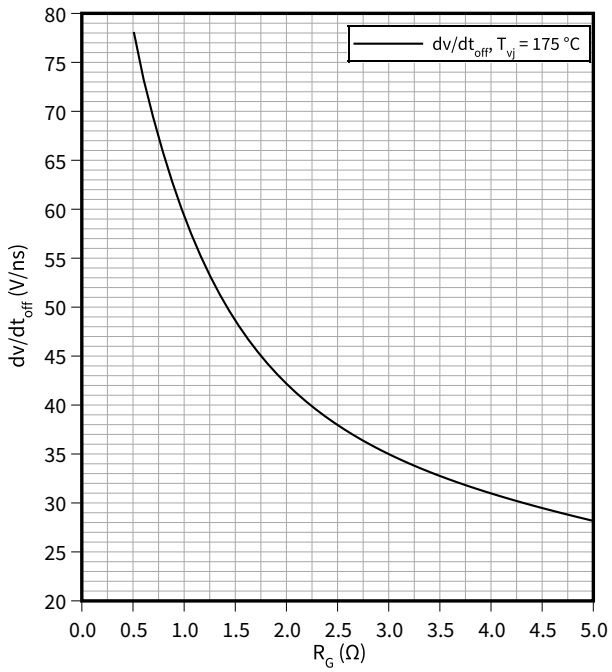
V_{DD} = 1800 V, t_{dead} = 4000 ns, I_D = 120 A, V_{GS} = -4/18 V



Voltage slope (typical), MOSFET, T1-T4

$dv/dt_{off} = f(R_G)$

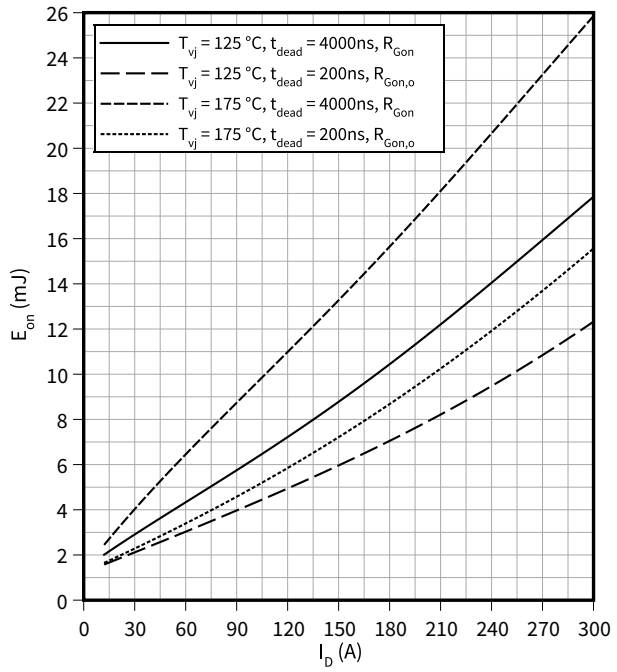
V_{DD} = 1800 V, I_D = 120 A, V_{GS} = -4/18 V



Switching losses (typical), MOSFET, T1-T4

$E_{on} = f(I_D)$

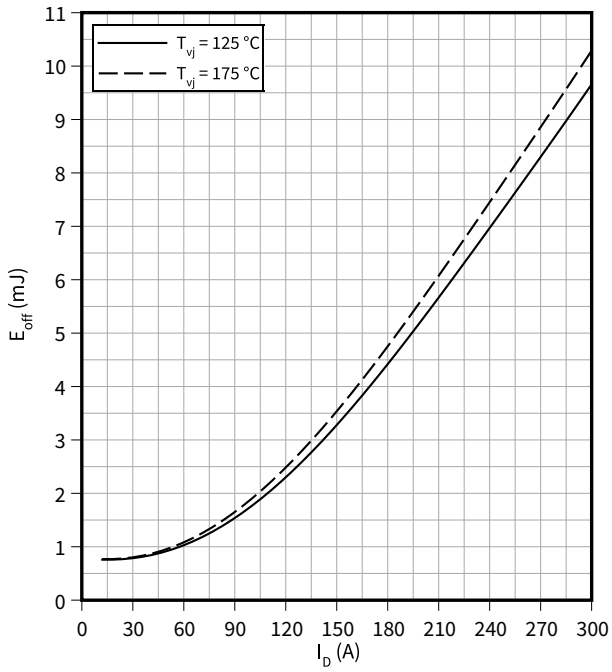
R_{Gon} = 0.75 Ω, V_{DD} = 1800 V, $R_{Gon,o}$ = 0.25 Ω, V_{GS} = -4/18 V



Switching losses (typical), MOSFET, T1-T4

$E_{off} = f(I_D)$

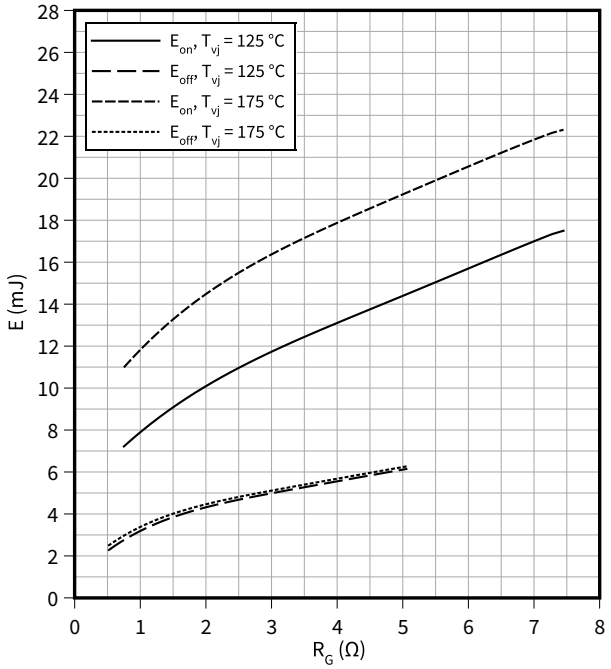
R_{Goff} = 0.5 Ω, V_{DD} = 1800 V, V_{GS} = -4/18 V



Switching losses (typical), MOSFET, T1-T4

$E = f(R_G)$

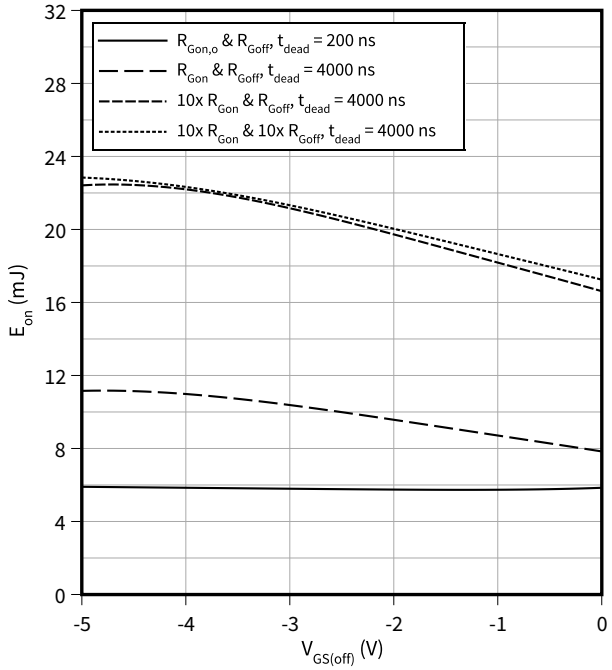
V_{DD} = 1800 V, t_{dead} = 4000 ns, I_D = 120 A, V_{GS} = -4/18 V



Switching losses (typical), MOSFET, T1-T4

$E_{on} = f(V_{GS(off)})$

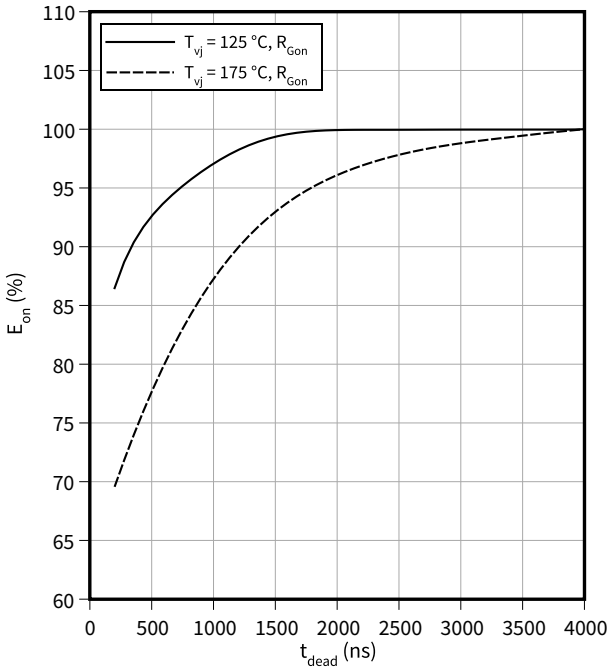
R_{Goff} = 0.5 Ω, V_{DD} = 1800 V, R_{Gon} = 0.75 Ω, $V_{GS(on)}$ = 18 V, I_D = 120 A, $R_{Gon,o}$ = 0.25 Ω, T_{vj} = 175 °C



Switching losses (typical), MOSFET, T1-T4

$E_{on} = f(t_{dead})$

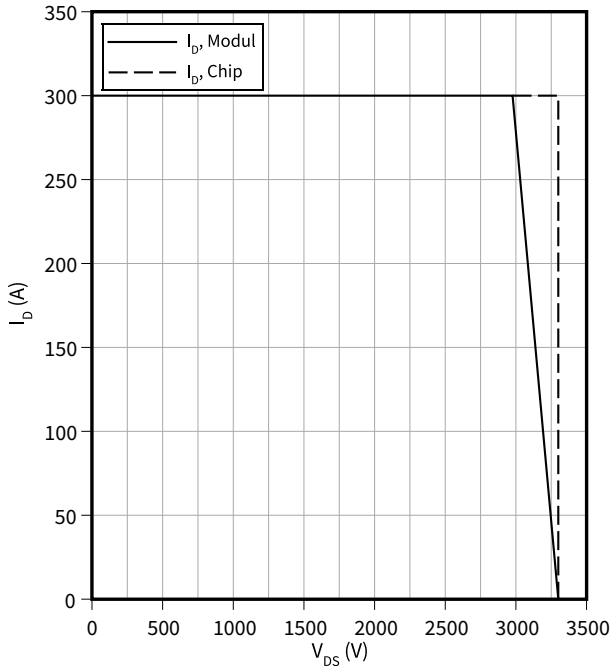
R_{Gon} = 0.75 Ω, I_D = 120 A, V_{DD} = 1800 V, V_{GS} = -4/18 V



Reverse bias safe operating area (RBSOA), MOSFET, T1-T4

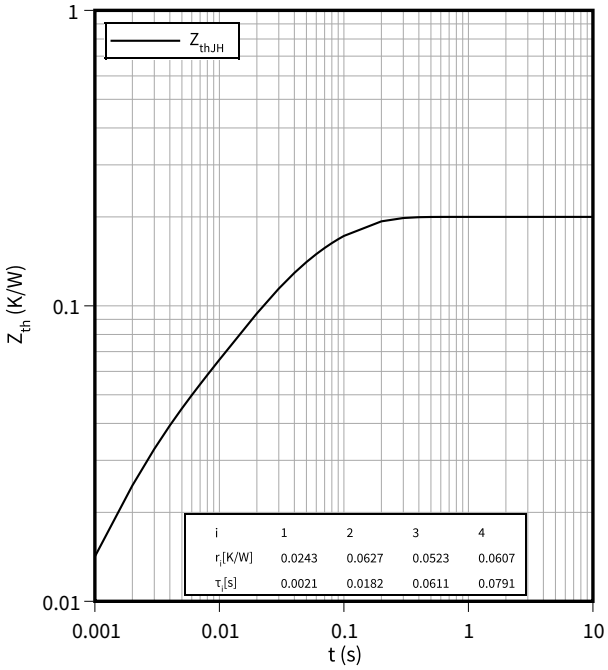
$I_D = f(V_{DS})$

R_{Goff} = 0.5 Ω, T_{vj} = 175 °C, V_{GS} = -4/18 V



Transient thermal impedance, MOSFET, T1-T4

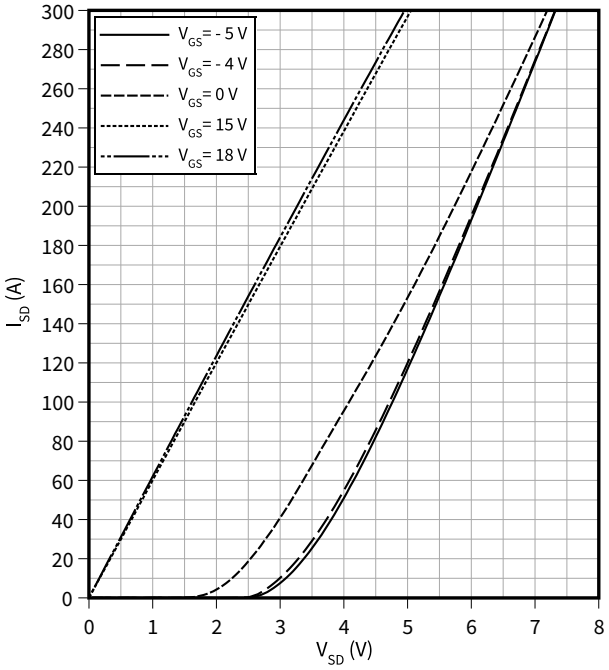
$Z_{th} = f(t)$



Forward characteristic body diode (typical), MOSFET, T1-T4

$I_{SD} = f(V_{SD})$

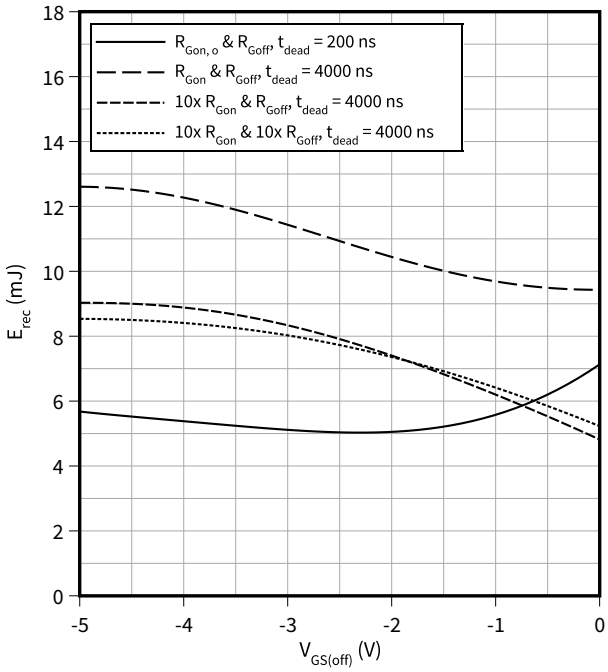
$T_{vj} = 25\ °C$



Switching losses body diode (typical), MOSFET, T1-T4

$E_{rec} = f(V_{GS(off)})$

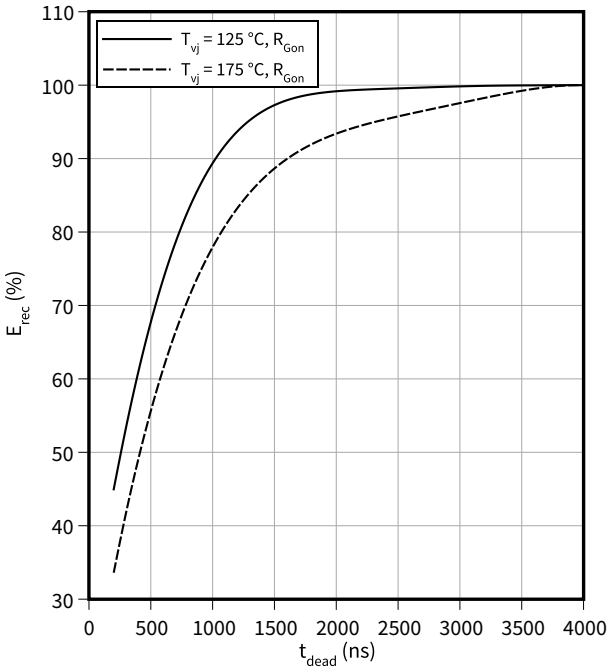
$R_{Goff} = 0.5\ \Omega$, $R_{Gon} = 0.75\ \Omega$, $V_{GS(on)} = 18$ V, $I_{SD} = 120$ A, $R_{Gon,o} = 0.25\ \Omega$, $V_{DD} = 1800$ V, $T_{vj} = 175\ °C$



Switching losses body diode (typical), MOSFET, T1-T4

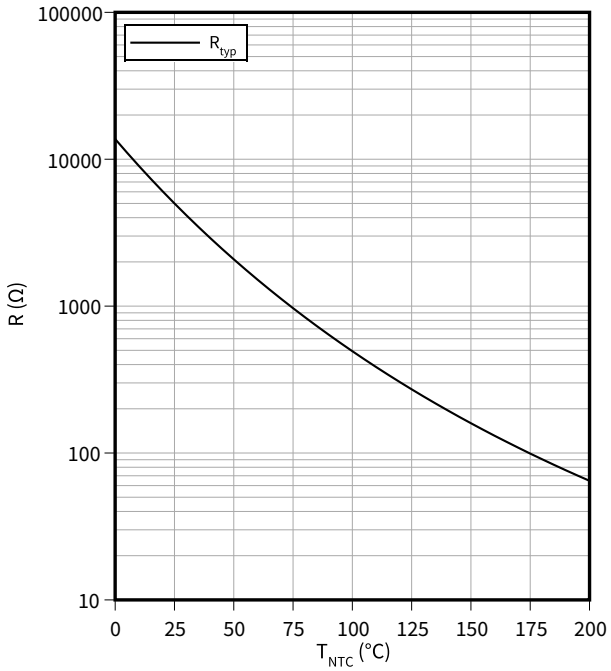
$E_{rec} = f(t_{dead})$

$R_{Gon} = 0.75\ \Omega$, $I_D = 120$ A, $V_{DD} = 1800$ V, $V_{GS} = -4/18$ V



Temperature characteristic (typical), NTC-Thermistor

$R = f(T_{NTC})$



6 Circuit diagram

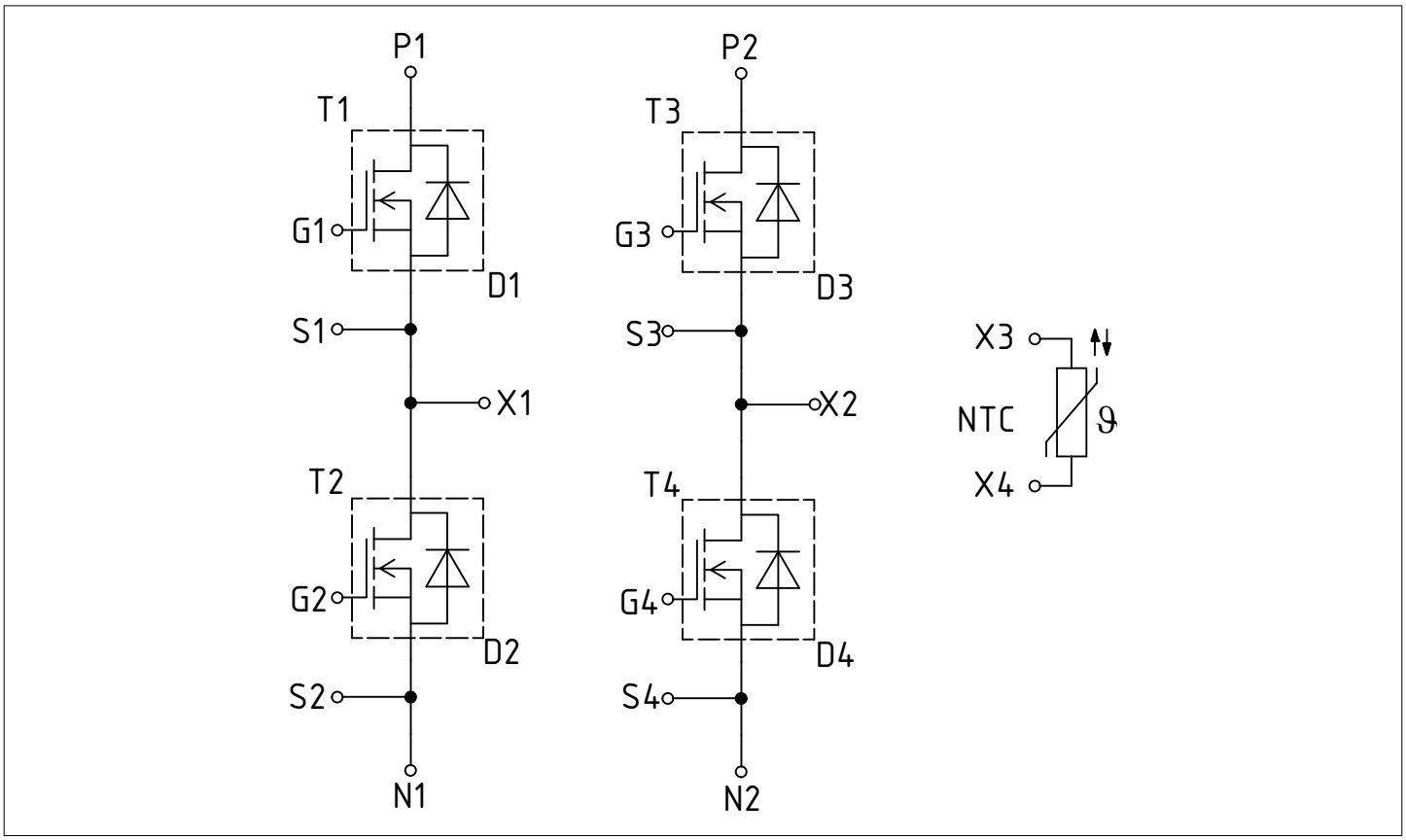


Figure 1

7 Package outlines

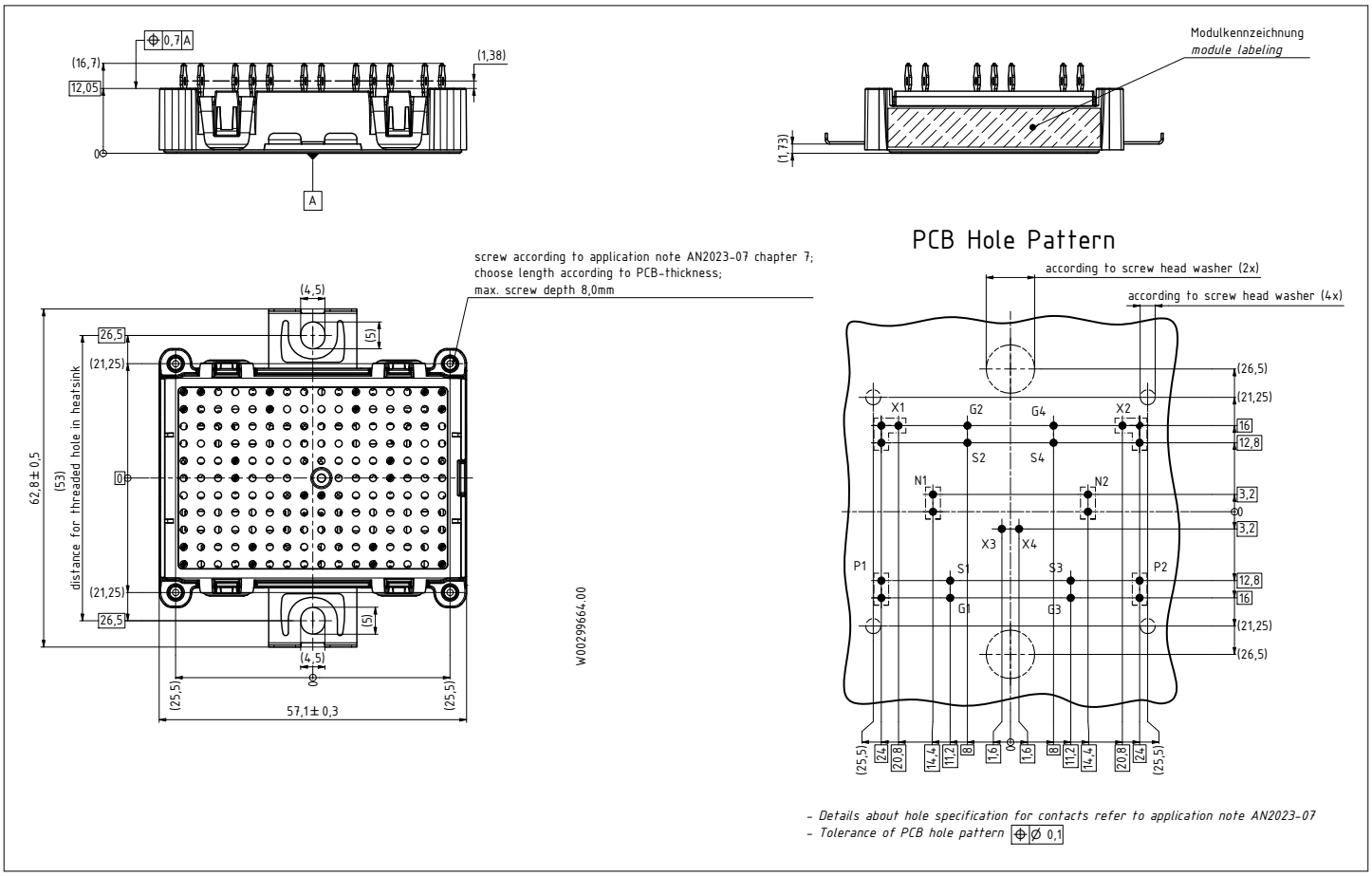


Figure 2

8 Module label code

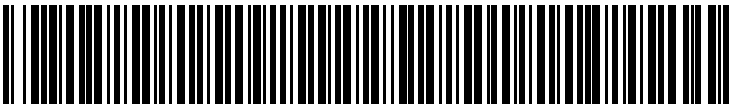
Module label code			
Code format	Data Matrix		Barcode Code128
Encoding	ASCII text		Code Set A
Symbol size	16x16		23 digits
Standard	IEC24720 and IEC16022		IEC8859-1
Code content	*Content* Module serial number Module material number Production order number Date code (production year) Date code (production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

Figure 3

Revision history

Document revision	Date of release	Description of changes
0.10	2025-03-11	Target datasheet
0.20	2026-01-13	Target datasheet
0.30	2026-05-18	Preliminary datasheet

Trademarks

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

Edition 2026-05-18

Published by

Infineon Technologies AG

81726 Munich, Germany

© 2026 Infineon Technologies AG

All Rights Reserved.

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

Email: erratum@infineon.com

Document reference
IFX-ABN325-003

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.

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.