

Preliminary datasheet

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

Features

- Electrical features
 - $V_{DSS} = 1200\text{ V}$
 - $I_{DN} = 25\text{ A} / I_{DRM} = 50\text{ A}$
 - High current density
 - Low inductive design
- Mechanical features
 - PressFIT contact technology
 - Integrated NTC temperature sensor
 - Rugged mounting due to integrated mounting clamps



Typical appearance

Potential applications

- Solar applications

Product validation

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

Description

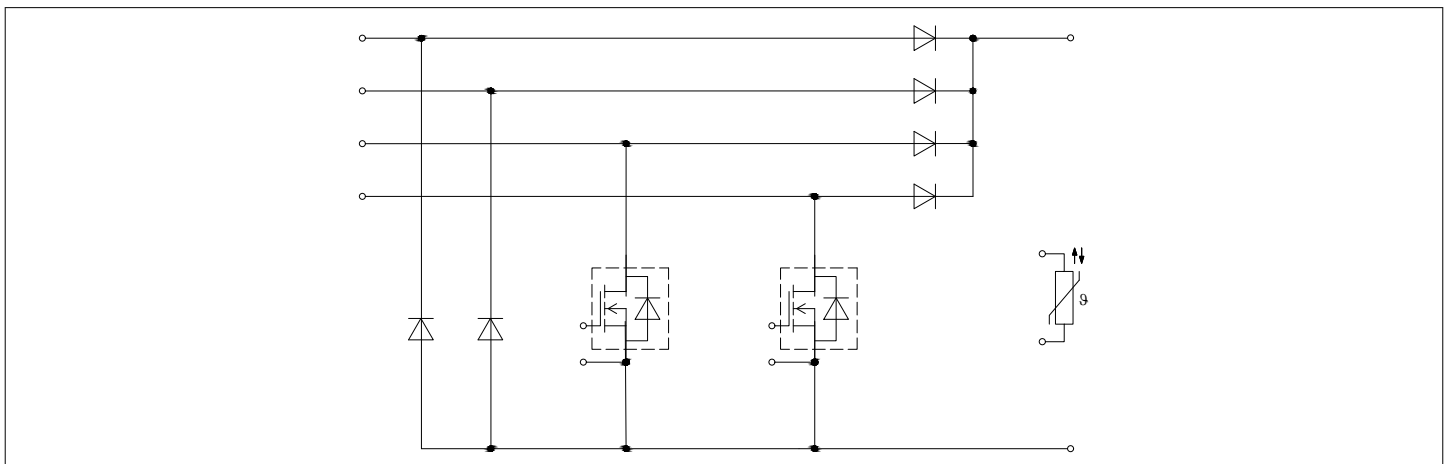


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1 Package

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	
Relative thermal index (electrical)	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		3.2		mΩ
Module lead resistance, terminals - chip	$R_{CC'+EE'}$	$T_H = 25$ °C, per switch		3.2		mΩ
Storage temperature	T_{stg}		-40		125	°C
Mounting force per clamp	F		20		50	N
Weight	G			24		g

Note: The current under continuous operation is limited to 25 A rms per connector pin.

2 MOSFET

Table 3 Maximum rated values

Parameter	Symbol	Note or test condition	Values	Unit
Drain-source voltage	V_{DSS}	$T_{vj} = 25$ °C	1200	V
Continuous DC drain current	I_{DDC}	$T_{vj} = 175$ °C, $V_{GS} = 18$ V $T_H = 70$ °C	25	A
Repetitive peak drain current	I_{DRM}	verified by design, t_p limited by T_{vjmax}	50	A
Gate-source voltage, max. transient voltage	V_{GS}	$D < 0.01$	-10/23	V

(table continues...)

Table 3 (continued) Maximum rated values

Parameter	Symbol	Note or test condition	Values	Unit
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	$R_{DS(on)}$	$I_D = 25\text{ A}$	$V_{GS} = 18\text{ V}$, $T_{vj} = 25\text{ °C}$		32.3		mΩ
			$V_{GS} = 18\text{ V}$, $T_{vj} = 125\text{ °C}$		52.2		
			$V_{GS} = 18\text{ V}$, $T_{vj} = 175\text{ °C}$		69.4		
			$V_{GS} = 15\text{ V}$, $T_{vj} = 25\text{ °C}$		38.8		
Gate threshold voltage	$V_{GS(th)}$	$I_D = 10\text{ mA}$, $V_{DS} = V_{GS}$, $T_{vj} = 25\text{ °C}$, (tested after 1ms pulse at $V_{GS} = +20\text{ V}$)	3.45	4.3	5.15	V	
Total gate charge	Q_G	$V_{DD} = 800\text{ V}$, $V_{GS} = -3/18\text{ V}$		0.074		μC	
Internal gate resistor	R_{Gint}	$T_{vj} = 25\text{ °C}$		8.2		Ω	
Input capacitance	C_{ISS}	$f = 100\text{ kHz}$, $V_{DS} = 800\text{ V}$, $V_{GS} = 0\text{ V}$		2.2		nF	
Output capacitance	C_{OSS}	$f = 100\text{ kHz}$, $V_{DS} = 800\text{ V}$, $V_{GS} = 0\text{ V}$		0.105		nF	
Reverse transfer capacitance	C_{rss}	$f = 100\text{ kHz}$, $V_{DS} = 800\text{ V}$, $V_{GS} = 0\text{ V}$		0.007		nF	
C_{OSS} stored energy	E_{OSS}	$V_{DS} = 800\text{ V}$, $V_{GS} = -3/18\text{ V}$, $T_{vj} = 25\text{ °C}$		43		μJ	
Drain-source leakage current	I_{DSS}	$V_{DS} = 1200\text{ V}$, $V_{GS} = -3\text{ V}$		0.015	120	μA	
Gate-source leakage current	I_{GSS}	$V_{DS} = 0\text{ V}$, $T_{vj} = 25\text{ °C}$			400	nA	
Turn-on delay time (inductive load)	$t_{d\ on}$	$I_D = 25\text{ A}$, $R_{Gon} = 5.6\text{ Ω}$, $V_{DD} = 600\text{ V}$, $V_{GS} = -3/18\text{ V}$	$T_{vj} = 25\text{ °C}$		32		ns
			$T_{vj} = 125\text{ °C}$		32		
			$T_{vj} = 175\text{ °C}$		32		

(table continues...)

Table 5 (continued) Characteristic values

Parameter	Symbol	Note or test condition	Values			Unit
			Min.	Typ.	Max.	
Rise time (inductive load)	t_r	$I_D = 25\text{ A}$, $R_{Gon} = 5.6\ \Omega$, $V_{DD} = 600\text{ V}$, $V_{GS} = -3/18\text{ V}$	$T_{vj} = 25\text{ }^\circ\text{C}$		26	ns
			$T_{vj} = 125\text{ }^\circ\text{C}$		26	
			$T_{vj} = 175\text{ }^\circ\text{C}$		26	
Turn-off delay time (inductive load)	$t_{d\ off}$	$I_D = 25\text{ A}$, $R_{Goff} = 1.5\ \Omega$, $V_{DD} = 600\text{ V}$, $V_{GS} = -3/18\text{ V}$	$T_{vj} = 25\text{ }^\circ\text{C}$		48	ns
			$T_{vj} = 125\text{ }^\circ\text{C}$		53	
			$T_{vj} = 175\text{ }^\circ\text{C}$		55	
Fall time (inductive load)	t_f	$I_D = 25\text{ A}$, $R_{Goff} = 1.5\ \Omega$, $V_{DD} = 600\text{ V}$, $V_{GS} = -3/18\text{ V}$	$T_{vj} = 25\text{ }^\circ\text{C}$		11	ns
			$T_{vj} = 125\text{ }^\circ\text{C}$		11	
			$T_{vj} = 175\text{ }^\circ\text{C}$		11	
Turn-on energy loss per pulse	E_{on}	$I_D = 25\text{ A}$, $V_{DD} = 600\text{ V}$, $L_\sigma = 35\text{ nH}$, $V_{GS} = -3/18\text{ V}$, $R_{Gon} = 5.6\ \Omega$, $di/dt = 2.3\text{ kA}/\mu\text{s}$ ($T_{vj} = 175\text{ }^\circ\text{C}$)	$T_{vj} = 25\text{ }^\circ\text{C}$		0.297	mJ
			$T_{vj} = 125\text{ }^\circ\text{C}$		0.297	
			$T_{vj} = 175\text{ }^\circ\text{C}$		0.297	
Turn-off energy loss per pulse	E_{off}	$I_D = 25\text{ A}$, $V_{DD} = 600\text{ V}$, $L_\sigma = 35\text{ nH}$, $V_{GS} = -3/18\text{ V}$, $R_{Goff} = 1.5\ \Omega$, $dv/dt = 43.6\text{ kV}/\mu\text{s}$ ($T_{vj} = 175\text{ }^\circ\text{C}$)	$T_{vj} = 25\text{ }^\circ\text{C}$		0.057	mJ
			$T_{vj} = 125\text{ }^\circ\text{C}$		0.057	
			$T_{vj} = 175\text{ }^\circ\text{C}$		0.057	
Thermal resistance, junction to heat sink	R_{thJH}	per MOSFET		1.85		K/W
Temperature under switching conditions	$T_{vj\ op}$		-40		175	$^\circ\text{C}$

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 AN2021-13 must be considered to ensure sound operation of the device over the planned lifetime.

$T_{vj,op} > 150\text{ }^\circ\text{C}$ is allowed for operation at overload conditions for MOSFET and body diode. For detailed specifications, please refer to AN 2021-13.

3 Body diode

Table 6 Maximum rated values

Parameter	Symbol	Note or test condition	Values	Unit
DC body diode forward current	I_{SD}	$T_{vj} = 175\text{ }^\circ\text{C}$, $V_{GS} = -3\text{ V}$ $T_H = 70\text{ }^\circ\text{C}$	13	A

Table 7 Characteristic values

Parameter	Symbol	Note or test condition	Values			Unit	
			Min.	Typ.	Max.		
Forward voltage	V_{SD}	$I_{SD} = 25 \text{ A}, V_{GS} = -3 \text{ V}$	$T_{vj} = 25 \text{ °C}$		4.2	5.35	V
			$T_{vj} = 125 \text{ °C}$		3.9		
			$T_{vj} = 175 \text{ °C}$		3.8		

4 Diode, Boost

Table 8 Maximum rated values

Parameter	Symbol	Note or test condition	Values	Unit	
Repetitive peak reverse voltage	V_{RRM}	$T_{vj} = 25 \text{ °C}$	1200	V	
Implemented forward current	I_{FN}		20	A	
Continuous DC forward current	I_F		25	A	
Repetitive peak forward current	I_{FRM}	$t_p = 1 \text{ ms}$	40	A	
I^2t - value	I^2t	$t_p = 10 \text{ ms}, V_R = 0 \text{ V}$	$T_{vj} = 25 \text{ °C}$	193	A^2s
			$T_{vj} = 125 \text{ °C}$	169	
			$T_{vj} = 150 \text{ °C}$	165	

Table 9 Characteristic values

Parameter	Symbol	Note or test condition	Values			Unit	
			Min.	Typ.	Max.		
Forward voltage	V_F	$I_F = 25 \text{ A}, V_{GE} = 0 \text{ V}$	$T_{vj} = 25 \text{ °C}$		1.55	2.05	V
			$T_{vj} = 125 \text{ °C}$		1.95		
			$T_{vj} = 150 \text{ °C}$		2.10		
Peak reverse recovery current	I_{RM}	$V_{CC} = 600 \text{ V}, I_F = 25 \text{ A}, -di_F/dt = 2300 \text{ A}/\mu\text{s} (T_{vj} = 150 \text{ °C})$	$T_{vj} = 25 \text{ °C}$		21		A
			$T_{vj} = 125 \text{ °C}$		21		
			$T_{vj} = 150 \text{ °C}$		21		
Recovered charge	Q_r	$V_{CC} = 600 \text{ V}, I_F = 25 \text{ A}, -di_F/dt = 2300 \text{ A}/\mu\text{s} (T_{vj} = 150 \text{ °C})$	$T_{vj} = 25 \text{ °C}$		0.21		μC
			$T_{vj} = 125 \text{ °C}$		0.21		
			$T_{vj} = 150 \text{ °C}$		0.21		
Reverse recovery energy	E_{rec}	$V_{CC} = 600 \text{ V}, I_F = 25 \text{ A}, -di_F/dt = 2300 \text{ A}/\mu\text{s} (T_{vj} = 150 \text{ °C})$	$T_{vj} = 25 \text{ °C}$		0.03		mJ
			$T_{vj} = 125 \text{ °C}$		0.03		
			$T_{vj} = 150 \text{ °C}$		0.03		

(table continues...)

Table 9 (continued) Characteristic values

Parameter	Symbol	Note or test condition	Values			Unit
			Min.	Typ.	Max.	
Thermal resistance, junction to heat sink	R_{thJH}	per diode		1.75		K/W
Temperature under switching conditions	$T_{vj,op}$		-40		150	°C

5 Bypass-diode A

Table 10 Maximum rated values

Parameter	Symbol	Note or test condition	Values	Unit	
Repetitive peak reverse voltage	V_{RRM}	$T_{vj} = 25\text{ °C}$	1200	V	
Maximum RMS forward current per chip	I_{FRMSM}	$T_H = 50\text{ °C}$	50	A	
Maximum RMS current at rectifier output	I_{RMSM}	$T_H = 50\text{ °C}$	50	A	
Surge forward current	I_{FSM}	$t_p = 10\text{ ms}$	$T_{vj} = 25\text{ °C}$	450	A
			$T_{vj} = 150\text{ °C}$	360	
I^2t - value	I^2t	$t_p = 10\text{ ms}$	$T_{vj} = 25\text{ °C}$	1010	A ² s
			$T_{vj} = 150\text{ °C}$	648	

Table 11 Characteristic values

Parameter	Symbol	Note or test condition	Values			Unit
			Min.	Typ.	Max.	
Forward voltage	V_F	$I_F = 25\text{ A}$, $T_{vj} = 150\text{ °C}$		0.90		V
Reverse current	I_r	$T_{vj} = 150\text{ °C}$, $V_R = 1200\text{ V}$		0.1		mA
Thermal resistance, junction to heat sink	R_{thJH}	per diode		1.38		K/W
Temperature under switching conditions	$T_{vj,op}$		-40		150	°C

6 Bypass-diode B

Table 12 Maximum rated values

Parameter	Symbol	Note or test condition	Values	Unit
Repetitive peak reverse voltage	V_{RRM}	$T_{vj} = 25\text{ °C}$	1200	V

(table continues...)

Table 12 (continued) Maximum rated values

Parameter	Symbol	Note or test condition	Values	Unit	
Maximum RMS forward current per chip	I_{FRMSM}	$T_H = 100\text{ °C}$	25	A	
Maximum RMS current at rectifier output	I_{RMSM}	$T_H = 100\text{ °C}$	25	A	
Surge forward current	I_{FSM}	$t_p = 10\text{ ms}$	$T_{vj} = 25\text{ °C}$	450	A
			$T_{vj} = 150\text{ °C}$	360	
I^2t - value	I^2t	$t_p = 10\text{ ms}$	$T_{vj} = 25\text{ °C}$	1010	A ² s
			$T_{vj} = 150\text{ °C}$	648	

Table 13 Characteristic values

Parameter	Symbol	Note or test condition	Values			Unit
			Min.	Typ.	Max.	
Forward voltage	V_F	$I_F = 25\text{ A}$, $T_{vj} = 150\text{ °C}$		0.90		V
Reverse current	I_r	$T_{vj} = 150\text{ °C}$, $V_R = 1200\text{ V}$		0.1		mA
Thermal resistance, junction to heat sink	R_{thJH}	per diode		1.38		K/W
Temperature under switching conditions	$T_{vj, op}$		-40		150	°C

7 Inverse-polarity protection diode A

Table 14 Maximum rated values

Parameter	Symbol	Note or test condition	Values	Unit	
Repetitive peak reverse voltage	V_{RRM}	$T_{vj} = 25\text{ °C}$	1200	V	
Maximum RMS forward current per chip	I_{FRMSM}	$T_H = 50\text{ °C}$	50	A	
Maximum RMS current at rectifier output	I_{RMSM}	$T_H = 50\text{ °C}$	50	A	
Surge forward current	I_{FSM}	$t_p = 10\text{ ms}$	$T_{vj} = 25\text{ °C}$	450	A
			$T_{vj} = 150\text{ °C}$	360	
I^2t - value	I^2t	$t_p = 10\text{ ms}$	$T_{vj} = 25\text{ °C}$	1010	A ² s
			$T_{vj} = 150\text{ °C}$	648	

Table 15 Characteristic values

Parameter	Symbol	Note or test condition		Values			Unit
				Min.	Typ.	Max.	
Forward voltage	V_F	$I_F = 50 \text{ A}$	$T_{vj} = 150 \text{ °C}$		1.10		V
Reverse current	I_r	$T_{vj} = 150 \text{ °C}, V_R = 1200 \text{ V}$			0.1		mA
Thermal resistance, junction to heat sink	R_{thJH}	per diode			1.38		K/W
Temperature under switching conditions	$T_{vj, op}$			-40		150	°C

8 Inverse-polarity protection diode B

Table 16 Maximum rated values

Parameter	Symbol	Note or test condition		Values	Unit
Repetitive peak reverse voltage	V_{RRM}		$T_{vj} = 25 \text{ °C}$	1200	V
Maximum RMS forward current per chip	I_{FRMSM}	$T_H = 100 \text{ °C}$		25	A
Maximum RMS current at rectifier output	I_{RMSM}	$T_H = 100 \text{ °C}$		25	A
Surge forward current	I_{FSM}	$t_p = 10 \text{ ms}$	$T_{vj} = 25 \text{ °C}$	450	A
			$T_{vj} = 150 \text{ °C}$	360	
I^2t - value	I^2t	$t_p = 10 \text{ ms}$	$T_{vj} = 25 \text{ °C}$	1010	A ² s
			$T_{vj} = 150 \text{ °C}$	648	

Table 17 Characteristic values

Parameter	Symbol	Note or test condition		Values			Unit
				Min.	Typ.	Max.	
Forward voltage	V_F	$I_F = 25 \text{ A}$	$T_{vj} = 150 \text{ °C}$		0.90		V
Reverse current	I_r	$T_{vj} = 150 \text{ °C}, V_R = 1200 \text{ V}$			0.1		mA
Thermal resistance, junction to heat sink	R_{thJH}	per diode			1.38		K/W
Temperature under switching conditions	$T_{vj, op}$			-40		150	°C

9 NTC-Thermistor

Table 18 Characteristic values

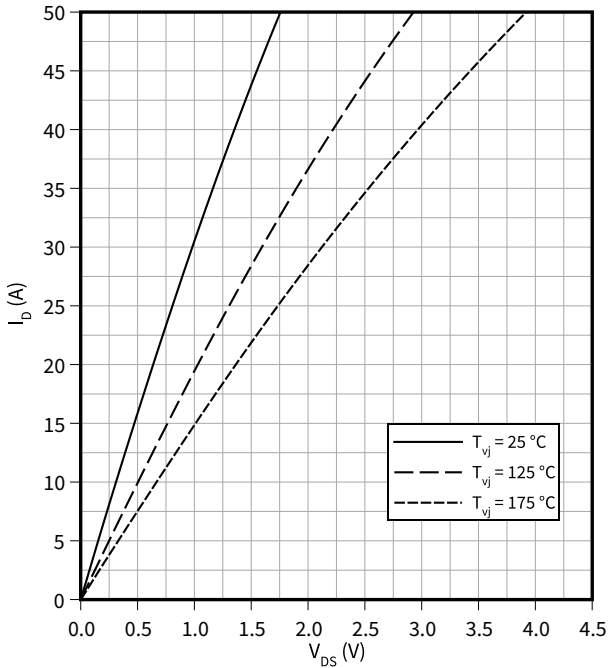
Parameter	Symbol	Note or test condition	Values			Unit
			Min.	Typ.	Max.	
Rated resistance	R_{25}	$T_{NTC} = 25\text{ °C}$		5		kΩ
Deviation of R_{100}	$\Delta R/R$	$T_{NTC} = 100\text{ °C}, R_{100} = 493\ \Omega$	-5		5	%
Power dissipation	P_{25}	$T_{NTC} = 25\text{ °C}$			20	mW
B-value	$B_{25/50}$	$R_2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

10 Characteristics diagrams

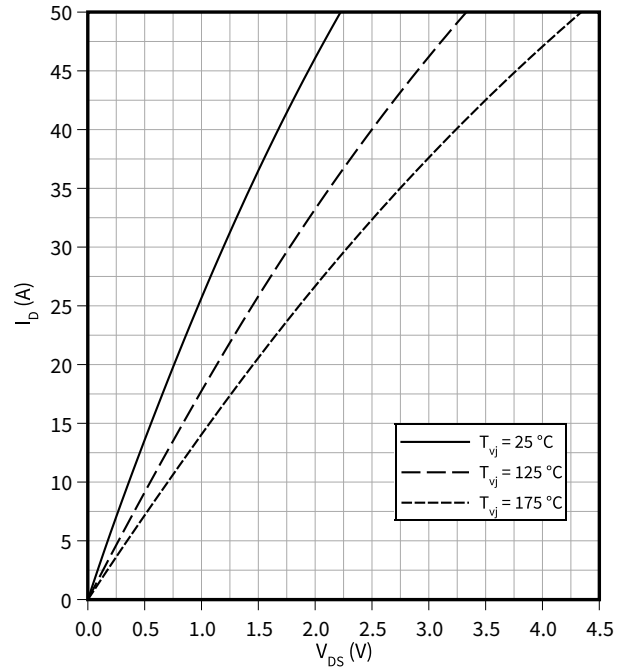
Output characteristic (typical), MOSFET

$I_D = f(V_{DS})$
 $V_{GS} = 18\text{ V}$



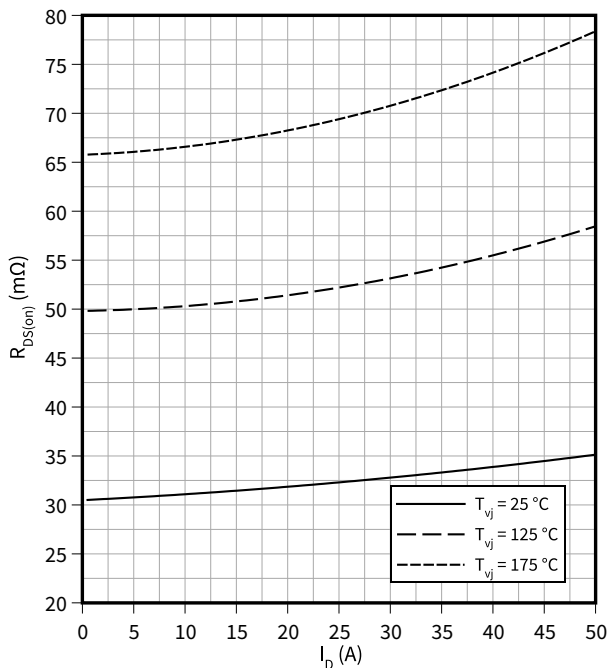
Output characteristic (typical), MOSFET

$I_D = f(V_{DS})$
 $V_{GS} = 15\text{ V}$



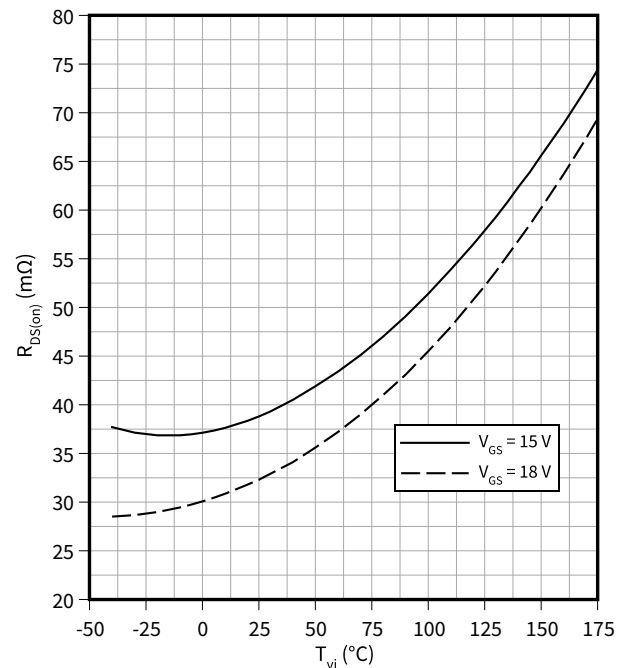
Drain source on-resistance (typical), MOSFET

$R_{DS(on)} = f(I_D)$
 $V_{GS} = 18\text{ V}$



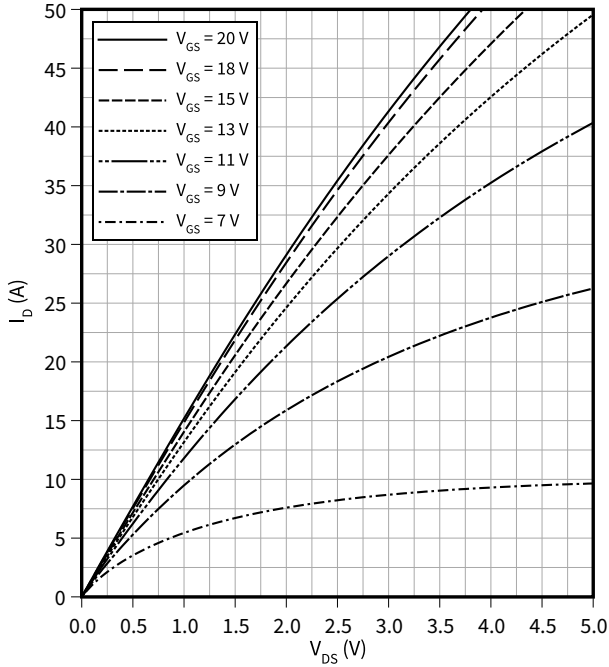
Drain source on-resistance (typical), MOSFET

$R_{DS(on)} = f(T_{vj})$
 $I_D = 25\text{ A}$



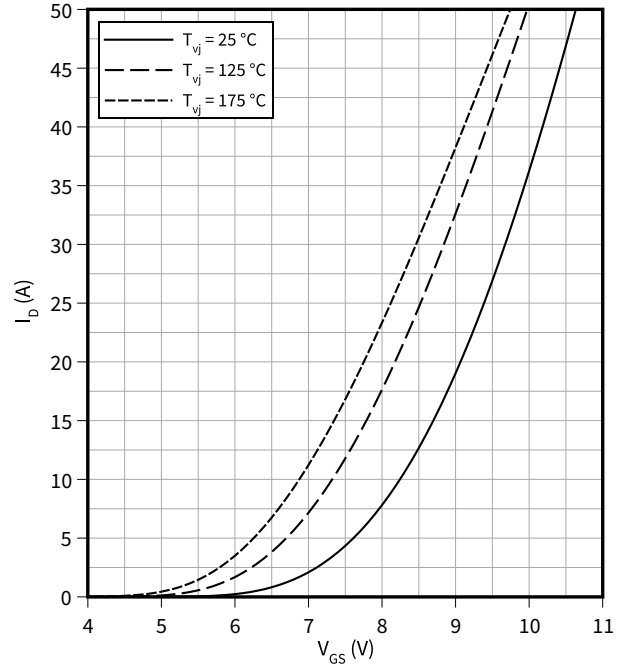
Output characteristic field (typical), MOSFET

$I_D = f(V_{DS})$
 $T_{vj} = 175\text{ °C}$



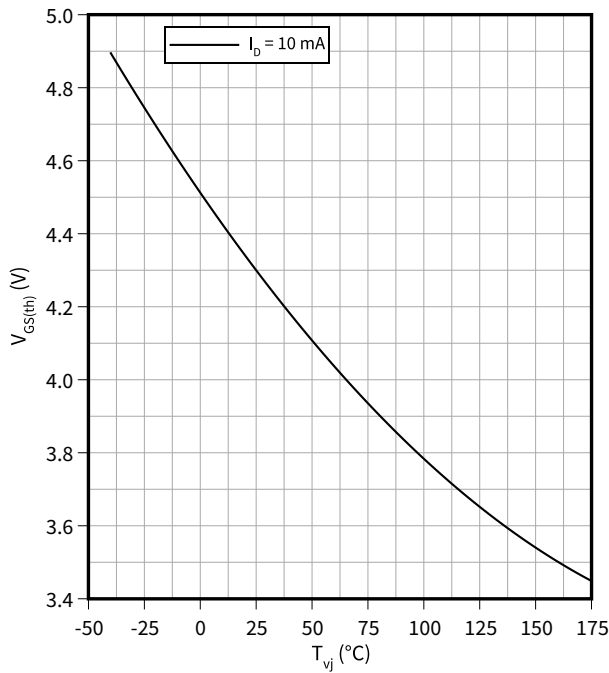
Transfer characteristic (typical), MOSFET

$I_D = f(V_{GS})$
 $V_{DS} = 20\text{ V}$



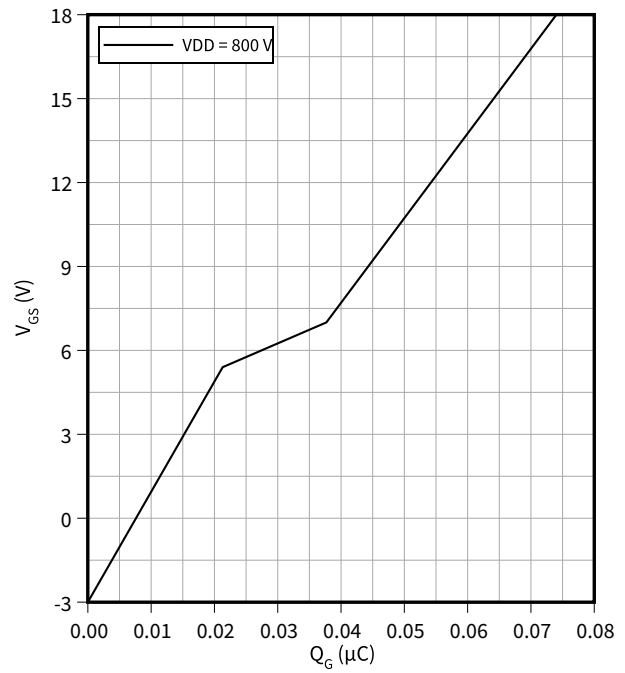
Gate-source threshold voltage (typical), MOSFET

$V_{GS(th)} = f(T_{vj})$
 $I_D = 10\text{ mA}$, $V_{GS} = V_{DS}$



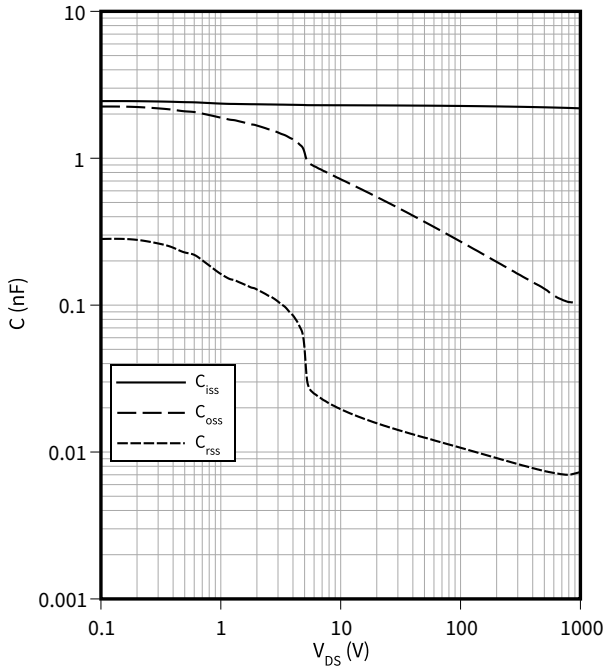
Gate charge characteristic (typical), MOSFET

$V_{GS} = f(Q_G)$
 $I_D = 25\text{ A}$, $T_{vj} = 25\text{ °C}$



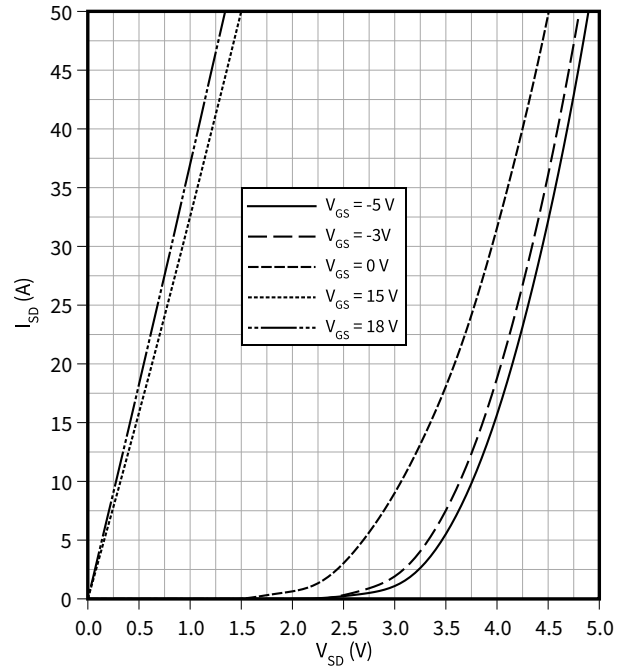
Capacity characteristic (typical), MOSFET

$C = f(V_{DS})$
 $f = 100 \text{ kHz}, T_{vj} = 25 \text{ }^\circ\text{C}, V_{GS} = 0 \text{ V}$



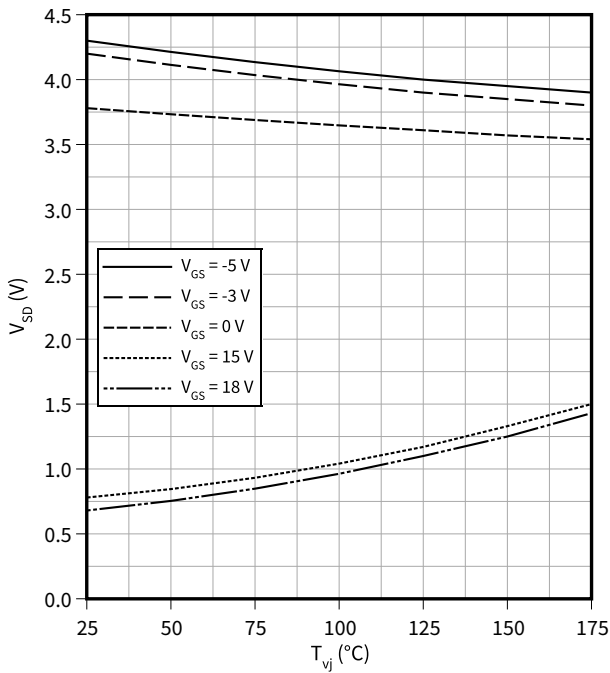
Forward characteristic body diode (typical), MOSFET

$I_{SD} = f(V_{SD})$
 $T_{vj} = 25 \text{ }^\circ\text{C}$



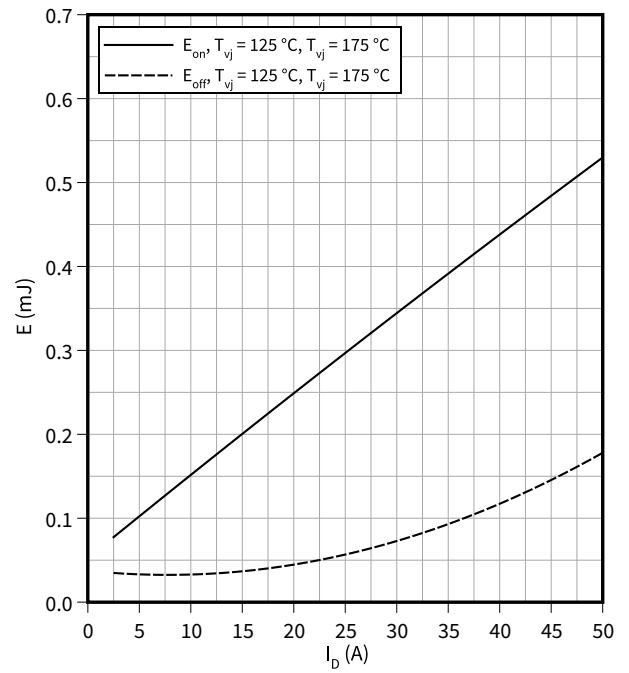
Forward voltage of body diode (typical), MOSFET

$V_{SD} = f(T_{vj})$
 $I_{SD} = 25 \text{ A}$



Switching losses (typical), MOSFET

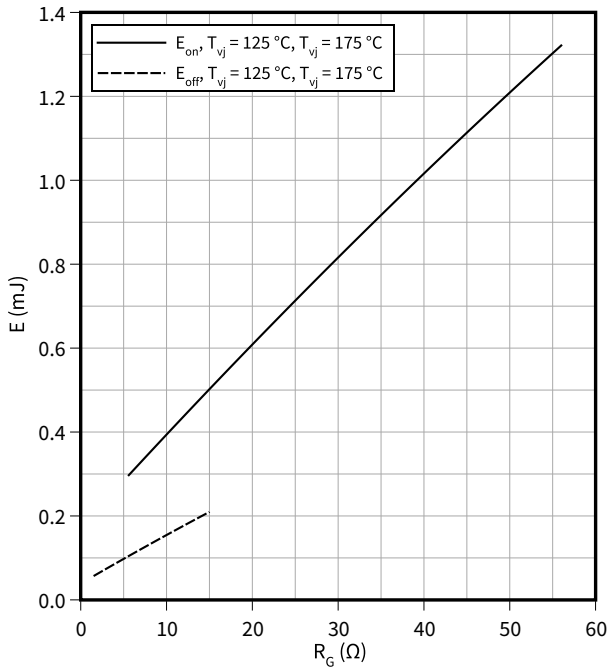
$E = f(I_D)$
 $R_{Goff} = 1.5 \text{ } \Omega, R_{Gon} = 5.6 \text{ } \Omega, V_{DD} = 600 \text{ V}, V_{GS} = -3/18 \text{ V}$



Switching losses (typical), MOSFET

$E = f(R_G)$

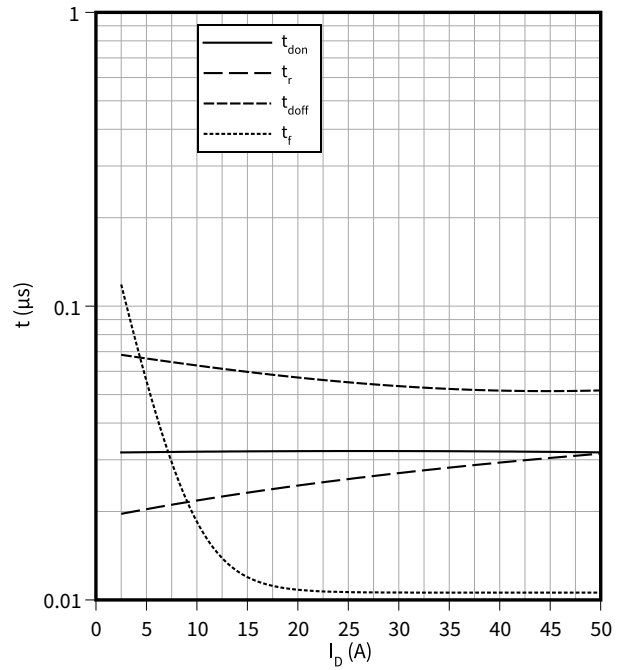
$V_{DD} = 600\text{ V}, I_D = 25\text{ A}, V_{GS} = -3/18\text{ V}$



Switching times (typical), MOSFET

$t = f(I_D)$

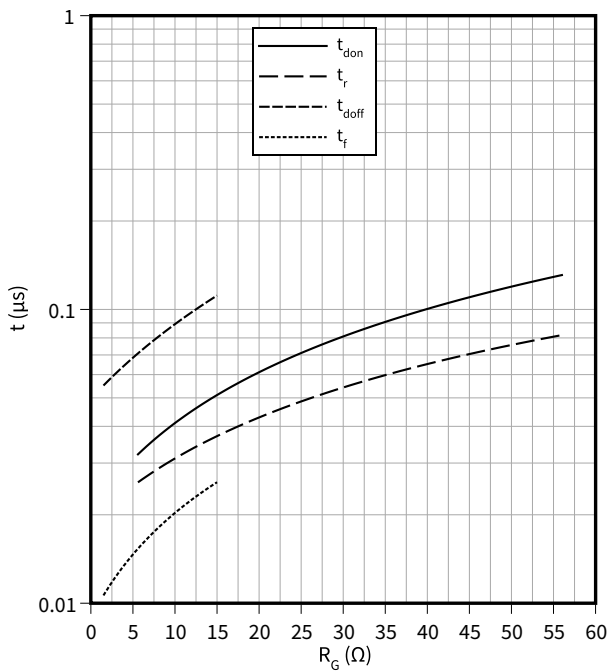
$R_{Goff} = 1.5\ \Omega, R_{Gon} = 5.6\ \Omega, V_{DD} = 600\text{ V}, T_{vj} = 175\text{ °C}, V_{GS} = -3/18\text{ V}$



Switching times (typical), MOSFET

$t = f(R_G)$

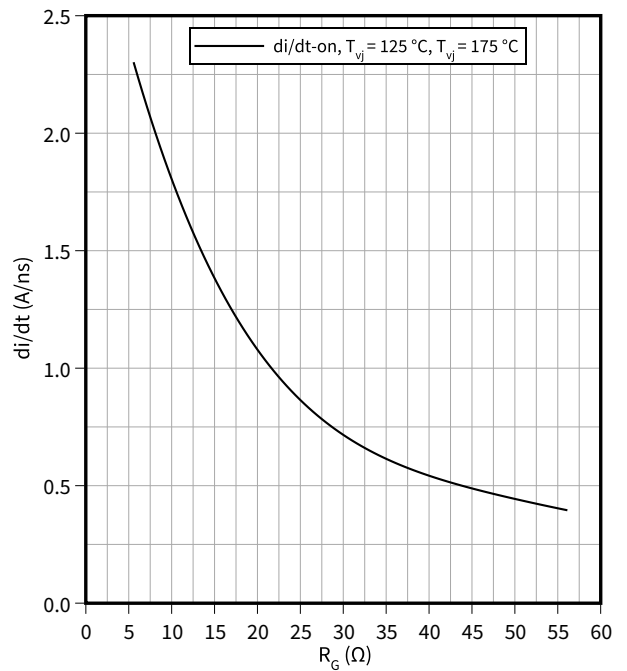
$V_{DD} = 600\text{ V}, I_D = 25\text{ A}, T_{vj} = 175\text{ °C}, V_{GS} = -3/18\text{ V}$



Current slope (typical), MOSFET

$di/dt = f(R_G)$

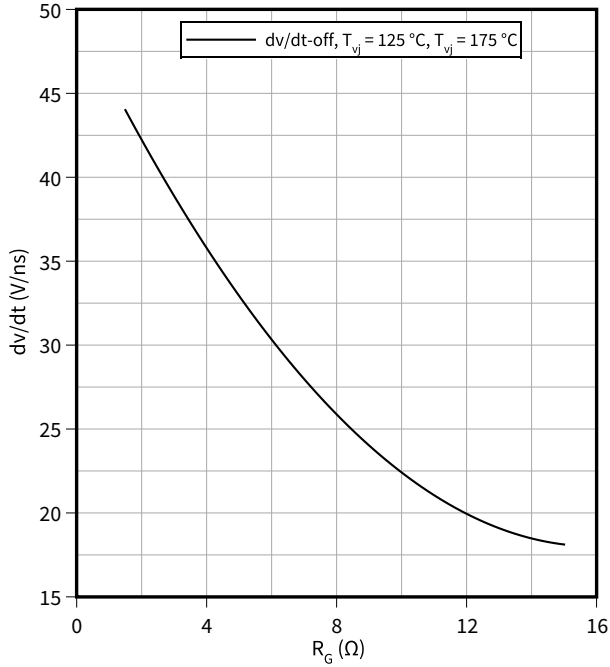
$V_{DD} = 600\text{ V}, I_D = 25\text{ A}, V_{GS} = -3/18\text{ V}$



Voltage slope (typical), MOSFET

$dv/dt = f(R_G)$

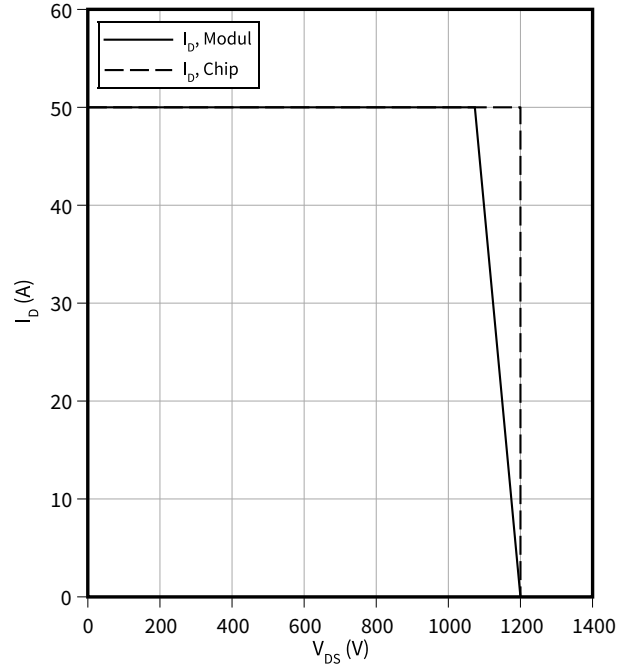
$V_{DD} = 600\text{ V}, I_D = 25\text{ A}, V_{GS} = -3/18\text{ V}$



Reverse bias safe operating area (RBSOA), MOSFET

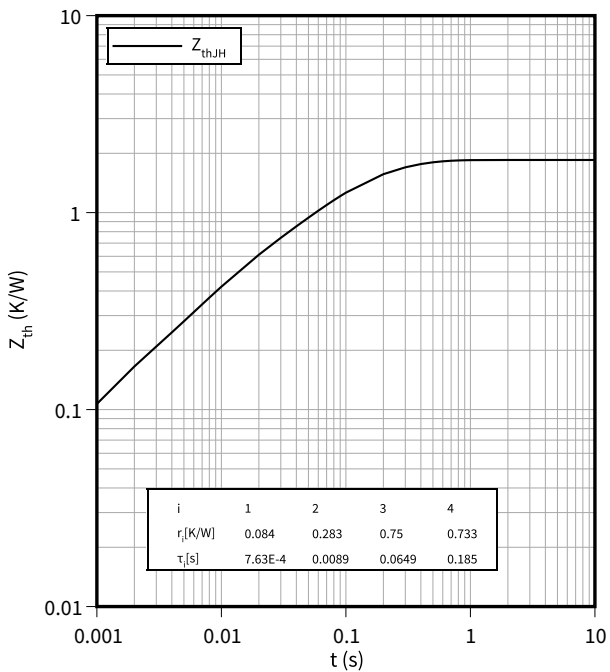
$I_D = f(V_{DS})$

$R_{Goff} = 1.5\ \Omega, T_{vj} = 175\ ^\circ\text{C}, V_{GS} = -3/18\text{ V}$



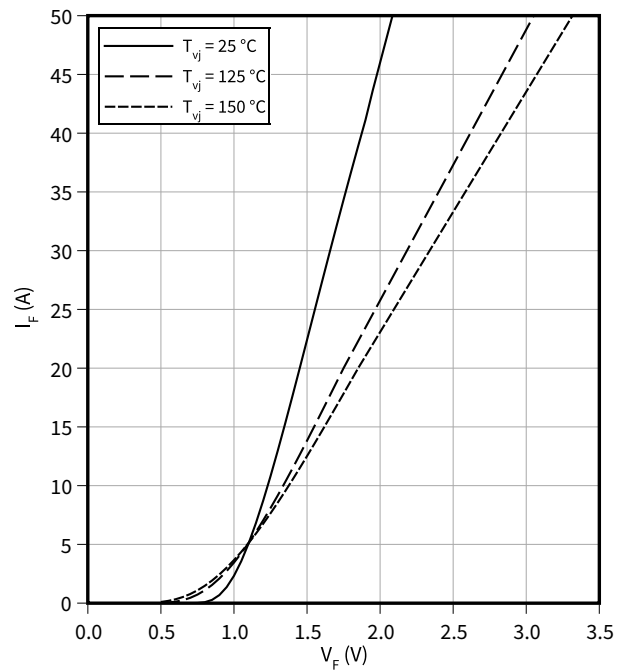
Transient thermal impedance, MOSFET

$Z_{th} = f(t)$



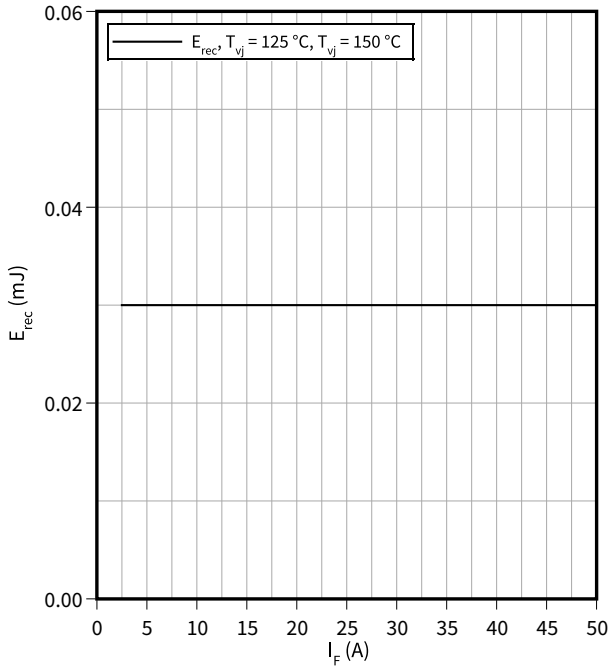
Forward characteristic (typical), Diode, Boost

$I_F = f(V_F)$



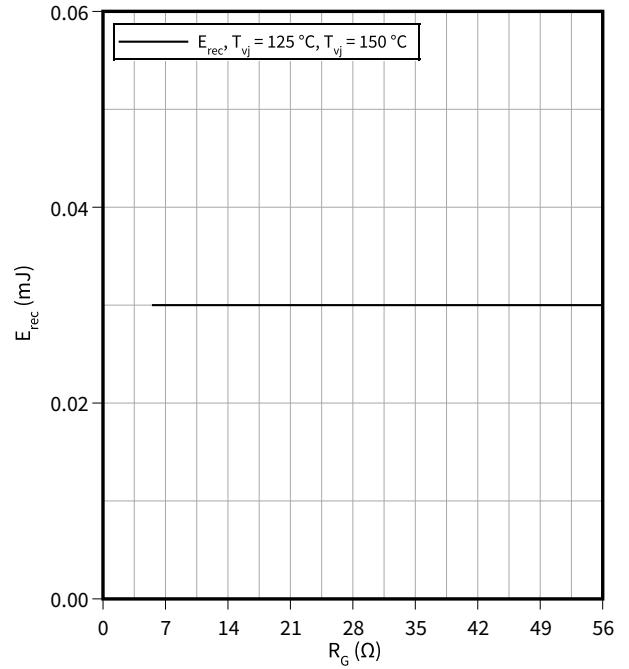
Switching losses (typical), Diode, Boost

$E_{rec} = f(I_F)$
 $R_{Gon} = 5.6, V_{CC} = 600 V$



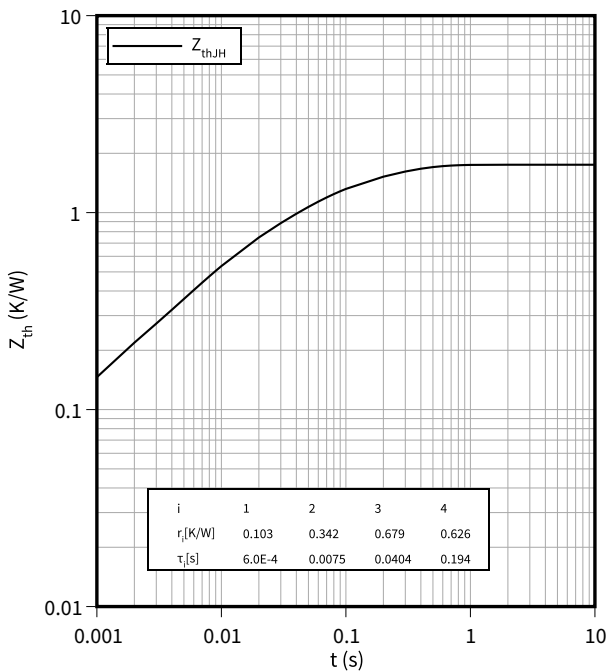
Switching losses (typical), Diode, Boost

$E_{rec} = f(R_G)$
 $I_F = 25 A, V_{CC} = 600 V$



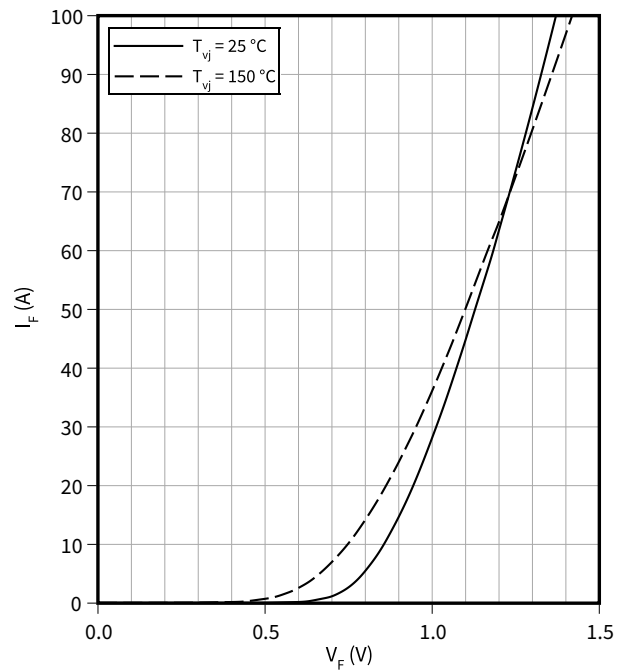
Transient thermal impedance, Diode, Boost

$Z_{th} = f(t)$



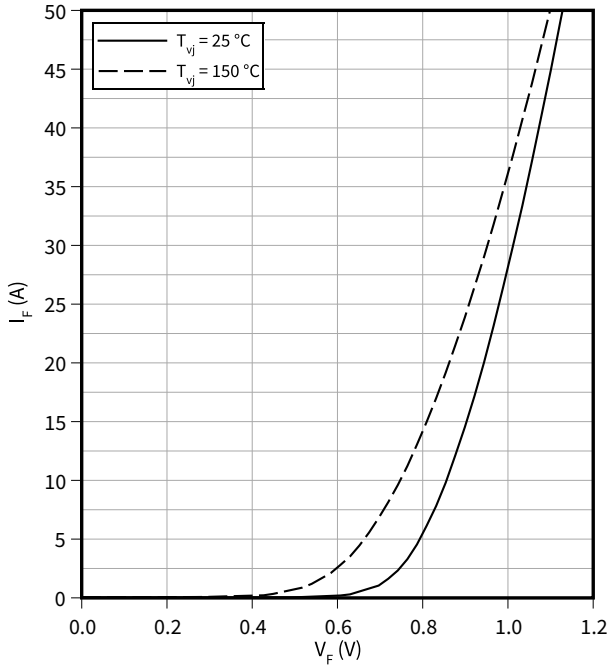
Forward characteristic (typical), Bypass-diode A

$I_F = f(V_F)$



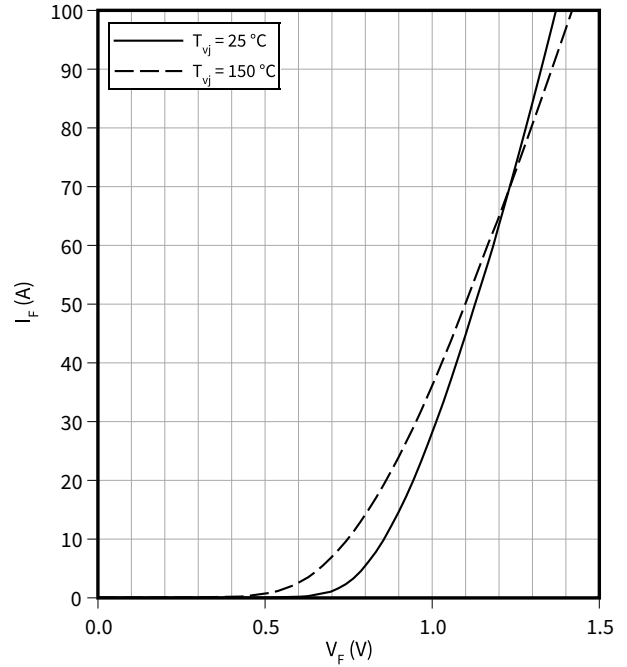
Forward characteristic (typical), Bypass-diode B

$I_F = f(V_F)$



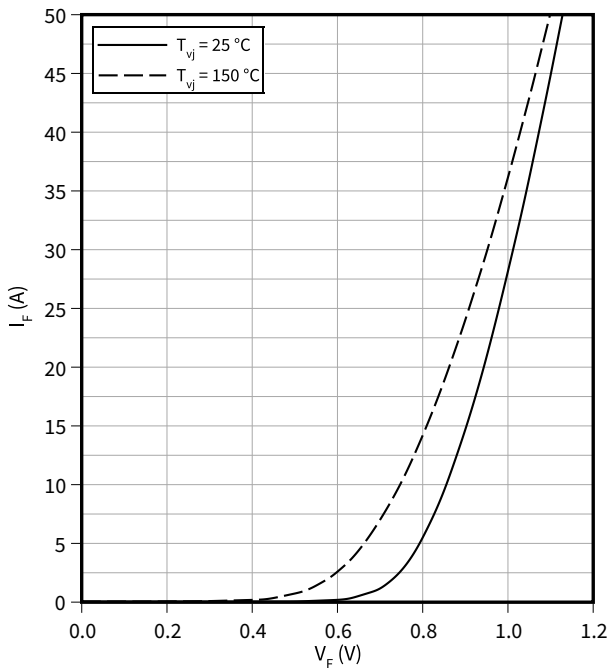
Forward characteristic (typical), Inverse-polarity protection diode A

$I_F = f(V_F)$



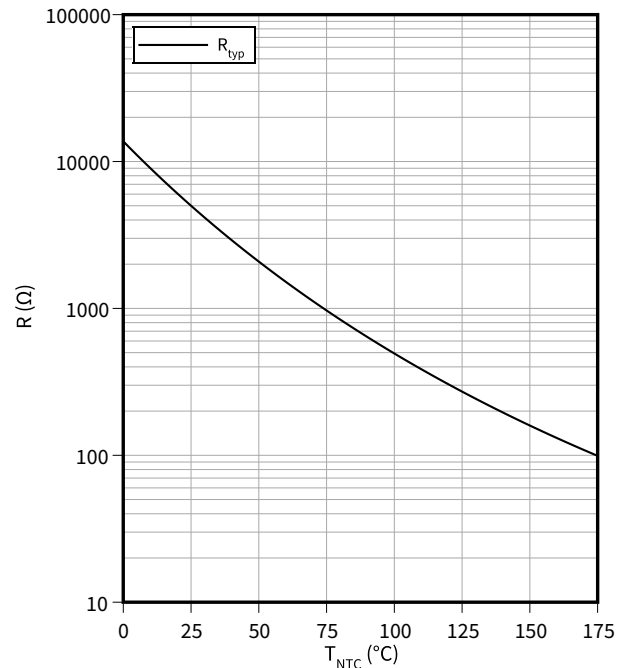
Forward characteristic (typical), Inverse-polarity protection diode B

$I_F = f(V_F)$



Temperature characteristic (typical), NTC-Thermistor

$R = f(T_{NTC})$



11 Circuit diagram

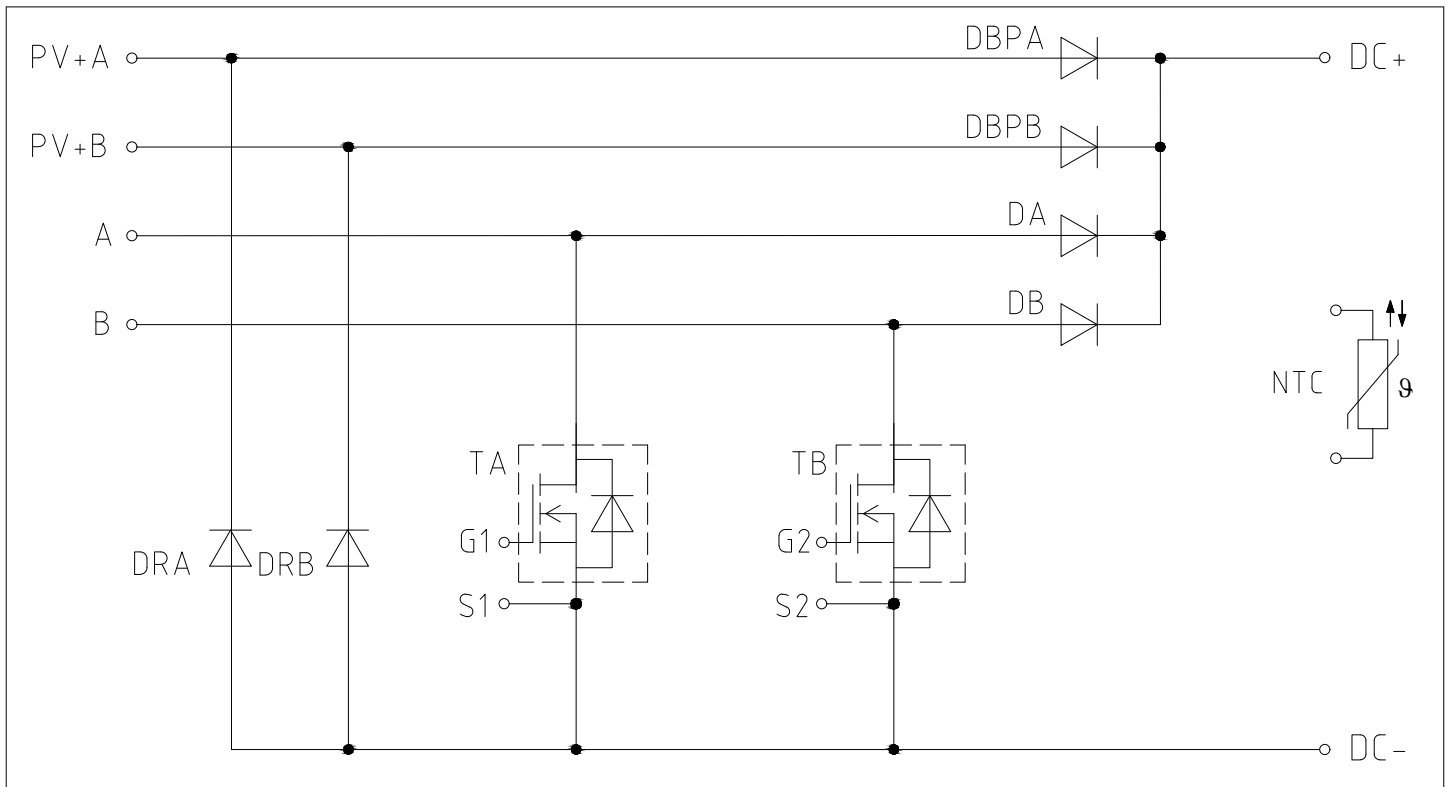
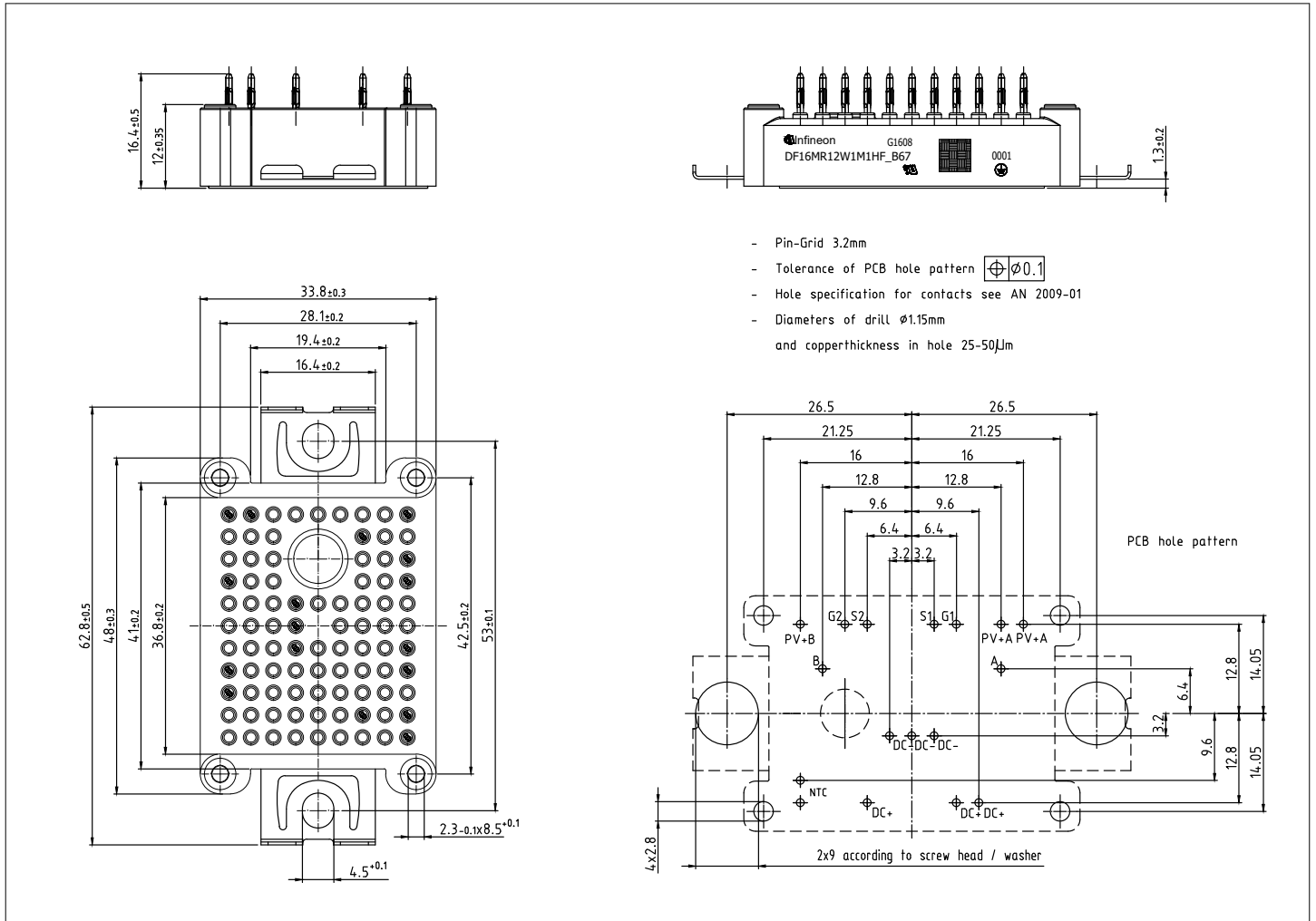


Figure 1

12 Package outlines



- Pin-Grid 3.2mm
- Tolerance of PCB hole pattern $\oplus \ominus \varnothing 0.1$
- Hole specification for contacts see AN 2009-01
- Diameters of drill $\varnothing 1.15$ mm and copper thickness in hole 25-50µm

Figure 2

13 Module label code


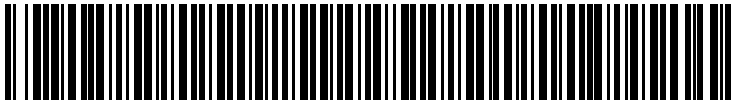
Module label code			
Code format	Data Matrix	Barcode Code128	
Encoding	ASCII text	Code Set A	
Symbol size	16x16	23 digits	
Standard	IEC24720 and IEC16022	IEC8859-1	
Code content	<i>Content</i>	<i>Digit</i>	<i>Example</i>
	Module serial number	1 - 5	71549
	Module material number	6 - 11	142846
	Production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

Figure 3

Revision history

Document version	Date of release	Description of changes
0.10	2022-12-05	Initial version

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[T554](#) [T582](#) [25.332.4353.1](#) [25.350.1653.0](#) [25.352.1453.0](#) [25.352.1653.0](#) [25.352.2453.0](#) [25.352.5453.1](#) [25.522.3353.0](#) [25.640.5053.0](#)
[M252532V](#) [M252555](#) [M2550TB400](#) [M471B5673EH1-CH900](#) [M505012F-YEC](#) [TD330N16AOF](#) [B512-2T-YDA](#) [TT215N22KOF](#)
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[TT425N18KOF](#)