

Final datasheet
CoolSiC™ 1200 V SiC MOSFET G2 : Q-DPAK top-side cooling

Features

- $V_{DS} = 1200\text{ V}$ at $T_{vj} = 25^{\circ}\text{C}$
- $I_{DDC} = 181\text{ A}$ at $T_c = 25^{\circ}\text{C}$
- $R_{DS(on)} = 7.5\text{ m}\Omega$ at $V_{GS} = 18\text{ V}$, $T_{vj} = 25^{\circ}\text{C}$
- Very low switching losses
- Overload operation up to $T_{vj} = 200^{\circ}\text{C}$
- Short circuit withstand time $2\text{ }\mu\text{s}$
- Benchmark gate threshold voltage, $V_{GS(th)} = 4.2\text{ V}$
- Robust against parasitic turn on, 0 V turn-off gate voltage can be applied
- Robust body diode for hard commutation
- .XT interconnection technology for best-in-class thermal performance
- Suitable Infineon gate drivers can be found under <https://www.infineon.com/gdfinder>

Potential applications

- Solid-state circuit breaker / Solid-state relay
- EV Charging
- Online UPS / Industrial UPS
- String inverter
- General purpose drives (GPD)
- CAV
- Servo drives

Product validation

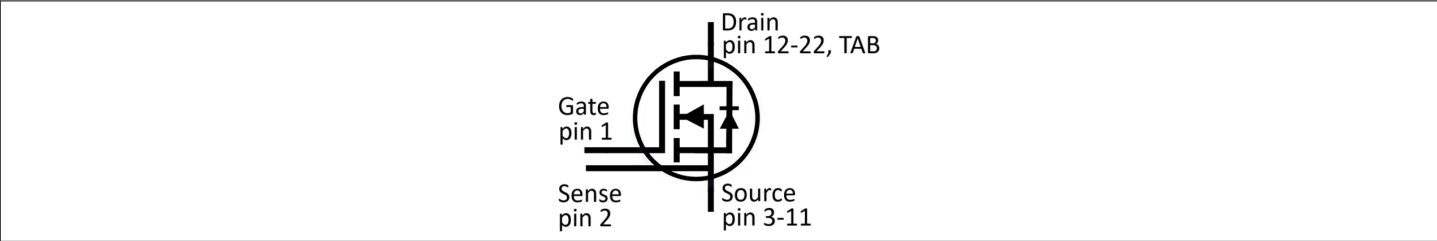
- Qualified for industrial applications according to the relevant tests of JEDEC47/20/22

Description

Pin definition:

- Pin 1 – Gate
- Pin 2 – Kelvin sense contact
- Pin 3-11 – Source
- Pin 12-22, Tab – Drain

Note: the source and sense pins are not exchangeable, their exchange might lead to malfunction



Type	Package	Marking
IMCQ120R007M2H	PG-HDSOP-22-U03	12M2H007



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1 Package

Table 1 Characteristic values

Parameter	Symbol	Note or test condition	Values			Unit
			Min.	Typ.	Max.	
Storage temperature	T_{stg}		-55		150	°C
Soldering temperature	T_{sold}	Reflow soldering (MSL1 according to JEDEC J-STD-020)			260	°C
Thermal resistance, junction-ambient	$R_{th(j-a)}$				62	K/W
MOSFET/body diode thermal resistance, junction-case	$R_{th(j-c)}$			0.1	0.13	K/W
Comparative Tracking Index	CTI	IEC 60112 (material group 1 according to IEC 60664-1)	600			V

2 MOSFET

Table 2 Maximum rated values

Parameter	Symbol	Note or test condition		Values	Unit
Drain-source voltage	V_{DSS}	$T_{vj} \geq 25\text{ °C}$		1200	V
Continuous DC drain current for $R_{th(j-c,max)}$, limited by $T_{vj(max)}$	I_{DDC}	$V_{GS} = 18\text{ V}$	$T_c = 25\text{ °C}$	257	A
			$T_c = 100\text{ °C}$	181	
Peak drain current, t_p limited by $T_{vj(max)}$ ¹⁾	I_{DM}	$V_{GS} = 18\text{ V}$		905	A
Gate-source voltage, max. transient voltage ²⁾	V_{GS}	$t_p \leq 0.5\text{ }\mu\text{s}$, $D < 0.01$		-10...25	V
Gate-source voltage, max. static voltage	V_{GS}			-7...23	V
Avalanche energy, single pulse	E_{AS}	$I_D = 93\text{ A}$, $V_{DD} = 50\text{ V}$, $L = 0.3\text{ mH}$		1163	mJ
Avalanche energy, repetitive	E_{AR}	$I_D = 93\text{ A}$, $V_{DD} = 50\text{ V}$, $L = 1.4\text{ }\mu\text{H}$		5.82	mJ
Short-circuit withstand time	t_{SC}	$V_{DD} \leq 800\text{ V}$, $V_{DS,peak} < 1200\text{ V}$, $V_{GS(on)} = 15\text{ V}$, $T_{vj(start)} = 25\text{ °C}$		2	μs
Power dissipation, limited by $T_{vj(max)}$	P_{tot}		$T_c = 25\text{ °C}$	1172	W
			$T_c = 100\text{ °C}$	586	

1) Verified by the design/characterization.

2) **Important note:** The selection of positive and negative gate-source voltages impacts the long-term behavior of the device. The design guidelines described in Application Note AN2018-09 must be considered to ensure sound operation of the device over the planned lifetime.

Table 3 Recommended values

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

Table 4 Characteristic values

Parameter	Symbol	Note or test condition	Values			Unit
			Min.	Typ.	Max.	
Drain-source on-state resistance	$R_{DS(on)}$	$I_D = 93\text{ A}$		$T_{vj} = 25\text{ °C}, V_{GS(on)} = 18\text{ V}$	7.5	mΩ
				$T_{vj} = 25\text{ °C}, V_{GS(on)} = 15\text{ V}$	9.3	
				$T_{vj} = 150\text{ °C}, V_{GS(on)} = 18\text{ V}$	15.3	
				$T_{vj} = 175\text{ °C}, V_{GS(on)} = 18\text{ V}$	17.7	
Gate-source threshold voltage	$V_{GS(th)}$	$I_D = 29.1\text{ mA}, V_{DS} = V_{GS}$ (tested after 1 ms pulse at $V_{GS} = 20\text{ V}$)	3.5	$T_{vj} = 25\text{ °C}$	4.2	V
				$T_{vj} = 175\text{ °C}$	3.2	
Zero gate-voltage drain current	I_{DSS}	$V_{DS} = 1200\text{ V}, V_{GS} = 0\text{ V}$		$T_{vj} = 25\text{ °C}$	46	μA
				$T_{vj} = 175\text{ °C}$	13.6	
Gate leakage current	I_{GSS}	$V_{DS} = 0\text{ V}$		$V_{GS} = -10\text{ V}$	-120	nA
				$V_{GS} = 23\text{ V}$	120	
Forward transconductance	g_{fs}	$I_D = 93\text{ A}, V_{DS} = 20\text{ V}$		31.1		S
Internal gate resistance	$R_{G,int}$	$f = 1\text{ MHz}, V_{AC} = 25\text{ mV}$		1.8		Ω
Input capacitance	C_{iss}	$V_{DS} = 800\text{ V}, V_{GS} = 0\text{ V}, f = 100\text{ kHz}, V_{AC} = 25\text{ mV}$		8.44		nF
Output capacitance	C_{oss}	$V_{DS} = 800\text{ V}, V_{GS} = 0\text{ V}, f = 100\text{ kHz}, V_{AC} = 25\text{ mV}$		287		pF
Reverse transfer capacitance	C_{rss}	$V_{DS} = 800\text{ V}, V_{GS} = 0\text{ V}, f = 100\text{ kHz}, V_{AC} = 25\text{ mV}$		25		pF
C_{oss} stored energy	E_{oss}	Calculated based on $C_{oss} = f(V_{DD})$		121		μJ
Output charge	Q_{oss}	Calculated based on $C_{oss} = f(V_{DD})$		449		nC
Effective output capacitance, energy related	$C_{o(er)}$	$V_{DS} = 0...800\text{ V}, V_{GS} = 0\text{ V},$ Calculated based on E_{oss}		378		pF
Effective output capacitance, time related	$C_{o(tr)}$	$I_D = \text{constant}, V_{DS} = 0...800\text{ V}, V_{GS} = 0\text{ V},$ Calculated based on Q_{oss}		562		pF
Total gate charge	Q_G	$V_{DD} = 800\text{ V}, I_D = 93\text{ A}, V_{GS} = -2/18\text{ V},$ turn-on pulse		197		nC

(table continues...)

Table 4 (continued) Characteristic values

Parameter	Symbol	Note or test condition	Values			Unit
			Min.	Typ.	Max.	
Plateau gate charge	$Q_{GS(pl)}$	$V_{DD} = 800 \text{ V}$, $I_D = 93 \text{ A}$, $V_{GS} = -2/18 \text{ V}$, turn-on pulse		47		nC
Gate-drain charge	Q_{GD}	$V_{DD} = 800 \text{ V}$, $I_D = 93 \text{ A}$, $V_{GS} = -2/18 \text{ V}$, turn-on pulse		47		nC
Turn-on delay time	$t_{d(on)}$	$V_{DD} = 800 \text{ V}$, $I_D = 93 \text{ A}$, $V_{GS} = 0/18 \text{ V}$, $R_{G,ext} = 2.3 \Omega$, $L_\sigma = 15 \text{ nH}$, diode: body diode at $V_{GS} = 0 \text{ V}$	$T_{vj} = 25 \text{ }^\circ\text{C}$	18.2		ns
			$T_{vj} = 175 \text{ }^\circ\text{C}$	13.9		
Rise time	t_r	$V_{DD} = 800 \text{ V}$, $I_D = 93 \text{ A}$, $V_{GS} = 0/18 \text{ V}$, $R_{G,ext} = 2.3 \Omega$, $L_\sigma = 15 \text{ nH}$, diode: body diode at $V_{GS} = 0 \text{ V}$	$T_{vj} = 25 \text{ }^\circ\text{C}$	12.1		ns
			$T_{vj} = 175 \text{ }^\circ\text{C}$	10.7		
Turn-off delay time	$t_{d(off)}$	$V_{DD} = 800 \text{ V}$, $I_D = 93 \text{ A}$, $V_{GS} = 0/18 \text{ V}$, $R_{G,ext} = 2.3 \Omega$, $L_\sigma = 15 \text{ nH}$, diode: body diode at $V_{GS} = 0 \text{ V}$	$T_{vj} = 25 \text{ }^\circ\text{C}$	36.6		ns
			$T_{vj} = 175 \text{ }^\circ\text{C}$	42.8		
Fall time	t_f	$V_{DD} = 800 \text{ V}$, $I_D = 93 \text{ A}$, $V_{GS} = 0/18 \text{ V}$, $R_{G,ext} = 2.3 \Omega$, $L_\sigma = 15 \text{ nH}$, diode: body diode at $V_{GS} = 0 \text{ V}$	$T_{vj} = 25 \text{ }^\circ\text{C}$	16		ns
			$T_{vj} = 175 \text{ }^\circ\text{C}$	18.9		
Turn-on energy	E_{on}	$V_{DD} = 800 \text{ V}$, $I_D = 93 \text{ A}$, $V_{GS} = 0/18 \text{ V}$, $R_{G,ext} = 2.3 \Omega$, $L_\sigma = 15 \text{ nH}$, diode: body diode at $V_{GS} = 0 \text{ V}$	$T_{vj} = 25 \text{ }^\circ\text{C}$	1113		μJ
			$T_{vj} = 175 \text{ }^\circ\text{C}$	1838		
Turn-off energy	E_{off}	$V_{DD} = 800 \text{ V}$, $I_D = 93 \text{ A}$, $V_{GS} = 0/18 \text{ V}$, $R_{G,ext} = 2.3 \Omega$, $L_\sigma = 15 \text{ nH}$, diode: body diode at $V_{GS} = 0 \text{ V}$	$T_{vj} = 25 \text{ }^\circ\text{C}$	886		μJ
			$T_{vj} = 175 \text{ }^\circ\text{C}$	1073		
Total switching energy ¹⁾	E_{tot}	$V_{DD} = 800 \text{ V}$, $I_D = 93 \text{ A}$, $V_{GS} = 0/18 \text{ V}$, $R_{G,ext} = 2.3 \Omega$, $L_\sigma = 15 \text{ nH}$, diode: body diode at $V_{GS} = 0 \text{ V}$	$T_{vj} = 25 \text{ }^\circ\text{C}$	2353		μJ
			$T_{vj} = 175 \text{ }^\circ\text{C}$	4106		

(table continues...)

Table 4 (continued) Characteristic values

Parameter	Symbol	Note or test condition	Values			Unit
			Min.	Typ.	Max.	
Turn-on energy at -5 V	E_{on}	$V_{DD} = 800 \text{ V}$, $I_D = 93 \text{ A}$, $V_{GS} = -5/18 \text{ V}$, $R_{G,ext} = 2.3 \text{ } \Omega$, $L_\sigma = 15 \text{ nH}$, diode: body diode at $V_{GS} = -5 \text{ V}$	$T_{vj} = 25 \text{ } ^\circ\text{C}$	1113		μJ
			$T_{vj} = 175 \text{ } ^\circ\text{C}$	1870		
Turn-off energy at -5 V	E_{off}	$V_{DD} = 800 \text{ V}$, $I_D = 93 \text{ A}$, $V_{GS} = -5/18 \text{ V}$, $R_{G,ext} = 2.3 \text{ } \Omega$, $L_\sigma = 15 \text{ nH}$, diode: body diode at $V_{GS} = -5 \text{ V}$	$T_{vj} = 25 \text{ } ^\circ\text{C}$	500		μJ
			$T_{vj} = 175 \text{ } ^\circ\text{C}$	547		
Total switching energy at -5 V ¹⁾	E_{tot}	$V_{DD} = 800 \text{ V}$, $I_D = 93 \text{ A}$, $V_{GS} = -5/18 \text{ V}$, $R_{G,ext} = 2.3 \text{ } \Omega$, $L_\sigma = 15 \text{ nH}$, diode: body diode at $V_{GS} = -5 \text{ V}$	$T_{vj} = 25 \text{ } ^\circ\text{C}$	1967		μJ
			$T_{vj} = 175 \text{ } ^\circ\text{C}$	3644		
Virtual junction temperature	T_{vj}		-55		175	$^\circ\text{C}$
Virtual junction temperature	$T_{vj(over)}$	overload, cumulative max. 100 h ²⁾			200	$^\circ\text{C}$

1) Including E_{fr}

2) Up to 5000 cycles. Maximum ΔT limited to 100 K.

Note: The chip technology was characterized up to 200 kV/ μs . The measured dV/dt was limited by measurement test setup and package.

Characteristics at $T_{vj} = 25^\circ\text{C}$, unless otherwise specified.

3 Body diode (MOSFET)

Table 5 Maximum rated values

Parameter	Symbol	Note or test condition		Values	Unit
Drain-source voltage	V_{DSS}	$T_{vj} \geq 25 \text{ } ^\circ\text{C}$		1200	V
Continuous reverse drain current for $R_{th(j-c,max)}$, limited by $T_{vj(max)}$	I_{SDC}	$V_{GS} = 0 \text{ V}$	$T_c = 25 \text{ } ^\circ\text{C}$	204	A
			$T_c = 100 \text{ } ^\circ\text{C}$	115.5	
Peak reverse drain current, t_p limited by $T_{vj(max)}$	I_{SM}	$V_{GS} = 0 \text{ V}$		543	A

Table 6 Characteristic values

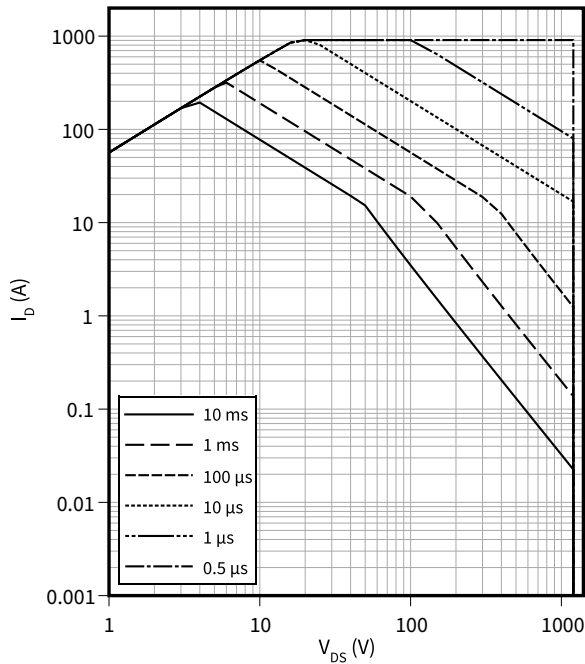
Parameter	Symbol	Note or test condition	Values			Unit
			Min.	Typ.	Max.	
Drain-source reverse voltage	V_{SD}	$I_{SD} = 93 \text{ A}$, $V_{GS} = 0 \text{ V}$	$T_{vj} = 25 \text{ °C}$	4.2	5.5	V
			$T_{vj} = 100 \text{ °C}$	4.1		
			$T_{vj} = 175 \text{ °C}$	4		
MOSFET forward recovery charge	Q_{fr}	$V_{DD} = 800 \text{ V}$, $I_{SD} = 93 \text{ A}$, $V_{GS} = 0 \text{ V}$, $R_{G,ext} = 2.3 \text{ } \Omega$, Q_{fr} includes also Q_C	$T_{vj} = 25 \text{ °C}$	0.75		μC
			$T_{vj} = 175 \text{ °C}$	2		
MOSFET peak forward recovery current	I_{frm}	$V_{DD} = 800 \text{ V}$, $I_{SD} = 93 \text{ A}$, $V_{GS} = 0 \text{ V}$, $R_{G,ext} = 2.3 \text{ } \Omega$, Q_{fr} includes also Q_C	$T_{vj} = 25 \text{ °C}$	83		A
			$T_{vj} = 175 \text{ °C}$	140		
MOSFET forward recovery energy	E_{fr}	$V_{DD} = 800 \text{ V}$, $I_{SD} = 93 \text{ A}$, $V_{GS} = 0 \text{ V}$, $R_{G,ext} = 2.3 \text{ } \Omega$, Q_{fr} includes also Q_C	$T_{vj} = 25 \text{ °C}$	354		μJ
			$T_{vj} = 175 \text{ °C}$	1195		
MOSFET forward recovery energy at -5 V	E_{fr}	$V_{DD} = 800 \text{ V}$, $I_{SD} = 93 \text{ A}$, $V_{GS} = -5 \text{ V}$, $R_{G,ext} = 2.3 \text{ } \Omega$, Q_{fr} includes also Q_C	$T_{vj} = 25 \text{ °C}$	354		μJ
			$T_{vj} = 175 \text{ °C}$	1227		
Virtual junction temperature	T_{vj}		-55		175	$^{\circ}\text{C}$
Virtual junction temperature	$T_{vj(over)}$	overload, cumulative max. 100 h ¹⁾			200	$^{\circ}\text{C}$

1) Up to 5000 cycles. Maximum ΔT limited to 100 K.

4 Characteristics diagrams

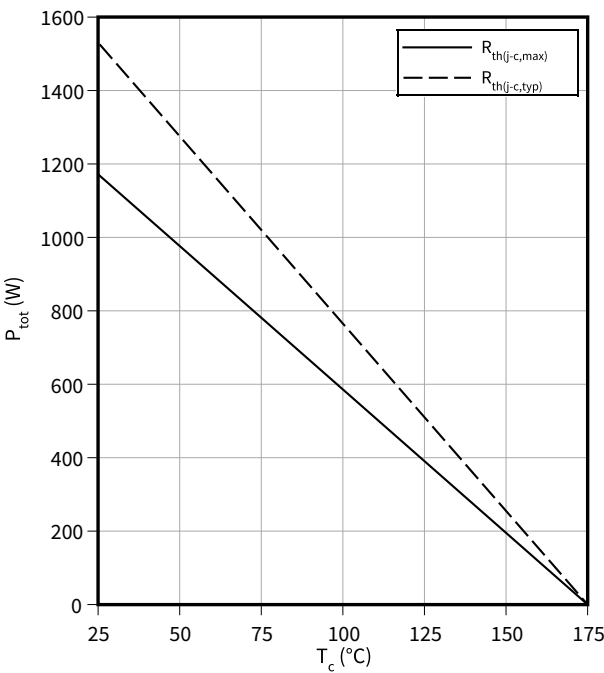
Safe operating area (SOA)

$I_D = f(V_{DS})$
 $T_{vj} \leq 175\text{ °C}, T_c = 25\text{ °C}$



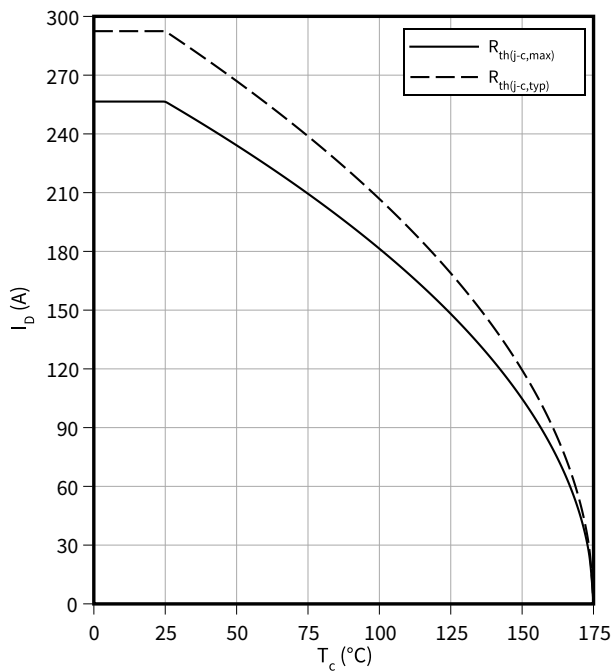
Power dissipation as a function of case temperature

$P_{tot} = f(T_c)$



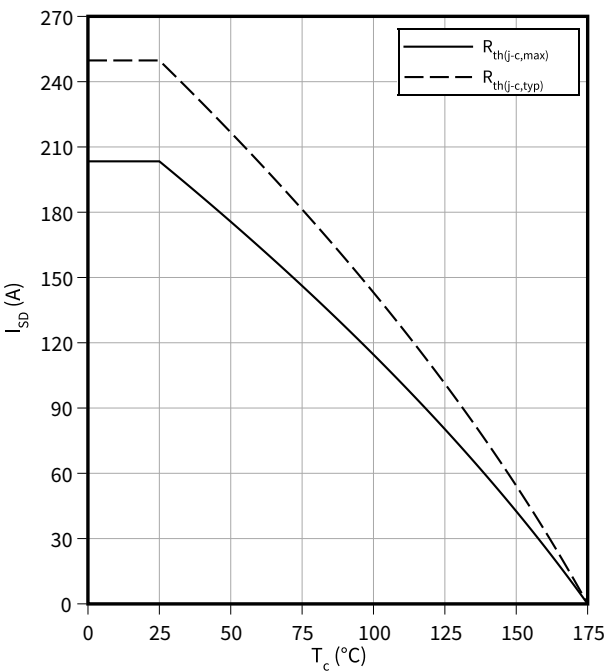
Maximum DC drain to source current as a function of case temperature limited by bond wire

$I_D = f(T_c)$



Maximum source to drain current as a function of case temperature limited by bond wire

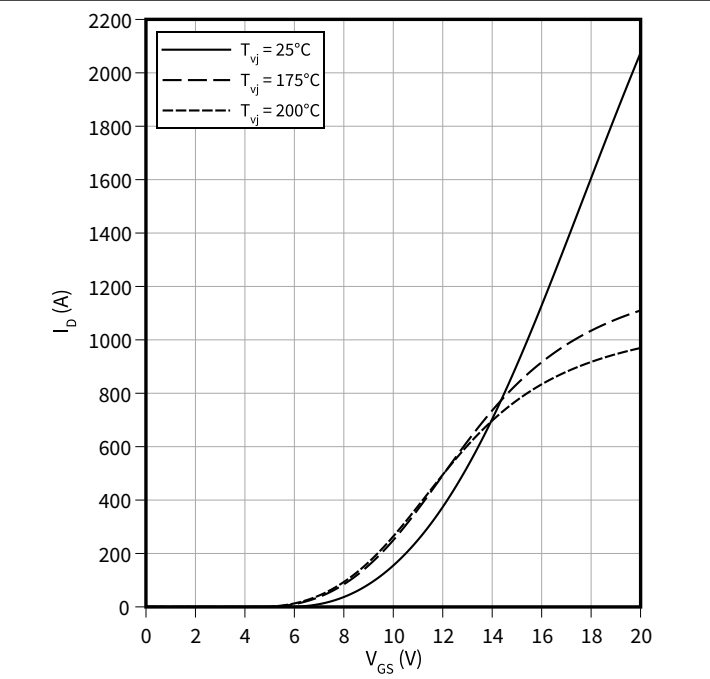
$I_{SD} = f(T_c)$
 $V_{GS} = 0\text{ V}$



4 Characteristics diagrams

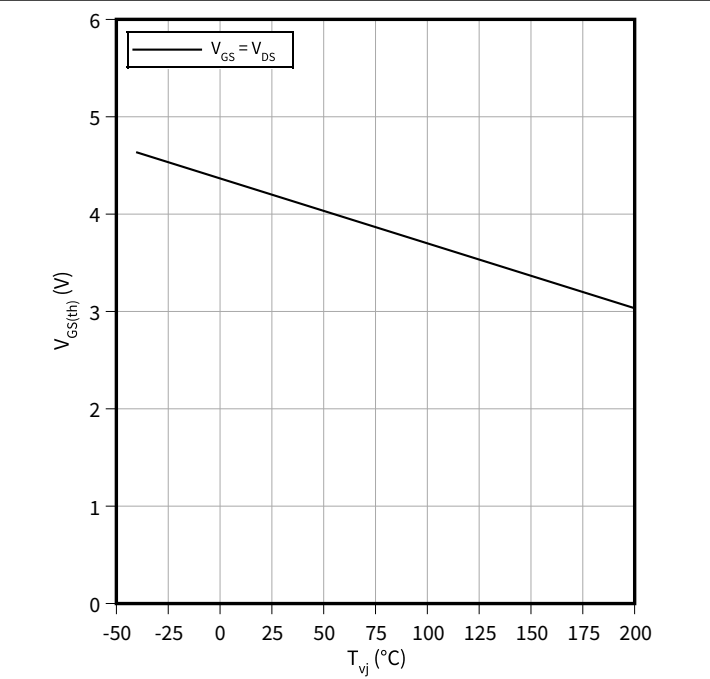
Typical transfer characteristic

$I_D = f(V_{GS})$
 $V_{DS} = 20\text{ V}$, $t_p = 20\text{ }\mu\text{s}$



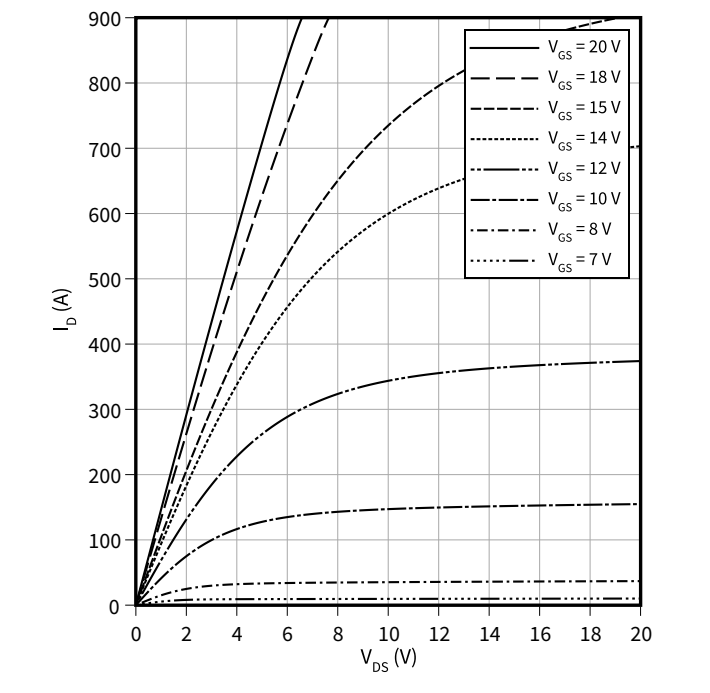
Typical gate-source threshold voltage as a function of junction temperature

$V_{GS(th)} = f(T_{vj})$
 $I_D = 29.1\text{ mA}$



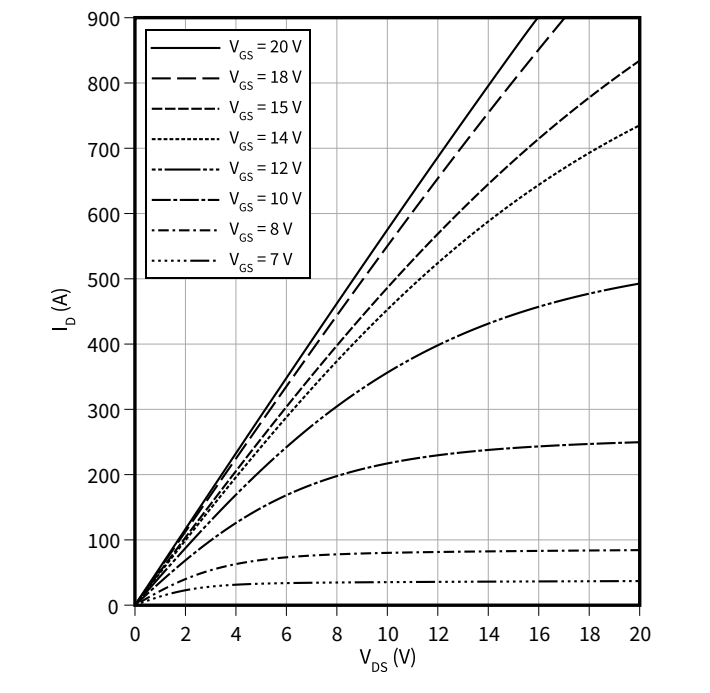
Typical output characteristic, V_{GS} as a parameter

$I_D = f(V_{DS})$
 $T_{vj} = 25\text{ }^\circ\text{C}$, $t_p = 20\text{ }\mu\text{s}$



Typical output characteristic, V_{GS} as a parameter

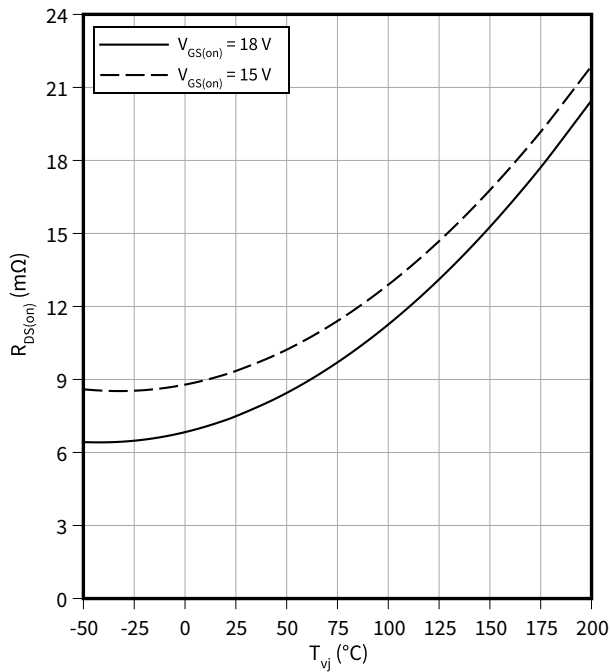
$I_D = f(V_{DS})$
 $T_{vj} = 175\text{ }^\circ\text{C}$, $t_p = 20\text{ }\mu\text{s}$



4 Characteristics diagrams

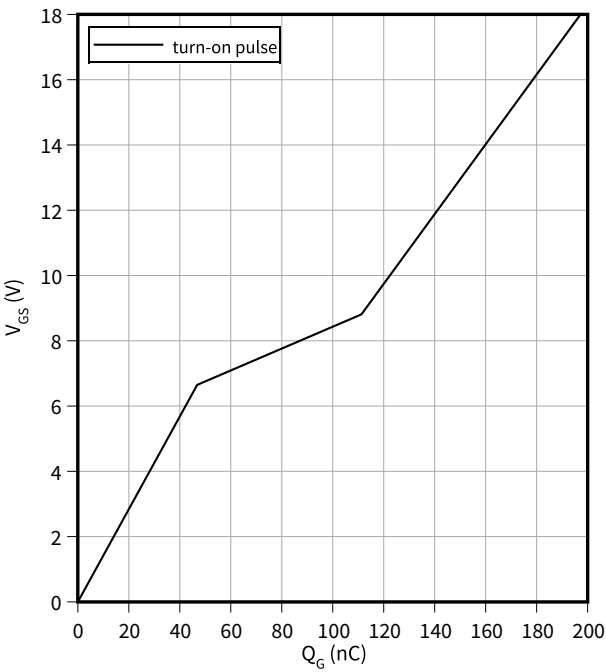
Typical on-state resistance as a function of junction temperature

$R_{DS(on)} = f(T_{vj})$
 $I_D = 93\text{ A}$



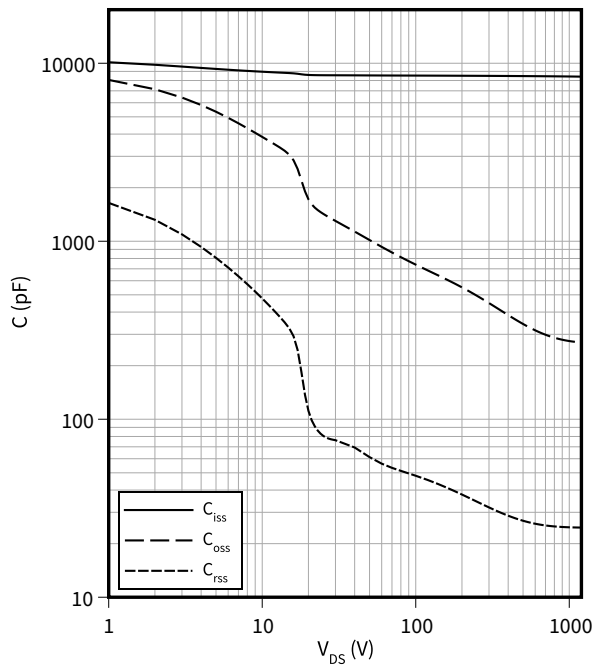
Typical gate charge

$V_{GS} = f(Q_G)$
 $I_D = 93\text{ A}, V_{DS} = 800\text{ V}$



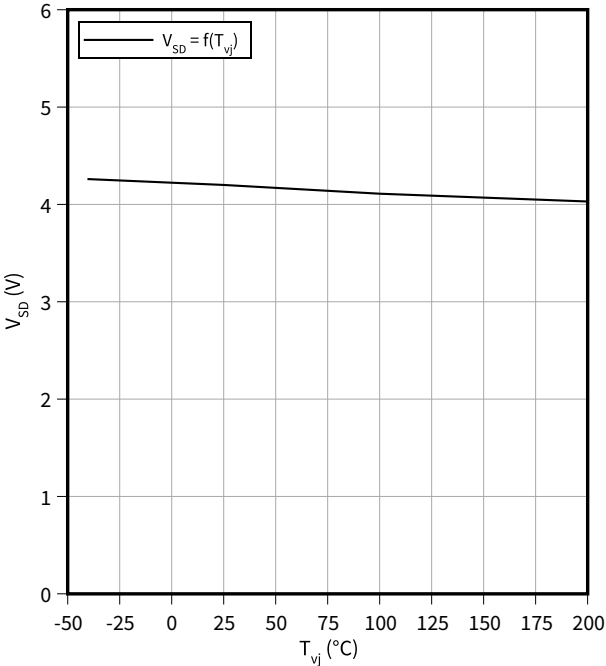
Typical capacitance as a function of drain-source voltage

$C = f(V_{DS})$
 $f = 100\text{ kHz}, V_{GS} = 0\text{ V}$



Typical reverse drain voltage as a function of junction temperature

$V_{SD} = f(T_{vj})$
 $I_{SD} = 93\text{ A}, V_{GS} = 0\text{ V}$

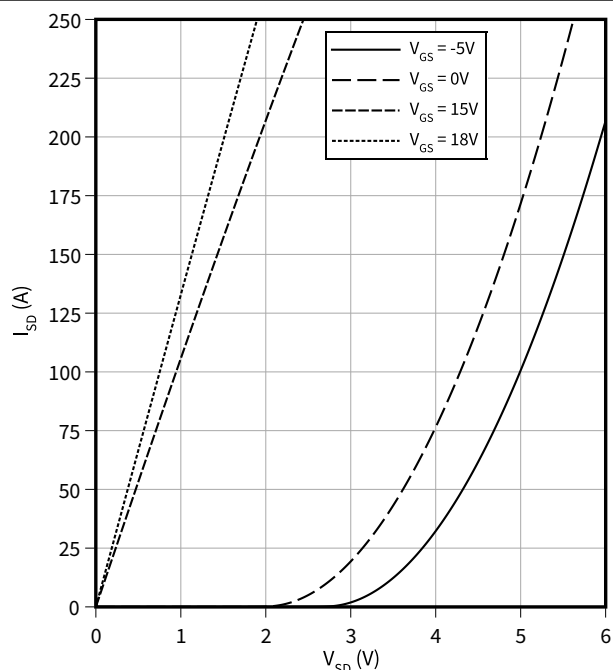


4 Characteristics diagrams

Typical reverse drain current as a function of reverse drain voltage, V_{GS} as a parameter

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

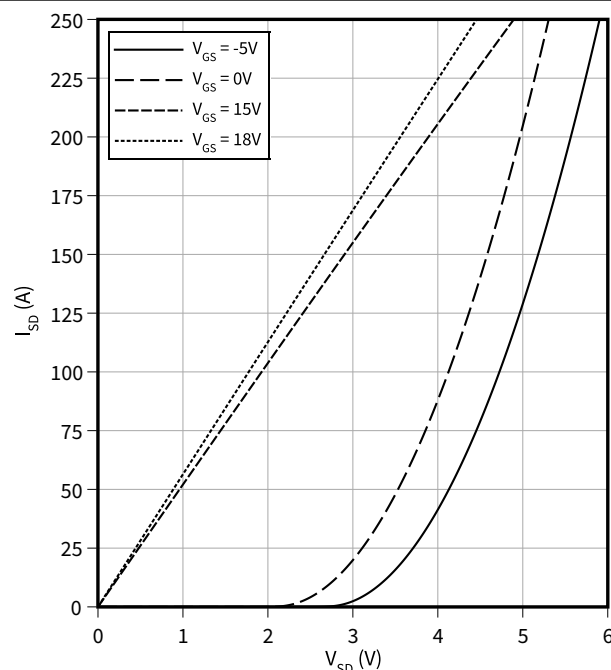
$T_{vj} = 25\text{ °C}$, $t_p = 20\text{ }\mu\text{s}$



Typical reverse drain current as a function of reverse drain voltage, V_{GS} as a parameter

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

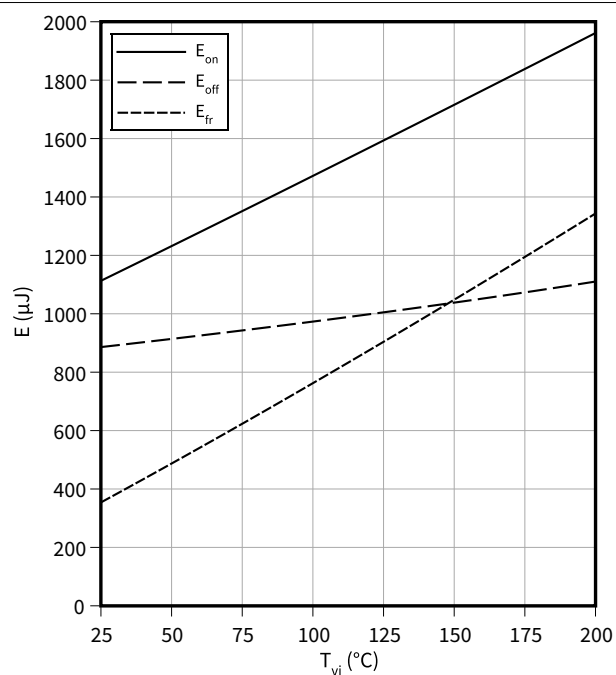
$T_{vj} = 175\text{ °C}$, $t_p = 20\text{ }\mu\text{s}$



Typical switching energy as a function of junction temperature, test circuit in Fig. F, 2nd device own body diode: $V_{GS} = 0\text{ V}$

$$E = f(T_{vj})$$

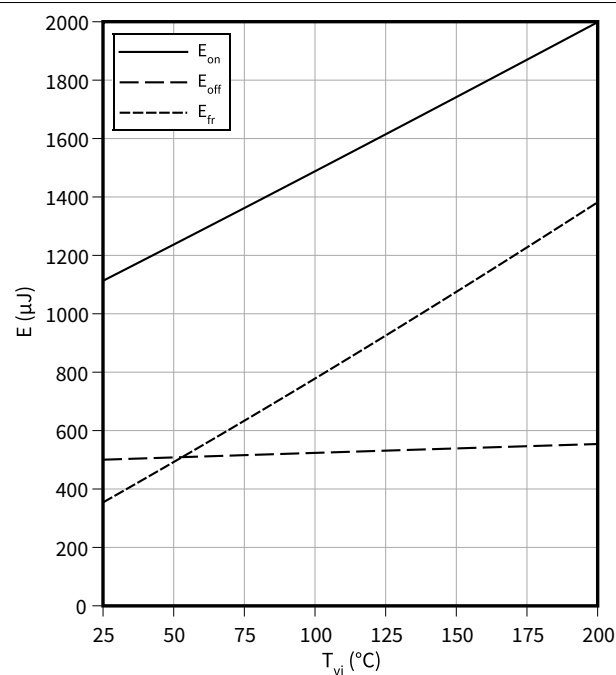
$V_{GS} = 0/18\text{ V}$, $I_D = 93\text{ A}$, $R_{G,ext} = 2.3\text{ }\Omega$, $V_{DD} = 800\text{ V}$



Typical switching energy as a function of junction temperature, test circuit in Fig. F, 2nd device own body diode: $V_{GS} = -5\text{ V}$

$$E = f(T_{vj})$$

$V_{GS} = -5/18\text{ V}$, $I_D = 93\text{ A}$, $R_{G,ext} = 2.3\text{ }\Omega$, $V_{DD} = 800\text{ V}$

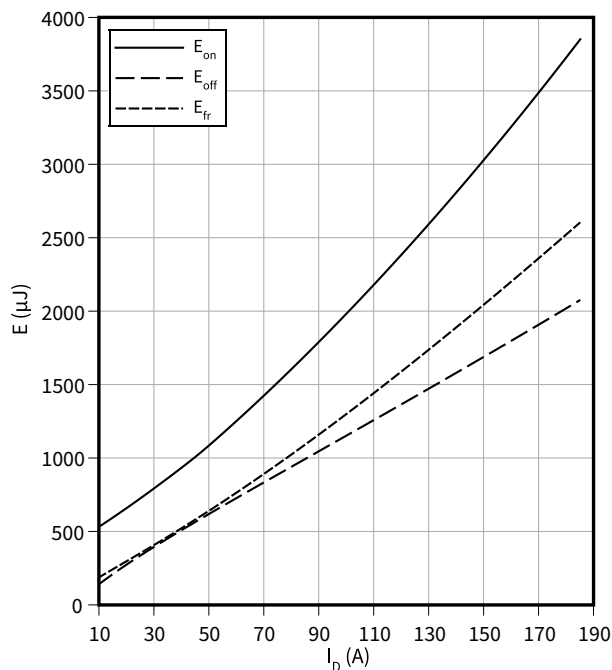


4 Characteristics diagrams

Typical switching energy as a function of drain current, test circuit in Fig. F, 2nd device own body diode: $V_{GS} = 0$ V

$$E = f(I_D)$$

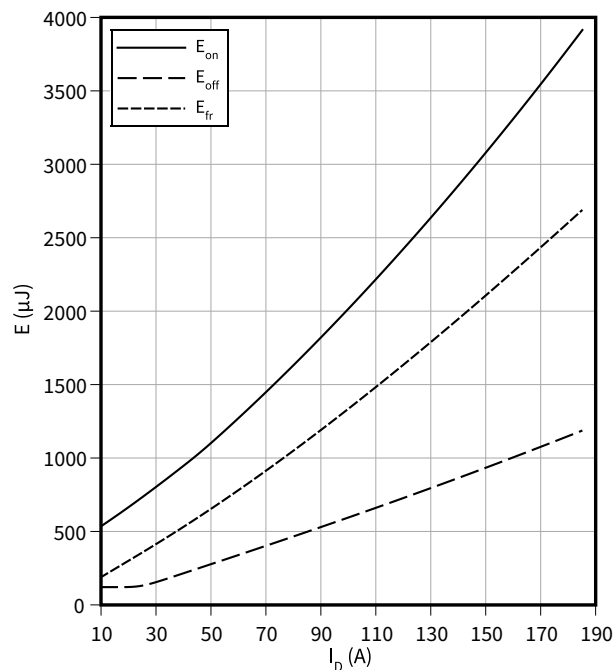
$V_{GS} = 0/18$ V, $T_{vj} = 175$ °C, $R_{G,ext} = 2.3$ Ω , $V_{DD} = 800$ V



Typical switching energy as a function of drain current, test circuit in Fig. F, 2nd device own body diode: $V_{GS} = -5$ V

$$E = f(I_D)$$

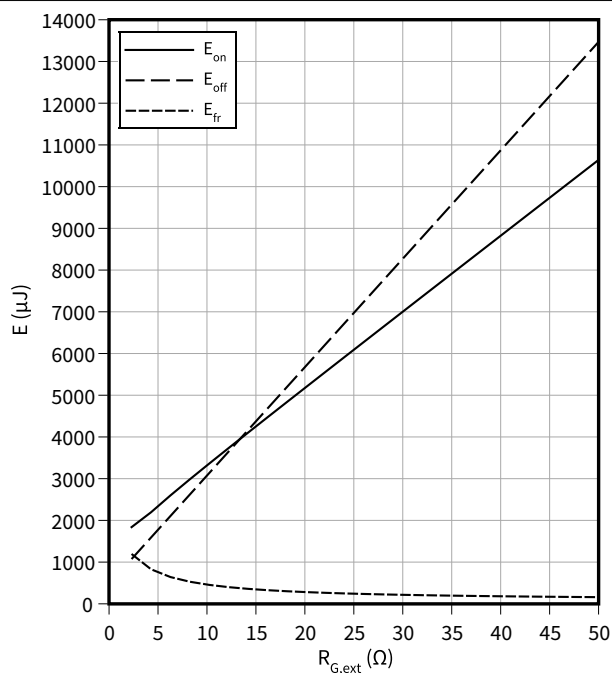
$V_{GS} = -5/18$ V, $T_{vj} = 175$ °C, $R_{G,ext} = 2.3$ Ω , $V_{DD} = 800$ V



Typical switching energy as a function of gate resistance, test circuit in Fig. F, 2nd device own body diode: $V_{GS} = 0$ V

$$E = f(R_{G,ext})$$

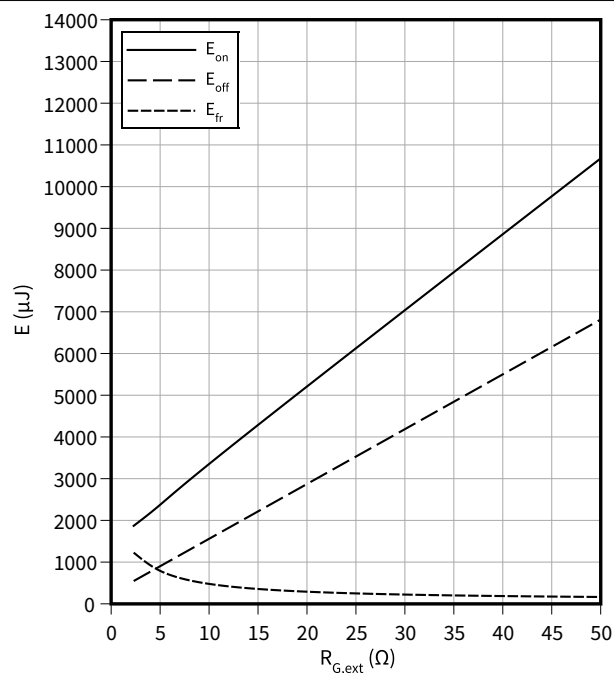
$V_{GS} = 0/18$ V, $I_D = 93$ A, $T_{vj} = 175$ °C, $V_{DD} = 800$ V



Typical switching energy as a function of gate resistance, test circuit in Fig. F, 2nd device own body diode: $V_{GS} = -5$ V

$$E = f(R_{G,ext})$$

$V_{GS} = -5/18$ V, $I_D = 93$ A, $T_{vj} = 175$ °C, $V_{DD} = 800$ V

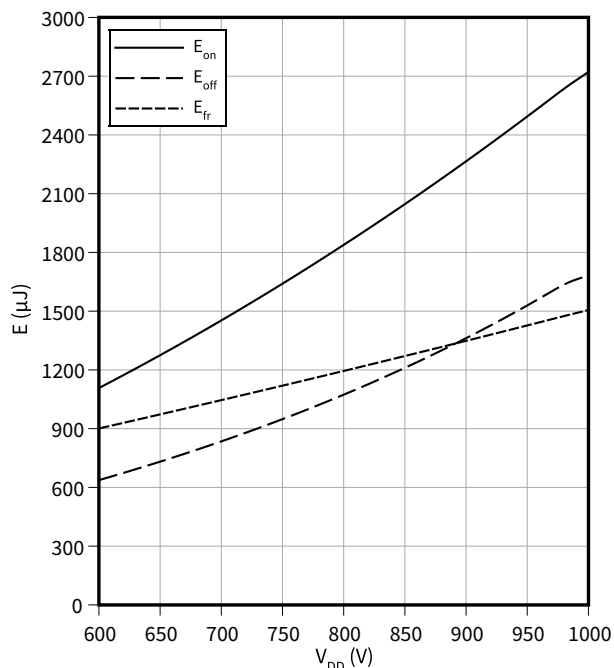


4 Characteristics diagrams

Typical switching energy as a function of DC link voltage, test circuit in Fig. F, 2nd device own body diode: $V_{GS} = 0$ V

$$E = f(V_{DD})$$

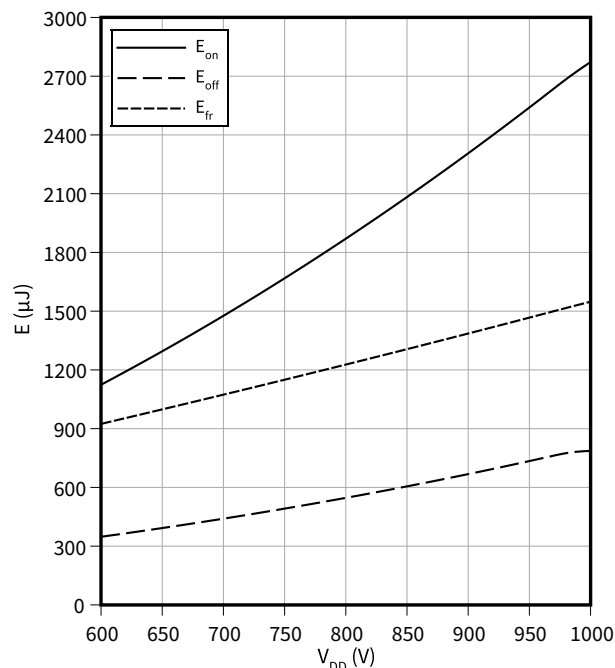
$V_{GS} = 0/18$ V, $I_D = 93$ A, $T_{vj} = 175$ °C, $R_{G,ext} = 2.3$ Ω



Typical switching energy as a function of DC link voltage, test circuit in Fig. F, 2nd device own body diode: $V_{GS} = -5$ V

$$E = f(V_{DD})$$

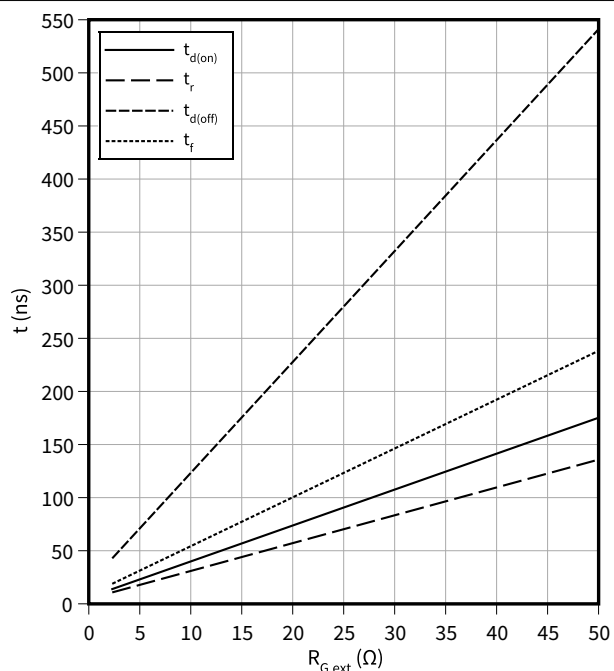
$V_{GS} = -5/18$ V, $I_D = 93$ A, $T_{vj} = 175$ °C, $R_{G,ext} = 2.3$ Ω



Typical switching times as a function of gate resistance, test circuit in Fig. F, 2nd device own body diode: $V_{GS} = 0$ V

$$t = f(R_{G,ext})$$

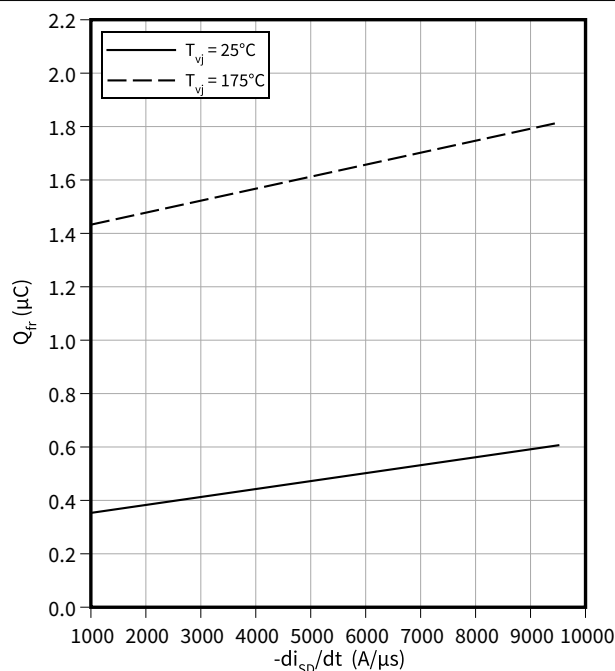
$V_{GS} = 0/18$ V, $I_D = 93$ A, $T_{vj} = 175$ °C, $V_{DD} = 800$ V



Typical reverse recovery charge as a function of reverse drain current slope, test circuit in Fig. F, 2nd device own body diode: $V_{GS} = 0$ V

$$Q_{fr} = f(-di_{SD}/dt)$$

$V_{GS} = 0$ V, $I_{SD} = 93$ A, $V_{DD} = 800$ V



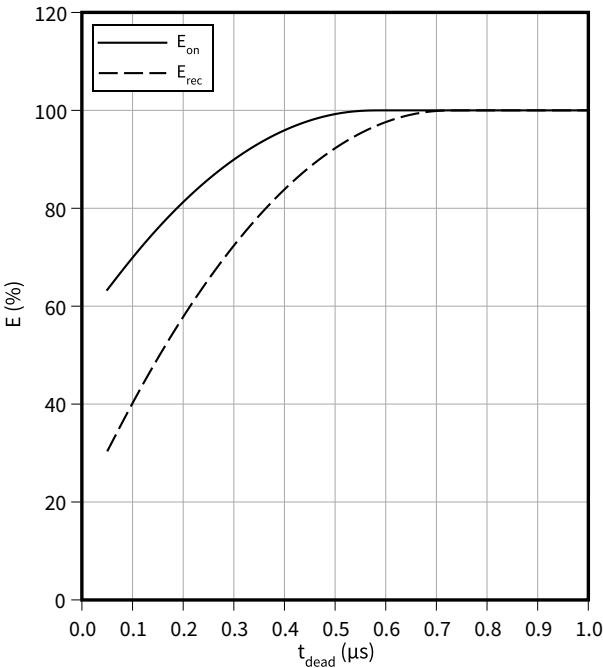
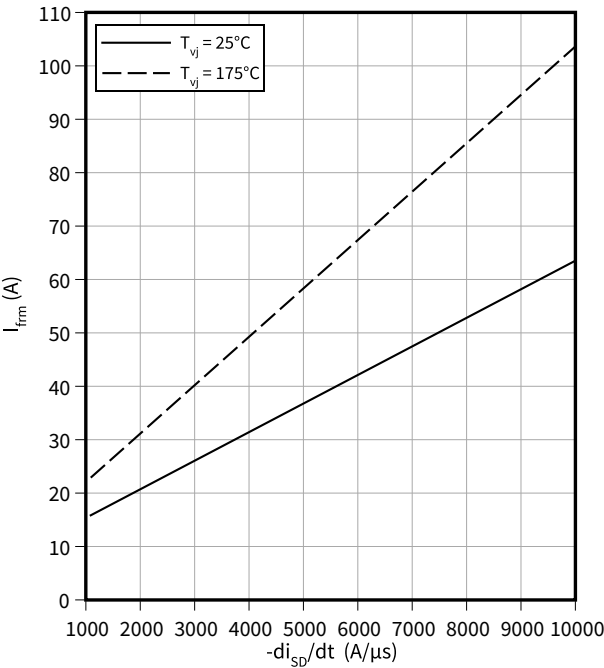
4 Characteristics diagrams

Typical reverse recovery current as a function of reverse drain current slope, test circuit in Fig. F, 2nd device own body diode: $V_{GS} = 0\text{ V}$

$I_{frm} = f(-di_{SD}/dt)$
 $V_{GS} = 0/18\text{ V}$, $I_{SD} = 93\text{ A}$, $V_{DD} = 800\text{ V}$

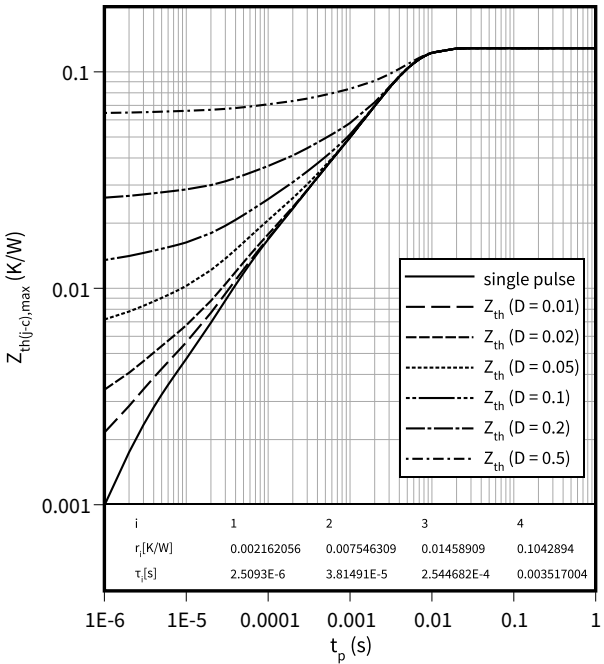
Typical switching energy as a function of dead time / blanking time, test circuit in Fig. F, 2nd device own body diode: $V_{GS} = 0\text{ V}$

$E = f(t_{dead})$
 $V_{GS} = 0/18\text{ V}$, $I_D = 93\text{ A}$, $T_{vj} = 175\text{ °C}$, $R_{G,ext} = 2.3\text{ }\Omega$
 $V_{DD} = 800\text{ V}$



Max. transient thermal impedance (MOSFET/diode)

$Z_{th(j-c),max} = f(t_p)$
 $D = t_p/T$



5 Package outlines

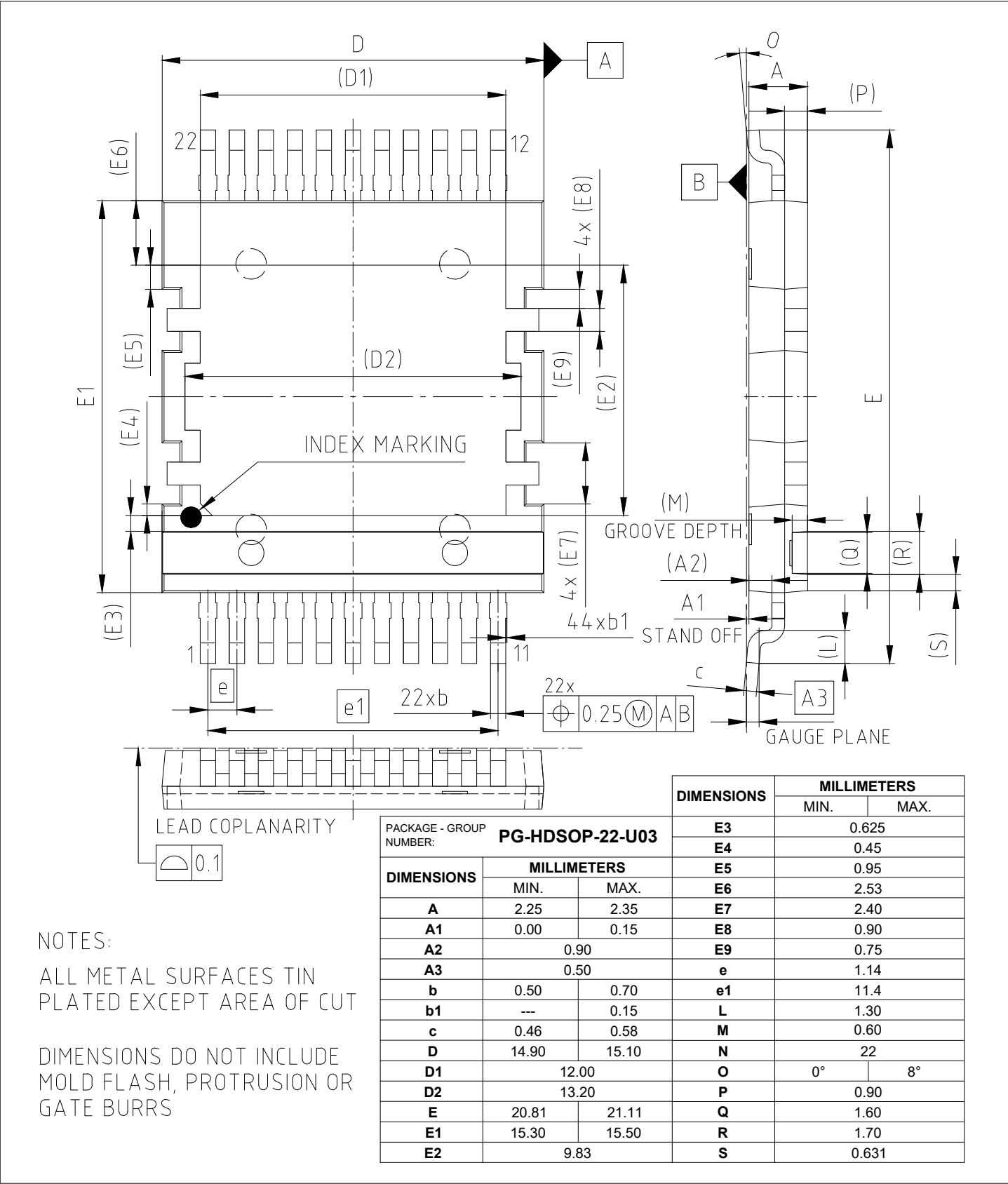


Figure 1

6 Testing conditions

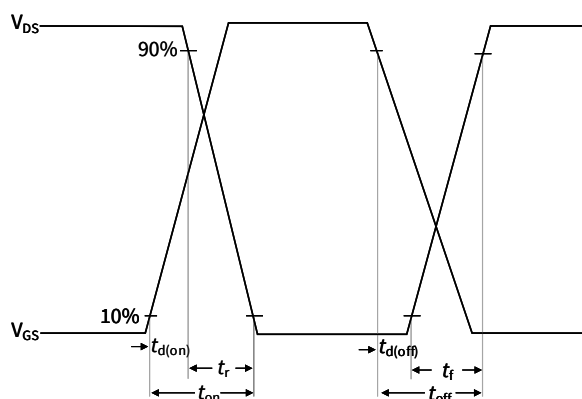


Figure A. Definition of switching times

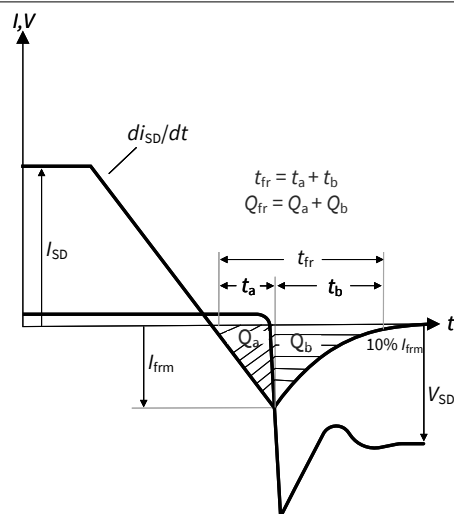


Figure B. Definition of body diode switching characteristics

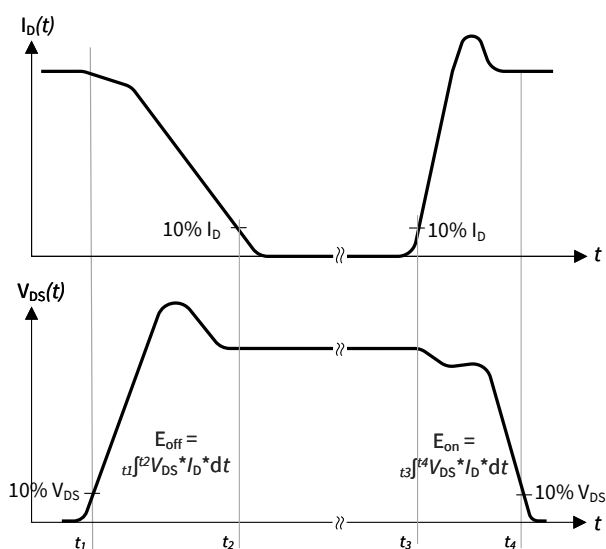


Figure C. Definition of switching losses

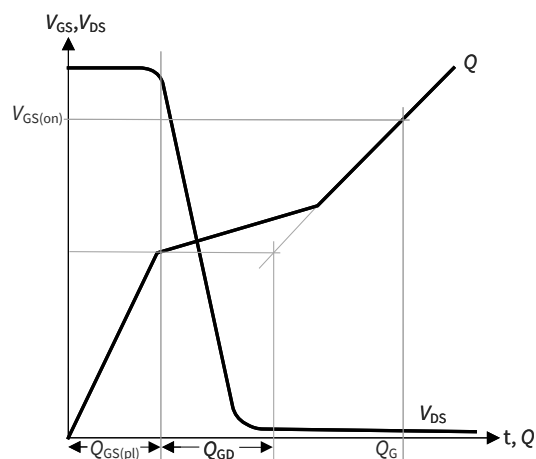


Figure D. Definition of QGD

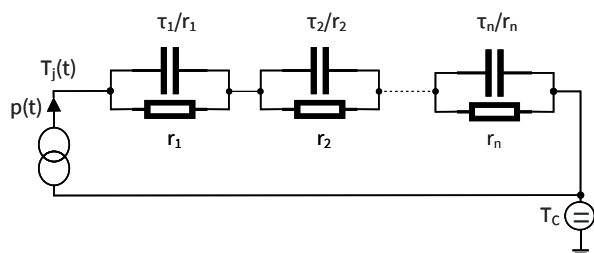


Figure E. Thermal equivalent circuit

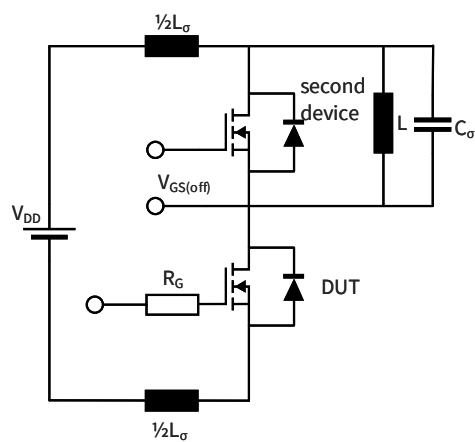


Figure F. Dynamic test circuit

Parasitic inductance L_{σ} ,
Parasitic capacitor C_{σ} ,

Figure 2

Revision history

Document revision	Date of release	Description of changes
0.10	2024-05-15	Target datasheet
0.20	2024-11-20	Preliminary datasheet
1.00	2024-12-12	Final datasheet
1.10	2026-01-27	Added CTI in Table 1 Increased I_{DM} in Table 2 Added switching information for $V_{GS} = -5/18\text{ V}$ in Table 4 and 6 and corresponding diagrams Added I_{SDC} in Table 5 Corrected test conditions and adapt values of the body diode in Table 6 Added SOA diagram on page 8 Added diagram $E = f(V_{DD})$ @ $V_{GS} = 0/18\text{ V}$ Added diagram $E = f(V_{DD})$ @ $V_{GS} = -5/18\text{ V}$ Editorial changes
1.20	2026-07-27	Correction of the internal gate resistance in Table 4 Correction of switching times and energies in Table 4 and corresponding diagrams Correction of Q_{fr} , I_{frm} and E_{fr} in Table 6 and corresponding diagrams Updated $I_{DSS\text{ max}}$ in Table 4

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