

Final datasheet
CoolSiC™ 1400 V SiC MOSFET G2 : Silicon Carbide MOSFET with .XT interconnection technology

Features

- $V_{DS} = 1400\text{ V}$ at $T_{vj} = 25^{\circ}\text{C}$
- $I_{DC} = 115\text{ A}$ at $T_C = 100^{\circ}\text{C}$
- $R_{DS(on)} = 11.5\text{ m}\Omega$ at $V_{GS} = 18\text{ V}$, $T_{vj} = 25^{\circ}\text{C}$
- Very low switching losses
- Package backside suitable for reflow soldering at 260°C , 3 times
- 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
- Wide power pins (2 mm) for high current capability
- Resistive weldable pins for direct busbar connections
- TO247PLUS package with high creepage distance 10.8 mm and $CTI \geq 600\text{ V}$
- Suitable Infineon gate drivers can be found under <https://www.infineon.com/gdfinder>

Potential applications

- Commercial, construction and agricultural vehicles (CAV)
- EV Charging
- Online UPS / Industrial UPS
- String inverter
- Energy storage systems (ESS)
- General purpose drives (GPD)

Product validation

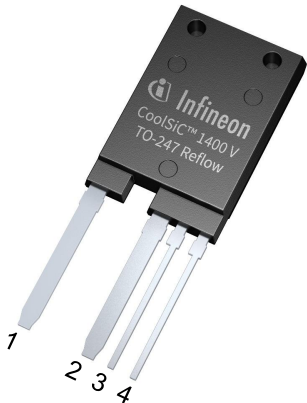
- Qualified for industrial applications according to the relevant tests of JEDEC47/20/22

Description

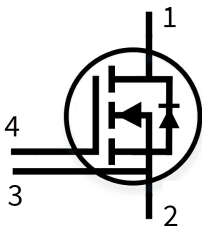
Pin definition:

- Pin 1 – Drain
- Pin 2 – Source
- Pin 3 – Kelvin sense contact
- Pin 4 – Gate

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



- Halogen-free
- Green
- Lead-free
- RoHS



Type	Package	Marking
IMYR140R011M2H	PG-TO247-4-U08	14M2H011



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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}	Wave soldering 1.6 mm (0.063 in.) from case for 10 s			260	°C
		Reflow soldering (MSL2 according to JEDEC J-STD-020)			260	
Thermal resistance, junction-ambient	$R_{th(j-a)}$				62	K/W
MOSFET/body diode thermal resistance, junction-case	$R_{th(j-c)}$			0.2	0.26	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}	$T_{vj} \geq 25\text{ °C}$		1400	V
Continuous DC drain current for $R_{th(j-c,max)}$, limited by $T_{vj(max)}$	I_{DDC}	$V_{GS} = 18\text{ V}$	$T_c = 25\text{ °C}$	162	A
			$T_c = 100\text{ °C}$	115	
Peak drain current, t_p limited by $T_{vj(max)}$ ¹⁾	I_{DM}	$V_{GS} = 18\text{ V}$		505	A
Gate-source voltage, max. transient voltage	V_{GS}	$t_p \leq 0.5\text{ }\mu\text{s}$, $D < 0.01$		-10...25	V
Gate-source voltage, max. static voltage ²⁾	V_{GS}			-7...23	V
Avalanche energy, single pulse	E_{AS}	$I_D = 69.1\text{ A}$, $V_{DD} = 50\text{ V}$, $L = 0.4\text{ mH}$, $T_{vj(start)} = 25\text{ °C}$		865	mJ
Avalanche energy, repetitive	E_{AR}	$I_D = 69.1\text{ A}$, $V_{DD} = 50\text{ V}$, $L = 1.8\text{ }\mu\text{H}$, $T_{vj(start)} = 25\text{ °C}$		4.3	mJ
Short-circuit withstand time	t_{SC}	$V_{DD} \leq 800\text{ V}$, $V_{DS,peak} < 1400\text{ V}$, $V_{GS(on)} = 15\text{ V}$, $T_{vj(start)} = 25\text{ °C}$		2	μs
Power dissipation, limited by $T_{vj(max)}$	P_{tot}	$T_c = 25\text{ °C}$		580	W
		$T_c = 100\text{ °C}$		290	

1) Verified by design

2) The maximum gate-source voltage in the application design should be in accordance to IPC-9592B.

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	$R_{DS(on)}$	$I_D = 69.1 \text{ A}$		$T_{vj} = 25 \text{ °C}$, $V_{GS(on)} = 18 \text{ V}$	11.5	mΩ
				$T_{vj} = 150 \text{ °C}$, $V_{GS(on)} = 18 \text{ V}$	23.9	
				$T_{vj} = 175 \text{ °C}$, $V_{GS(on)} = 18 \text{ V}$	28	
				$T_{vj} = 25 \text{ °C}$, $V_{GS(on)} = 15 \text{ V}$	14	
Gate-source threshold voltage	$V_{GS(th)}$	$I_D = 21.7 \text{ mA}$, $V_{DS} = V_{GS}$ (tested after 1 ms pulse at $V_{GS} = 20 \text{ V}$)		$T_{vj} = 25 \text{ °C}$	3.5	V
				$T_{vj} = 175 \text{ °C}$	4.2	
Zero gate-voltage drain current	I_{DSS}	$V_{DS} = 1400 \text{ V}$, $V_{GS} = 0 \text{ V}$		$T_{vj} = 25 \text{ °C}$		μA
				$T_{vj} = 175 \text{ °C}$	520	
Gate leakage current	I_{GSS}	$V_{DS} = 0 \text{ V}$		$V_{GS} = 23 \text{ V}$		nA
				$V_{GS} = -10 \text{ V}$	120	
Forward transconductance	g_{fs}	$I_D = 69.1 \text{ A}$, $V_{DS} = 20 \text{ V}$			47	S
Internal gate resistance	$R_{G,int}$	$f = 1 \text{ MHz}$, $V_{AC} = 25 \text{ mV}$			4.5	Ω
Input capacitance	C_{iss}	$V_{DS} = 1000 \text{ V}$, $V_{GS} = 0 \text{ V}$, $f = 100 \text{ kHz}$, $V_{AC} = 25 \text{ mV}$			4830	pF
Output capacitance	C_{oss}	$V_{DS} = 1000 \text{ V}$, $V_{GS} = 0 \text{ V}$, $f = 100 \text{ kHz}$, $V_{AC} = 25 \text{ mV}$			168	pF
Reverse transfer capacitance	C_{rss}	$V_{DS} = 1000 \text{ V}$, $V_{GS} = 0 \text{ V}$, $f = 100 \text{ kHz}$, $V_{AC} = 25 \text{ mV}$			15	pF
C_{oss} stored energy	E_{oss}	Calculated based on $C_{oss} = f(V_{DD})$			107	μJ
Output charge	Q_{oss}	Calculated based on $C_{oss} = f(V_{DD})$			294	nC
Effective output capacitance, energy related	$C_{o(er)}$	$V_{DS} = 0...1000 \text{ V}$, $V_{GS} = 0 \text{ V}$, Calculated based on E_{oss}			334	pF
Effective output capacitance, time related	$C_{o(tr)}$	$I_D = \text{constant}$, $V_{DS} = 0...1000 \text{ V}$, $V_{GS} = 0 \text{ V}$, Calculated based on Q_{oss}			368	pF

(table continues...)

Table 4 (continued) Characteristic values

Parameter	Symbol	Note or test condition	Values			Unit
			Min.	Typ.	Max.	
Total gate charge	Q_G	$V_{DD} = 1000 \text{ V}$, $I_D = 69.1 \text{ A}$, $V_{GS} = 0/18 \text{ V}$, turn-on pulse		152		nC
Plateau gate charge	$Q_{GS(pl)}$	$V_{DD} = 1000 \text{ V}$, $I_D = 69.1 \text{ A}$, $V_{GS} = 0/18 \text{ V}$, turn-on pulse		50		nC
Gate-drain charge	Q_{GD}	$V_{DD} = 1000 \text{ V}$, $I_D = 69.1 \text{ A}$, $V_{GS} = 0/18 \text{ V}$, turn-on pulse		30		nC
Turn-on delay time	$t_{d(on)}$	$V_{DD} = 1000 \text{ V}$, $I_D = 69.1 \text{ A}$, $V_{GS} = 0/18 \text{ V}$, $R_{G,ext} = 2.3 \Omega$, $L_\sigma = 12 \text{ nH}$, diode: body diode at $V_{GS} = 0 \text{ V}$	$T_{vj} = 25 \text{ °C}$	23		ns
			$T_{vj} = 175 \text{ °C}$	20		
Rise time	t_r	$V_{DD} = 1000 \text{ V}$, $I_D = 69.1 \text{ A}$, $V_{GS} = 0/18 \text{ V}$, $R_{G,ext} = 2.3 \Omega$, $L_\sigma = 12 \text{ nH}$, diode: body diode at $V_{GS} = 0 \text{ V}$	$T_{vj} = 25 \text{ °C}$	13		ns
			$T_{vj} = 175 \text{ °C}$	12		
Turn-off delay time	$t_{d(off)}$	$V_{DD} = 1000 \text{ V}$, $I_D = 69.1 \text{ A}$, $V_{GS} = 0/18 \text{ V}$, $R_{G,ext} = 2.3 \Omega$, $L_\sigma = 12 \text{ nH}$, diode: body diode at $V_{GS} = 0 \text{ V}$	$T_{vj} = 25 \text{ °C}$	54		ns
			$T_{vj} = 175 \text{ °C}$	60		
Fall time	t_f	$V_{DD} = 1000 \text{ V}$, $I_D = 69.1 \text{ A}$, $V_{GS} = 0/18 \text{ V}$, $R_{G,ext} = 2.3 \Omega$, $L_\sigma = 12 \text{ nH}$, diode: body diode at $V_{GS} = 0 \text{ V}$	$T_{vj} = 25 \text{ °C}$	23		ns
			$T_{vj} = 175 \text{ °C}$	25		
Turn-on energy	E_{on}	$V_{DD} = 1000 \text{ V}$, $I_D = 69.1 \text{ A}$, $V_{GS} = 0/18 \text{ V}$, $R_{G,ext} = 2.3 \Omega$, $L_\sigma = 12 \text{ nH}$, diode: body diode at $V_{GS} = 0 \text{ V}$	$T_{vj} = 25 \text{ °C}$	1650		μJ
			$T_{vj} = 175 \text{ °C}$	2670		
Turn-off energy	E_{off}	$V_{DD} = 1000 \text{ V}$, $I_D = 69.1 \text{ A}$, $V_{GS} = 0/18 \text{ V}$, $R_{G,ext} = 2.3 \Omega$, $L_\sigma = 12 \text{ nH}$, diode: body diode at $V_{GS} = 0 \text{ V}$	$T_{vj} = 25 \text{ °C}$	1030		μJ
			$T_{vj} = 175 \text{ °C}$	1200		
Total switching energy ¹⁾	E_{tot}	$V_{DD} = 1000 \text{ V}$, $I_D = 69.1 \text{ A}$, $V_{GS} = 0/18 \text{ V}$, $R_{G,ext} = 2.3 \Omega$, $L_\sigma = 12 \text{ nH}$, diode: body diode at $V_{GS} = 0 \text{ V}$	$T_{vj} = 25 \text{ °C}$	2980		μJ
			$T_{vj} = 175 \text{ °C}$	4840		

(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}	$V_{DD} = 1000 \text{ V}$, $I_D = 69.1 \text{ A}$, $V_{GS} = -5/18 \text{ V}$, $R_{G,ext} = 2.3 \Omega$, $L_\sigma = 12 \text{ nH}$, diode: body diode at $V_{GS} = -5 \text{ V}$	$T_{vj} = 25 \text{ }^\circ\text{C}$	1641		μJ
			$T_{vj} = 175 \text{ }^\circ\text{C}$	2833		
Turn-off energy at -5 V	E_{off}	$V_{DD} = 1000 \text{ V}$, $I_D = 69.1 \text{ A}$, $V_{GS} = -5/18 \text{ V}$, $R_{G,ext} = 2.3 \Omega$, $L_\sigma = 12 \text{ nH}$, diode: body diode at $V_{GS} = -5 \text{ V}$	$T_{vj} = 25 \text{ }^\circ\text{C}$	673		μJ
			$T_{vj} = 175 \text{ }^\circ\text{C}$	710		
Total switching energy at -5 V ¹⁾	E_{tot}	$V_{DD} = 1000 \text{ V}$, $I_D = 69.1 \text{ A}$, $V_{GS} = -5/18 \text{ V}$, $R_{G,ext} = 2.3 \Omega$, $L_\sigma = 12 \text{ nH}$, diode: body diode at $V_{GS} = -5 \text{ V}$	$T_{vj} = 25 \text{ }^\circ\text{C}$	2523		μJ
			$T_{vj} = 175 \text{ }^\circ\text{C}$	4595		
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}	$T_{vj} \geq 25 \text{ }^\circ\text{C}$		1400	V
Continuous reverse drain current for $R_{th(j-c,max)}$, limited by $T_{vj(max)}$	I_{SDC}	$V_{GS} = 0 \text{ V}$	$T_c = 25 \text{ }^\circ\text{C}$	109	A
			$T_c = 100 \text{ }^\circ\text{C}$	60	
Peak reverse drain current, t_p limited by $T_{vj(max)}$	I_{SM}	$V_{GS} = 0 \text{ V}$		345	A

Table 6 Characteristic values

Parameter	Symbol	Note or test condition	Values			Unit
			Min.	Typ.	Max.	
Drain-source reverse voltage	V_{SD}	$I_{SD} = 69.1 \text{ A}$, $V_{GS} = 0 \text{ V}$	$T_{vj} = 25 \text{ °C}$	4.2	5.5	V
			$T_{vj} = 100 \text{ °C}$	4.11		
			$T_{vj} = 175 \text{ °C}$	4.05		
MOSFET forward recovery charge	Q_{fr}	$V_{DD} = 1000 \text{ V}$, $I_{SD} = 69.1 \text{ A}$, $V_{GS} = 0 \text{ V}$, $R_{G,ext} = 2.3 \text{ } \Omega$, Q_{fr} includes also Q_C	$T_{vj} = 25 \text{ °C}$	0.41		μC
			$T_{vj} = 175 \text{ °C}$	2.03		
MOSFET peak forward recovery current	I_{frm}	$V_{DD} = 1000 \text{ V}$, $I_{SD} = 69.1 \text{ A}$, $V_{GS} = 0 \text{ V}$, $R_{G,ext} = 2.3 \text{ } \Omega$, Q_{fr} includes also Q_C	$T_{vj} = 25 \text{ °C}$	48		A
			$T_{vj} = 175 \text{ °C}$	98		
MOSFET forward recovery energy	E_{fr}	$V_{DD} = 1000 \text{ V}$, $I_{SD} = 69.1 \text{ A}$, $V_{GS} = 0 \text{ V}$, $R_{G,ext} = 2.3 \text{ } \Omega$, Q_{fr} includes also Q_C	$T_{vj} = 25 \text{ °C}$	300		μJ
			$T_{vj} = 175 \text{ °C}$	970		
MOSFET forward recovery energy at -5 V	E_{fr}	$V_{DD} = 1000 \text{ V}$, $I_{SD} = 69.1 \text{ A}$, $V_{GS} = -5 \text{ V}$, $R_{G,ext} = 2.3 \text{ } \Omega$, Q_{fr} includes also Q_C	$T_{vj} = 25 \text{ °C}$	209		μJ
			$T_{vj} = 175 \text{ °C}$	1052		
Virtual junction temperature	T_{vj}		-55		175	$^{\circ}\text{C}$
Virtual junction temperature	$T_{vj(over)}$	overload, cumulative max. 100 h ¹⁾			200	$^{\circ}\text{C}$

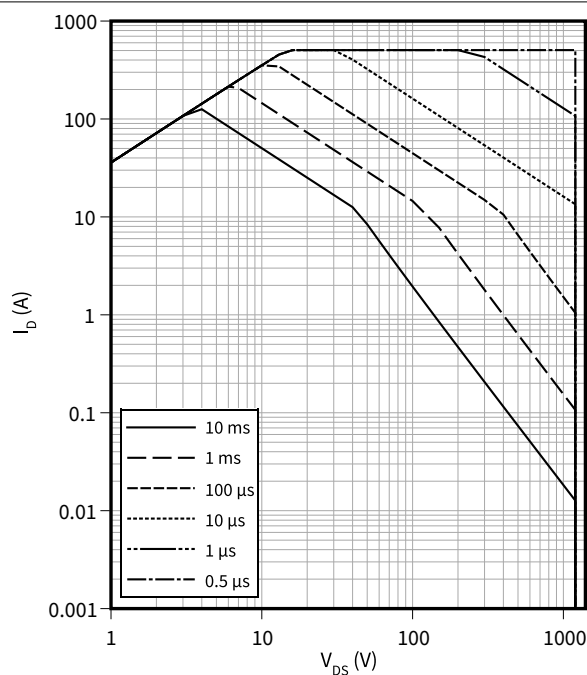
1) up to 5000 cycles. Maximum ΔT limited to 100 K.

4 Characteristics diagrams

Safe operating area (SOA)

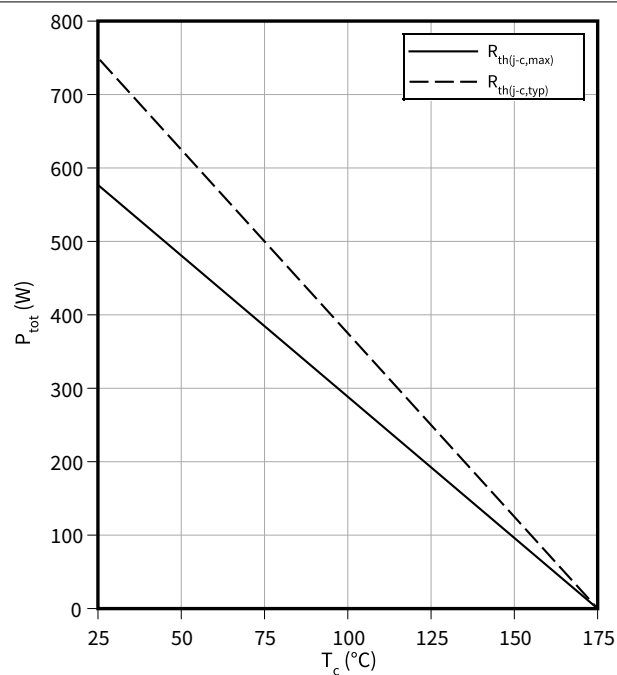
$$I_D = f(V_{DS})$$

$$T_{vj} \leq 175\text{ °C}, T_c = 25\text{ °C}$$



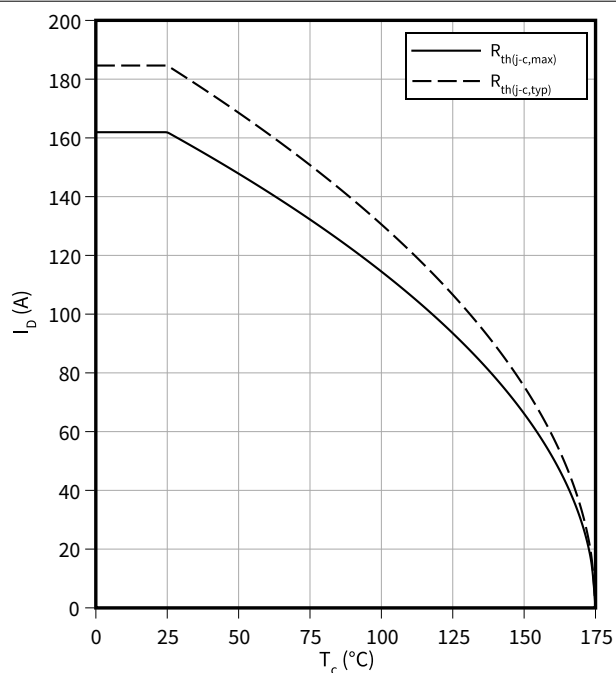
Power dissipation as a function of case temperature limited by bond wire

$$P_{tot} = f(T_c)$$



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

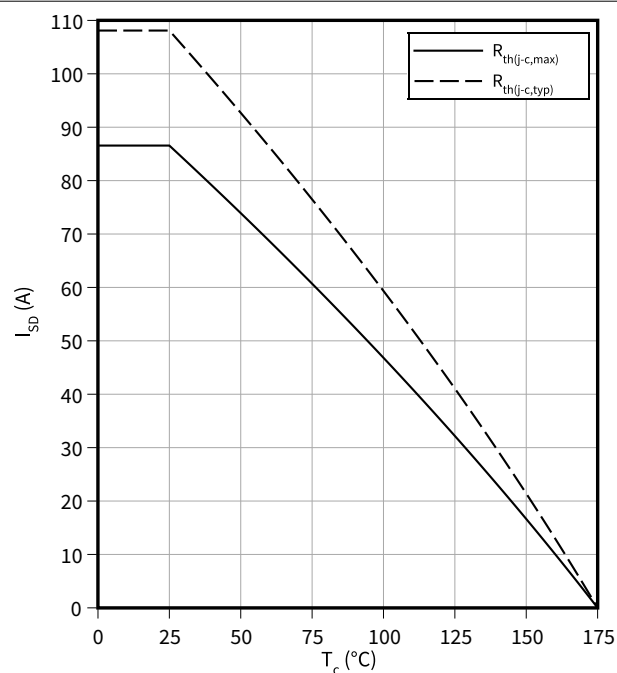
$$I_D = f(T_c)$$



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

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

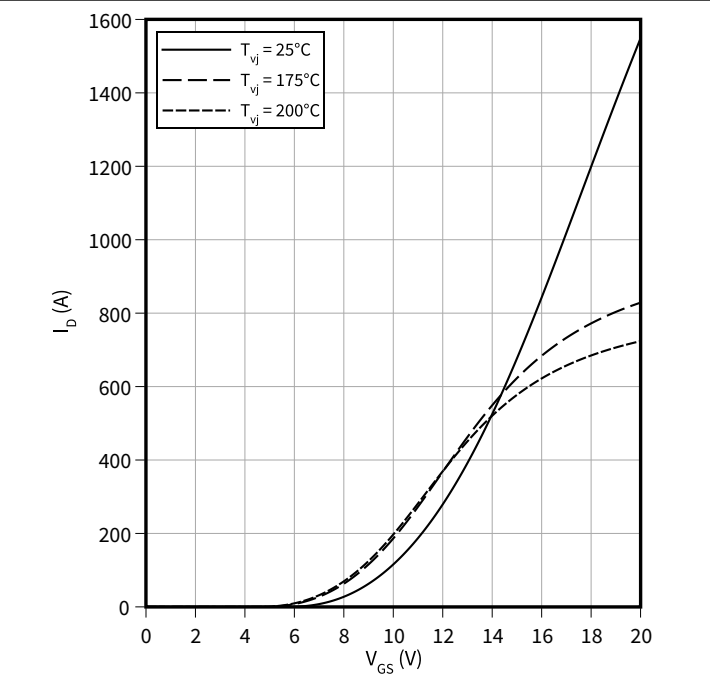
$$V_{GS} = 0\text{ V}$$



4 Characteristics diagrams

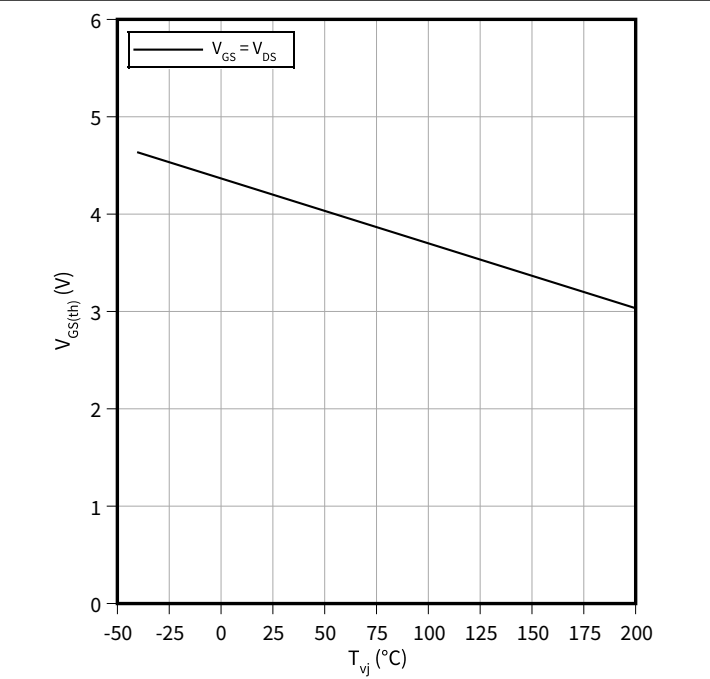
Typical transfer characteristic

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



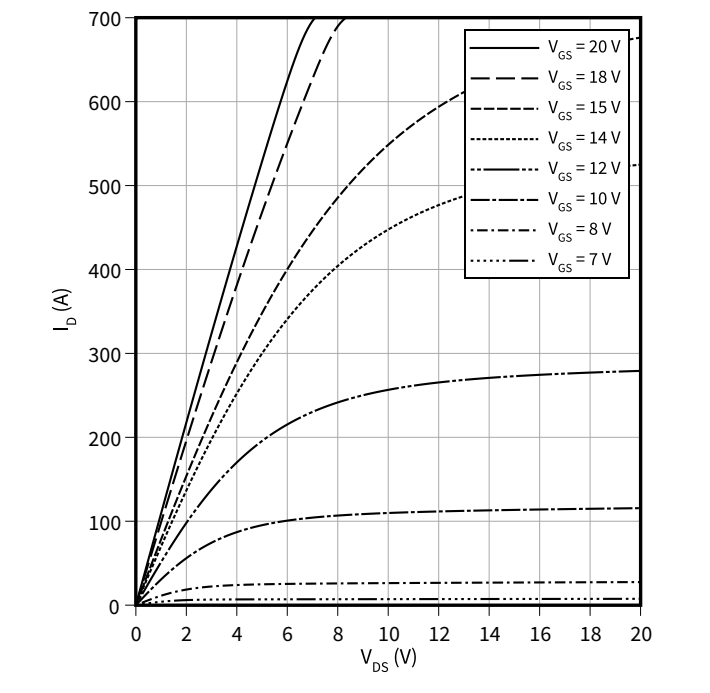
Typical gate-source threshold voltage as a function of junction temperature

$V_{GS(th)} = f(T_{vj})$
 $I_D = 21.7\text{ mA}$



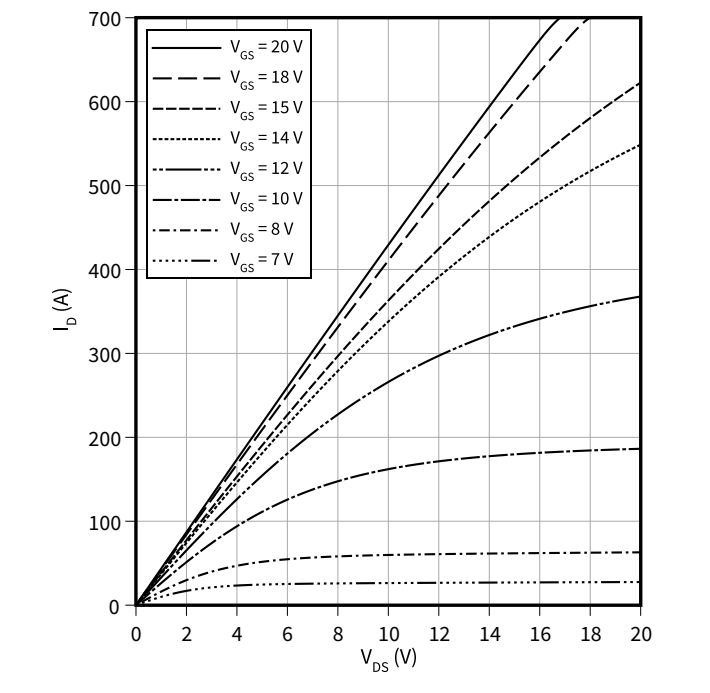
Typical output characteristic, V_{GS} as a parameter

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



Typical output characteristic, V_{GS} as a parameter

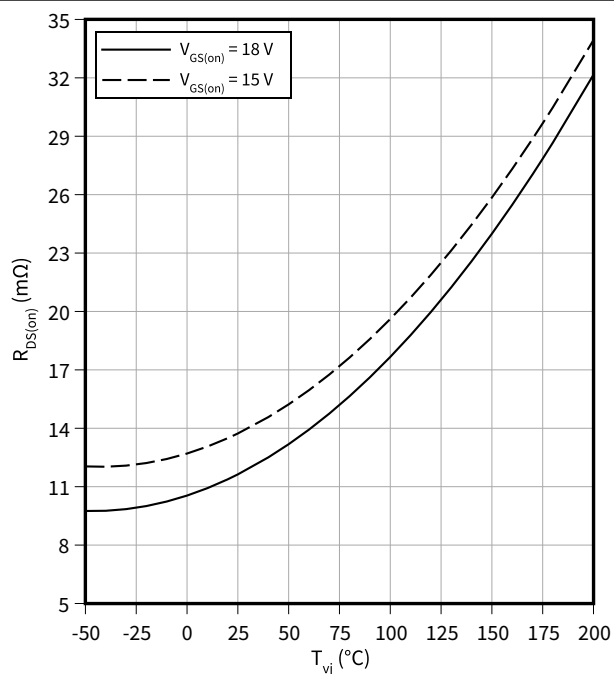
$I_D = f(V_{DS})$
 $T_{vj} = 175\text{ }^\circ\text{C}$, $t_p = 20\text{ }\mu\text{s}$



4 Characteristics diagrams

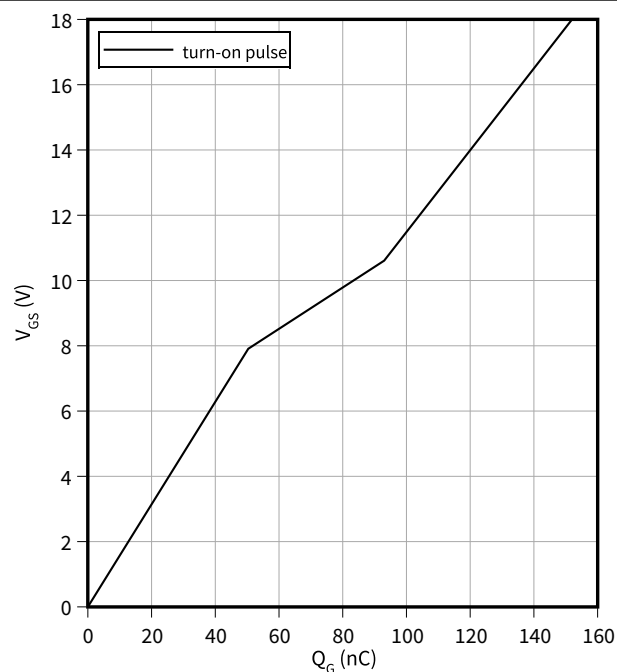
Typical on-state resistance as a function of junction temperature

$R_{DS(on)} = f(T_{vj})$
 $I_D = 69.1 \text{ A}$



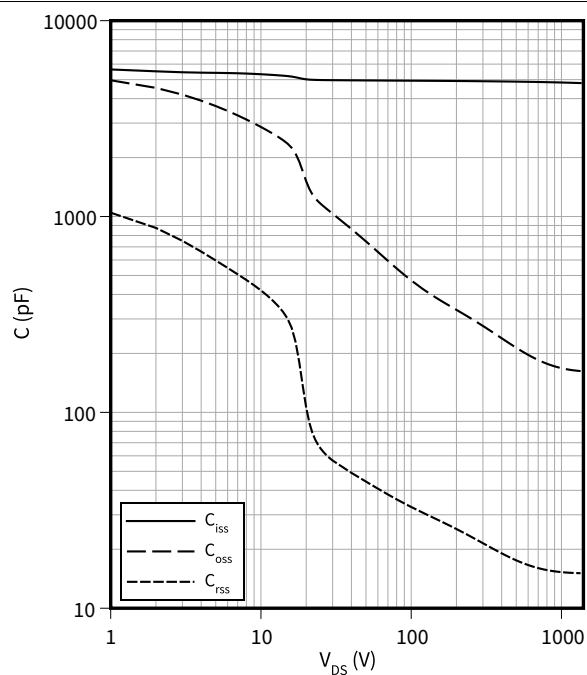
Typical gate charge

$V_{GS} = f(Q_G)$
 $I_D = 69.1 \text{ A}, V_{DS} = 1000 \text{ V}$



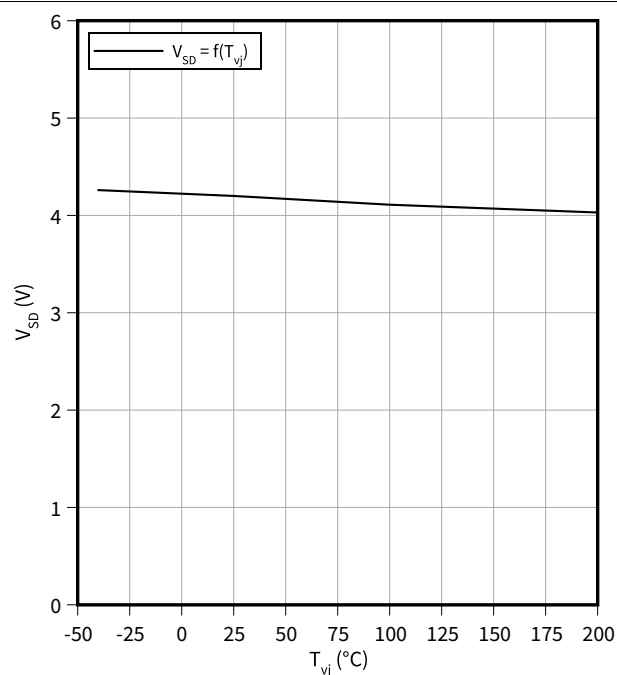
Typical capacitance as a function of drain-source voltage

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



Typical reverse drain voltage as a function of junction temperature

$V_{SD} = f(T_{vj})$
 $I_{SD} = 69.1 \text{ A}, V_{GS} = 0 \text{ V}$

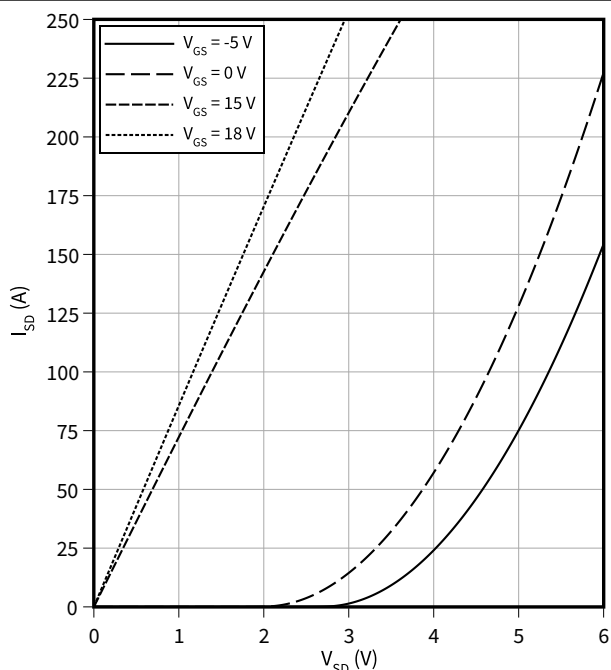


4 Characteristics diagrams

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

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

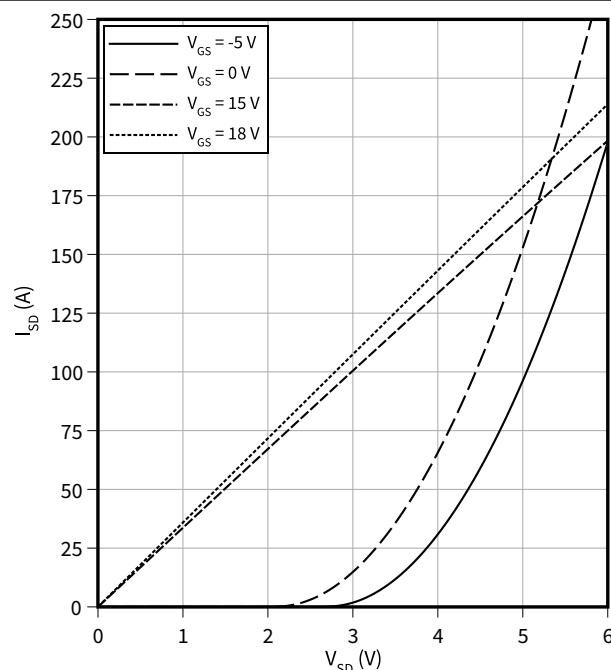
$T_{vj} = 25\text{ °C}$, $t_p = 20\text{ }\mu\text{s}$



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

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

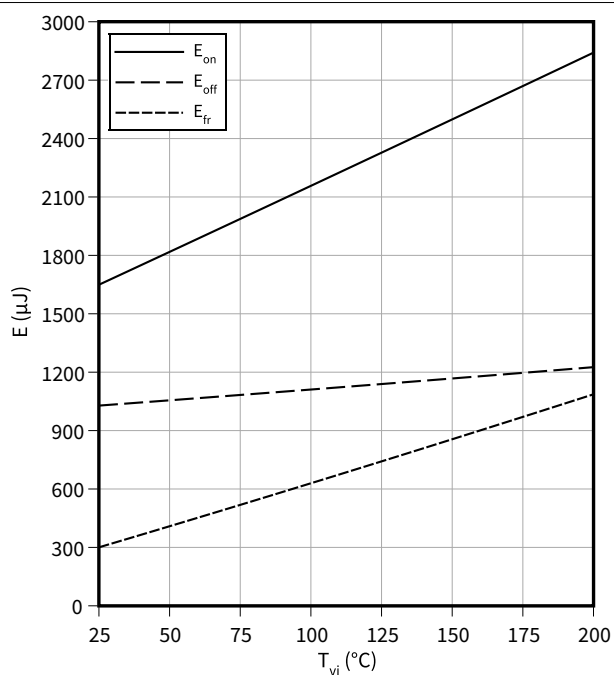
$T_{vj} = 175\text{ °C}$, $t_p = 20\text{ }\mu\text{s}$



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

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

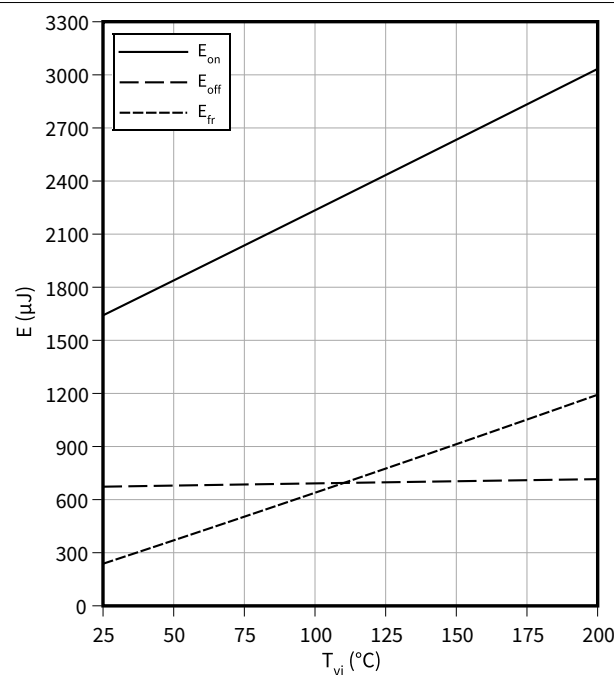
$V_{GS} = 0/18\text{ V}$, $I_D = 69.1\text{ A}$, $R_{G,ext} = 2.3\text{ }\Omega$, $V_{DD} = 1000\text{ V}$



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

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

$V_{GS} = -5/18\text{ V}$, $I_D = 69.1\text{ A}$, $R_{G,ext} = 2.3\text{ }\Omega$, $V_{DD} = 1000\text{ V}$

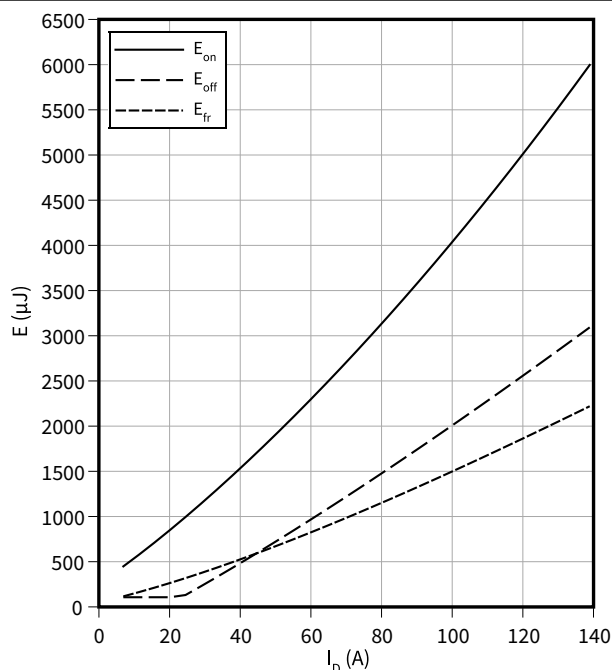


4 Characteristics diagrams

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

$$E = f(I_D)$$

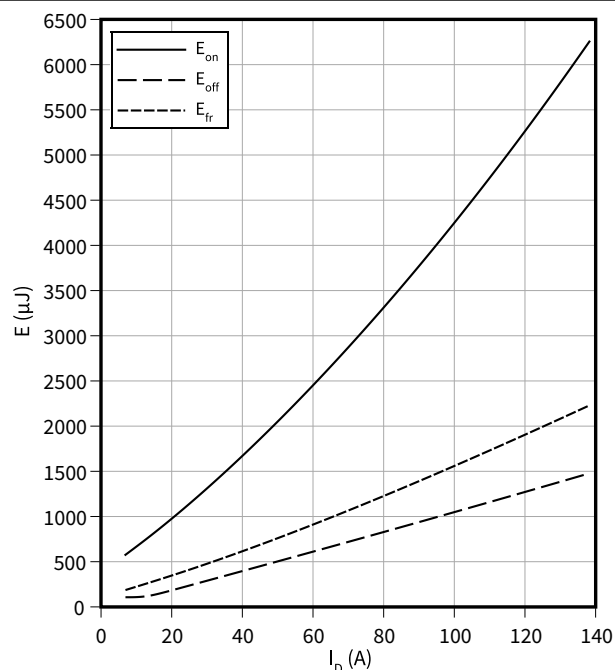
$V_{GS} = 0/18\text{ V}$, $T_{vj} = 175\text{ °C}$, $R_{G,ext} = 2.3\text{ }\Omega$, $V_{DD} = 1000\text{ V}$



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

$$E = f(I_D)$$

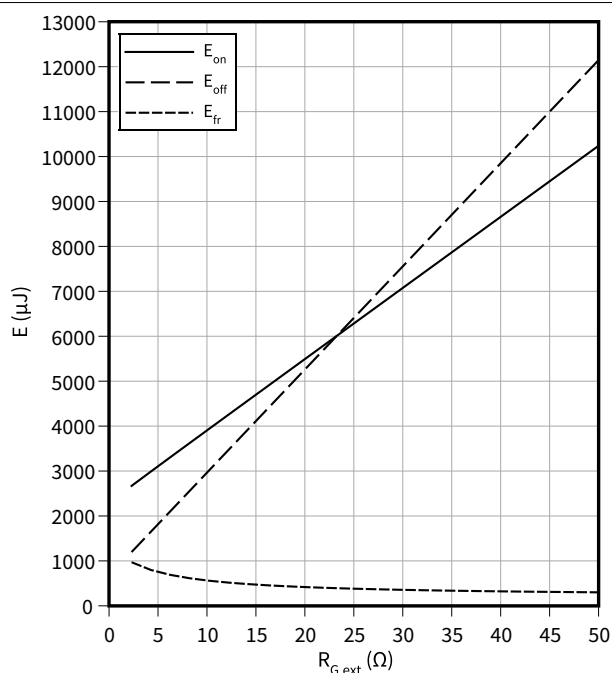
$V_{GS} = -5/18\text{ V}$, $T_{vj} = 175\text{ °C}$, $R_{G,ext} = 2.3\text{ }\Omega$, $V_{DD} = 1000\text{ V}$



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

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

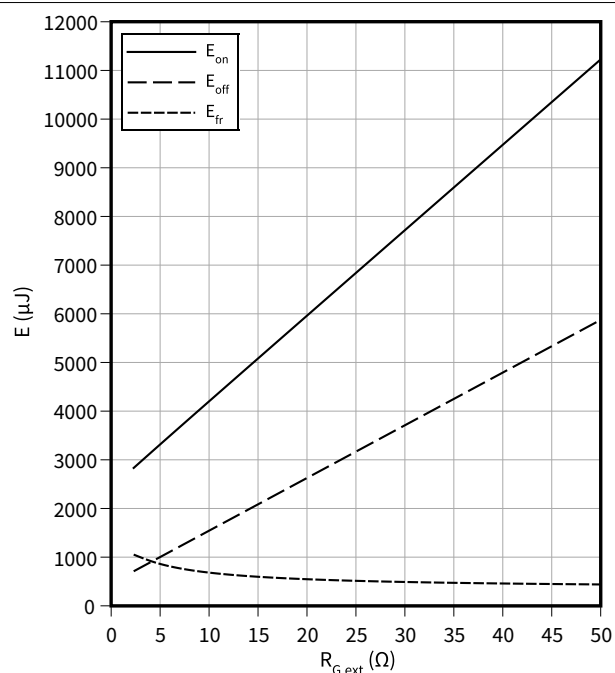
$V_{GS} = 0/18\text{ V}$, $I_D = 69.1\text{ A}$, $T_{vj} = 175\text{ °C}$, $V_{DD} = 1000\text{ V}$



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

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

$V_{GS} = -5/18\text{ V}$, $I_D = 69.1\text{ A}$, $T_{vj} = 175\text{ °C}$, $V_{DD} = 1000\text{ V}$

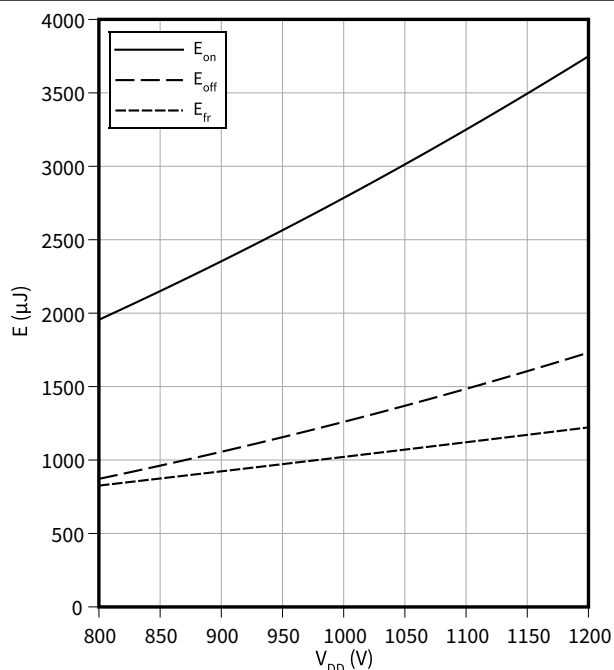


4 Characteristics diagrams

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

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

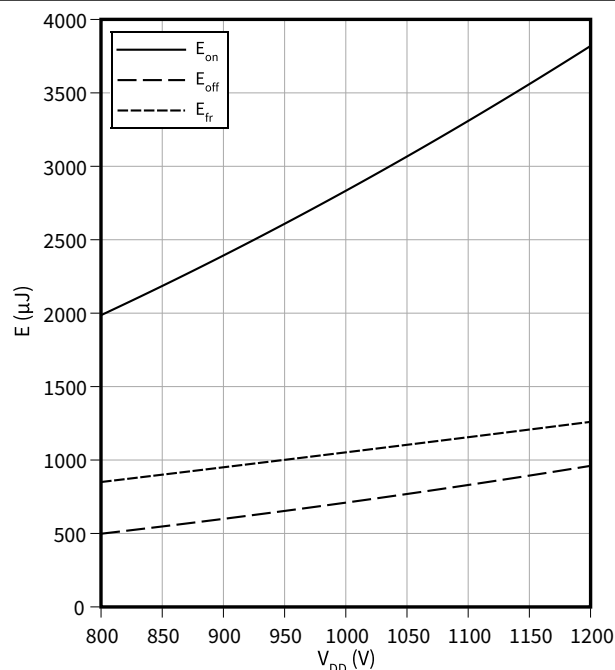
$V_{GS} = 0/18$ V, $I_D = 69.1$ A, $T_{vj} = 175$ °C, $R_{G,ext} = 2.3$ Ω



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

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

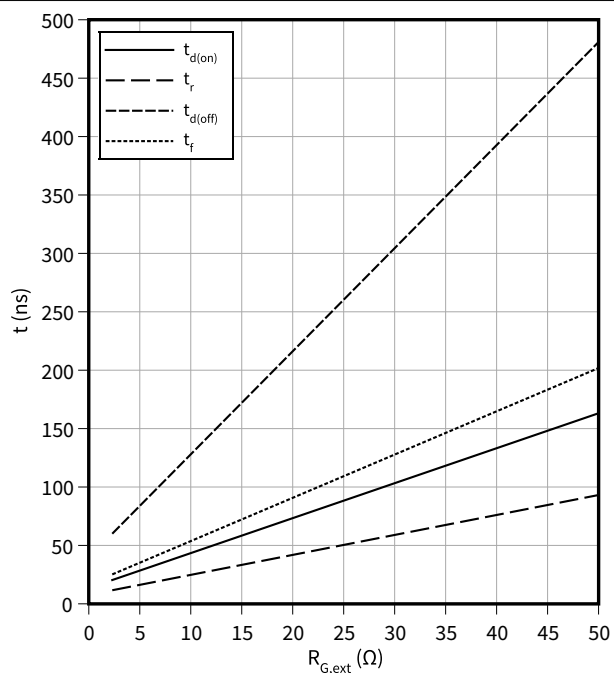
$V_{GS} = -5/18$ V, $I_D = 69.1$ A, $T_{vj} = 175$ °C, $R_{G,ext} = 2.3$ Ω



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

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

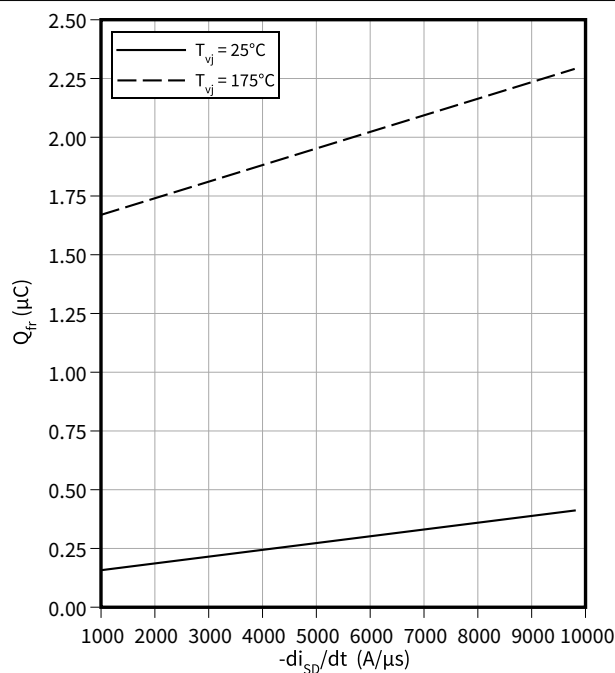
$V_{GS} = 0/18$ V, $I_D = 69.1$ A, $T_{vj} = 175$ °C, $V_{DD} = 1000$ V



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

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

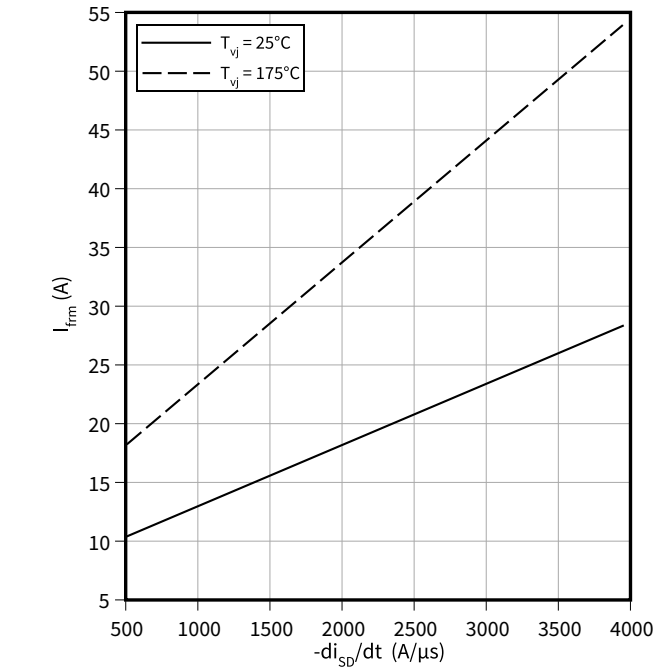
$V_{GS} = 0/18$ V, $I_{SD} = 69.1$ A, $V_{DD} = 1000$ V



4 Characteristics diagrams

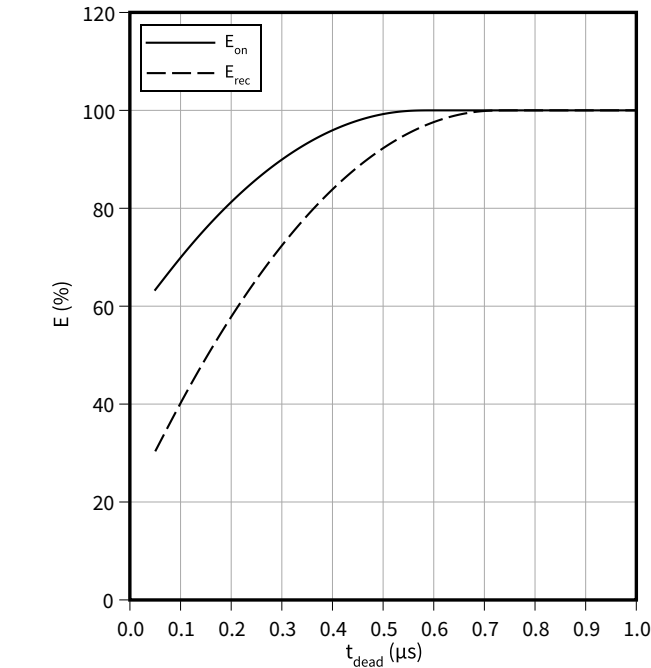
Typical reverse recovery current as a function of reverse drain current slope, test circuit in Fig. F, 2nd device own body diode: $V_{GS} = 0\text{ V}$

$I_{frm} = f(-di_{SD}/dt)$
 $V_{GS} = 0/18\text{ V}, I_{SD} = 69.1\text{ A}, V_{DD} = 1000\text{ V}$



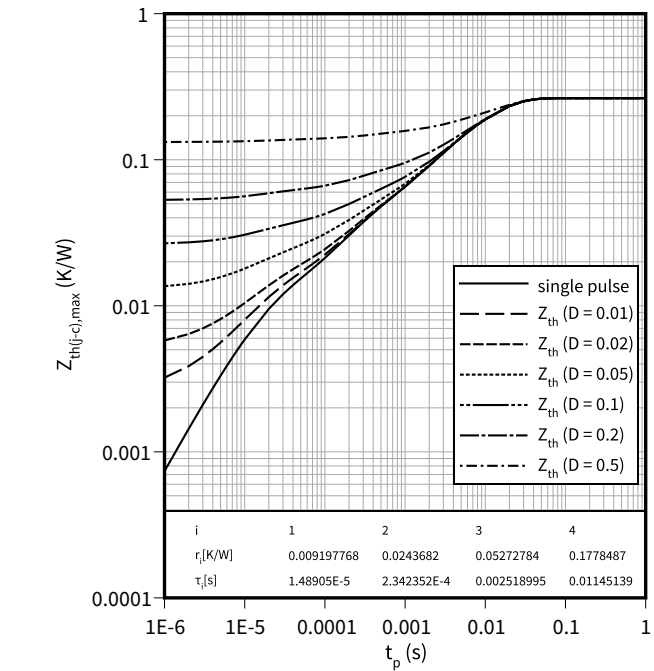
Typical switching energy as a function of dead time / blanking time, test circuit in Fig. F, 2nd device own body diode: $V_{GS} = -5\text{ V}$

$E = f(t_{dead})$
 $V_{GS} = 0/18\text{ V}, I_D = 69.1\text{ A}, T_{vj} = 175\text{ °C}, R_{G,ext} = 2.3\text{ }\Omega$
 $V_{DD} = 1000\text{ V}$



Max. transient thermal impedance (MOSFET/diode)

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



5 Package outlines

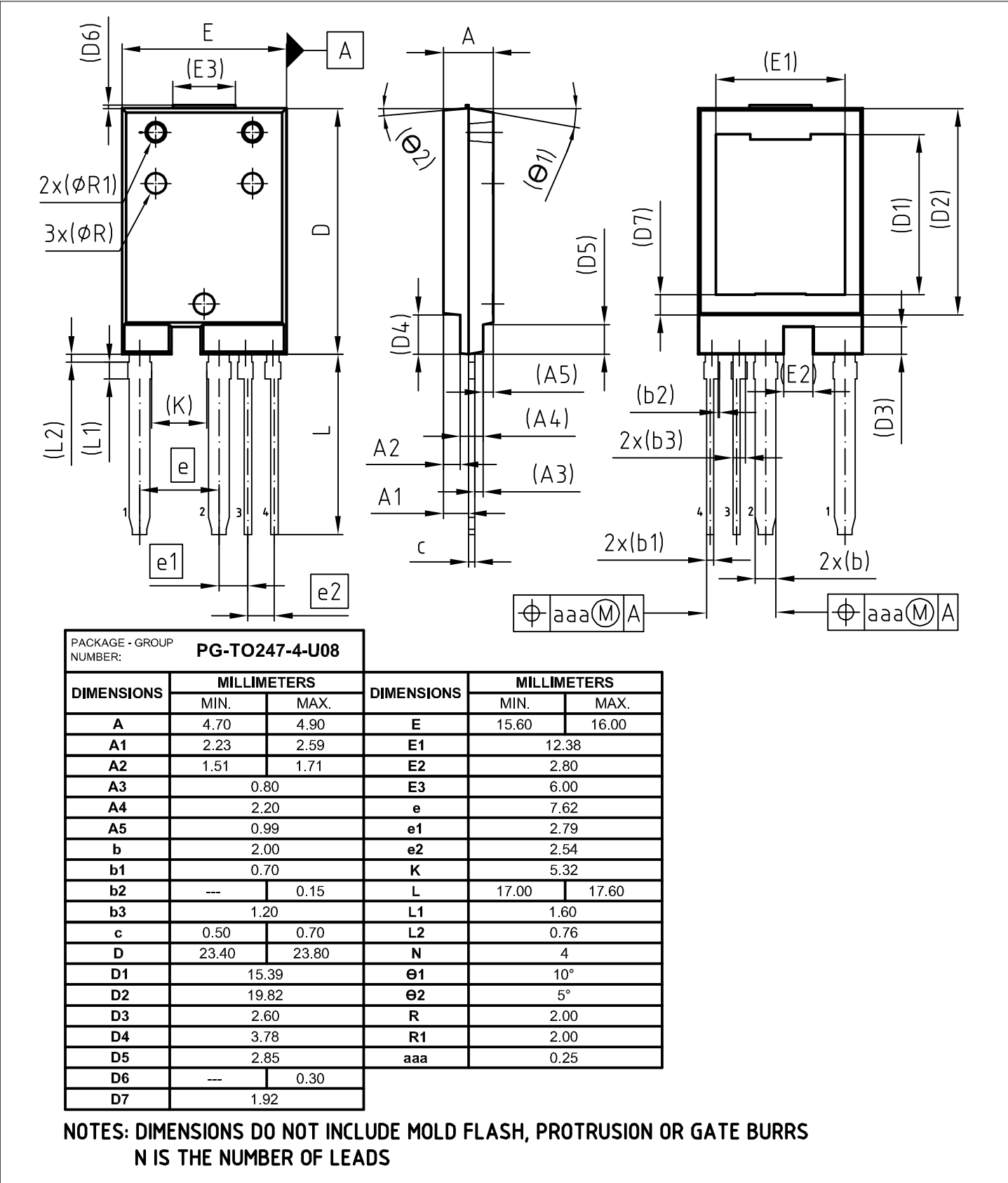


Figure 1

6 Testing conditions

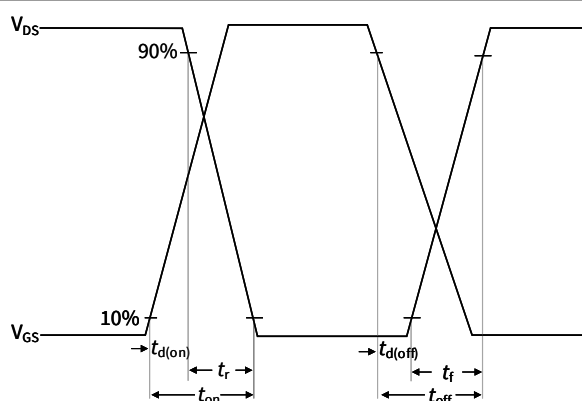


Figure A. Definition of switching times

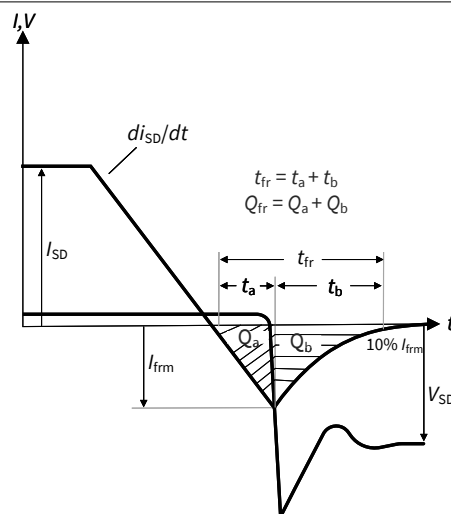


Figure B. Definition of body diode switching characteristics

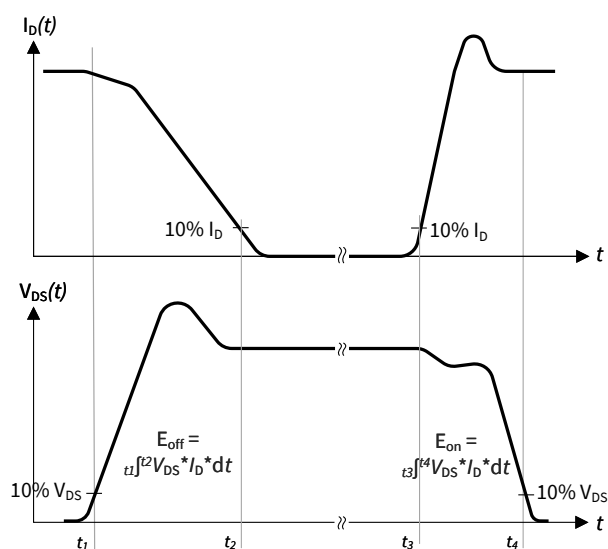


Figure C. Definition of switching losses

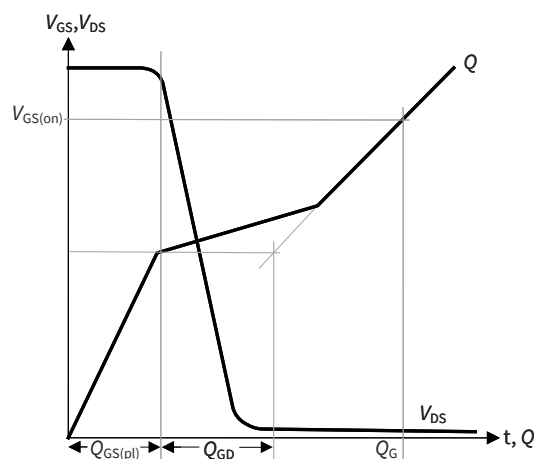


Figure D. Definition of QGD

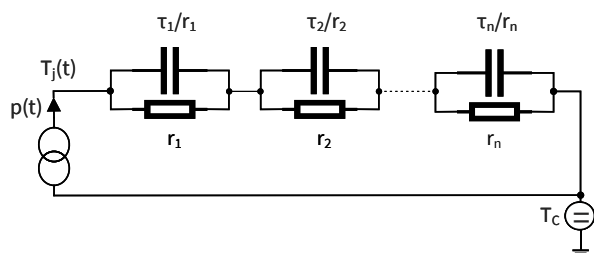


Figure E. Thermal equivalent circuit

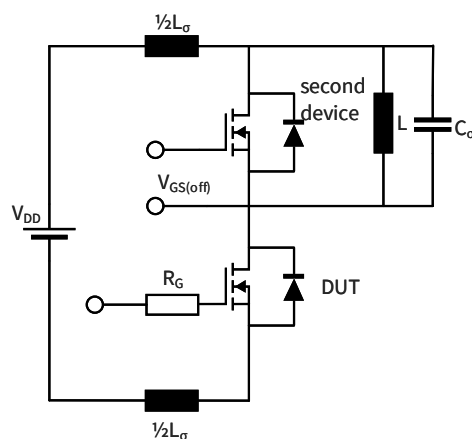


Figure F. Dynamic test circuit

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

Revision history

Document revision	Date of release	Description of changes
1.00	2025-02-27	Final datasheet
1.10	2025-10-13	Added note for CTI information 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

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Edition 2025-10-13

Published by

Infineon Technologies AG
81726 Munich, Germany

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Document reference
IFX-ABM540-002

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