Final datasheet

EasyPACK™ module with TRENCHSTOP™ 5 and RAPID 1 diode and PressFIT / pre-applied thermal interface material / NTC


Typical appearance

Features

- Electrical features
  - V_{CES} = 650 V
  - $I_{C\ nom}$ = 75 A / I_{CRM} = 150 A
  - Low switching losses
  - Increased blocking voltage capability up to 650 V
  - Suitable Infineon gate drivers can be found under https://www.infineon.com/gdfinder
- Mechanical features
  - Al_2O_3 substrate with low thermal resistance
  - Compact design
  - PressFIT contact technology
  - Rugged mounting due to integrated mounting clamps
  - Pre-applied thermal interface material

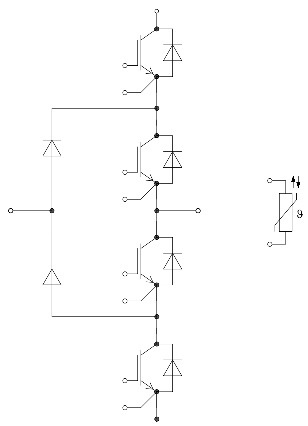
Potential applications

- UPS systems
- Three-level 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	2.5	kV
Isolation test voltage NTC	$V_{ISOL(NTC)}$	RMS, f = 50 Hz, *t* = 1 min	2.5	kV
Internal isolation		basic insulation (class 1, IEC 61140)	Al_2O_3	
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}			23		nH
Module lead resistance, terminals - chip	$R_{AA'+CC'}$	T_H = 25 °C, per switch		1.1		mΩ
Module lead resistance, terminals - chip	$R_{CC'+EE'}$	T_H = 25 °C, per switch		1.4		mΩ
Storage temperature	T_{stg}		-40		125	°C
Maximum baseplate operation temperature	T_{BPmax}				125	°C
Mounting force per clamp	*F*		40		80	N
Weight	*G*			39		g

***Note**: The current under continuous operation is limited to 25A rms per connector pin.*
Storage and shipment of modules with TIM => see AN 2012-07

2 IGBT, T1 / T4

Table 3 **Maximum rated values**

Parameter	Symbol	Note or test condition		Values	Unit
Collector-emitter voltage	V_{CES}		T_{vj} = 25 °C	650	V
Implemented collector current	I_{CN}			75	A
Continuous DC collector current	I_{CDC}	$T_{vj\,max}$ = 175 °C	T_H = 65 °C	50	A
Repetitive peak collector current	I_{CRM}	t_p limited by $T_{vj\,op}$		150	A
Gate-emitter peak voltage	V_{GES}			±20	V

Table 4 Characteristic values

Parameter	Symbol	Note or test condition		Values			Unit
				Min.	Typ.	Max.	
Collector-emitter saturation voltage	$V_{CE\,sat}$	I_C = 75 A, V_{GE} = 15 V	T_{vj} = 25 °C		1.42	1.90	V
			T_{vj} = 125 °C		1.53		
			T_{vj} = 150 °C		1.56		
Gate threshold voltage	V_{GEth}	I_C = 0.75 mA, V_{CE} = V_{GE}, T_{vj} = 25 °C		3.25	4	4.75	V
Gate charge	Q_G	V_{GE} = ±15 V, V_{CC} = 400 V			0.315		µC
Internal gate resistor	R_{Gint}	T_{vj} = 25 °C			0		Ω
Input capacitance	C_{ies}	f = 100 kHz, T_{vj} = 25 °C, V_{CE} = 25 V, V_{GE} = 0 V			5.17		nF
Reverse transfer capacitance	C_{res}	f = 100 kHz, T_{vj} = 25 °C, V_{CE} = 25 V, V_{GE} = 0 V			0.018		nF
Collector-emitter cut-off current	I_{CES}	V_{CE} = 650 V, V_{GE} = 0 V	T_{vj} = 25 °C			79	µA
Gate-emitter leakage current	I_{GES}	V_{CE} = 0 V, V_{GE} = 20 V, T_{vj} = 25 °C				100	nA
Turn-on delay time (inductive load)	t_{don}	I_C = 75 A, V_{CC} = 300 V, V_{GE} = ±15 V, R_{Gon} = 10 Ω	T_{vj} = 25 °C		0.022		µs
			T_{vj} = 125 °C		0.023		
			T_{vj} = 150 °C		0.023		
Rise time (inductive load)	t_r	I_C = 75 A, V_{CC} = 300 V, V_{GE} = ±15 V, R_{Gon} = 10 Ω	T_{vj} = 25 °C		0.019		µs
			T_{vj} = 125 °C		0.022		
			T_{vj} = 150 °C		0.022		
Turn-off delay time (inductive load)	t_{doff}	I_C = 75 A, V_{CC} = 300 V, V_{GE} = ±15 V, R_{Goff} = 1.5 Ω	T_{vj} = 25 °C		0.093		µs
			T_{vj} = 125 °C		0.110		
			T_{vj} = 150 °C		0.110		
Fall time (inductive load)	t_f	I_C = 75 A, V_{CC} = 300 V, V_{GE} = ±15 V, R_{Goff} = 1.5 Ω	T_{vj} = 25 °C		0.018		µs
			T_{vj} = 125 °C		0.048		
			T_{vj} = 150 °C		0.062		
Turn-on energy loss per pulse	E_{on}	I_C = 75 A, V_{CC} = 300 V, L_σ = 35 nH, V_{GE} = ±15 V, R_{Gon} = 10 Ω, di/dt = 3100 A/µs (T_{vj} = 150 °C)	T_{vj} = 25 °C		0.85		mJ
			T_{vj} = 125 °C		1.13		
			T_{vj} = 150 °C		1.2		
Turn-off energy loss per pulse	E_{off}	I_C = 75 A, V_{CC} = 300 V, L_σ = 35 nH, V_{GE} = ±15 V, R_{Goff} = 1.5 Ω, dv/dt = 6900 V/µs (T_{vj} = 150 °C)	T_{vj} = 25 °C		0.53		mJ
			T_{vj} = 125 °C		0.95		
			T_{vj} = 150 °C		1.05		
Thermal resistance, junction to heat sink	R_{thJH}	per IGBT, Valid with IFX pre-applied Thermal Interface Material, λ_{grease} = 1 W/(m·K)				1.17	K/W

(table continues...)

Table 4 (continued) Characteristic values

Parameter	Symbol	Note or test condition	Values			Unit
			Min.	Typ.	Max.	
Temperature under switching conditions	$T_{vj\,op}$		-40		150	°C

3 IGBT, T2 / T3

Table 5 Maximum rated values

Parameter	Symbol	Note or test condition		Values	Unit
Collector-emitter voltage	V_{CES}		T_{vj} = 25 °C	650	V
Implemented collector current	I_{CN}			150	A
Continuous DC collector current	I_{CDC}	$T_{vj\,max}$ = 175 °C	T_H = 65 °C	85	A
Repetitive peak collector current	I_{CRM}	t_p limited by $T_{vj\,op}$		300	A
Gate-emitter peak voltage	V_{GES}			±20	V

Table 6 Characteristic values

Parameter	Symbol	Note or test condition		Values			Unit
				Min.	Typ.	Max.	
Collector-emitter saturation voltage	$V_{CE\,sat}$	I_C = 150 A, V_{GE} = 15 V	T_{vj} = 25 °C		1.42	1.90	V
			T_{vj} = 125 °C		1.53		
			T_{vj} = 150 °C		1.56		
Gate threshold voltage	V_{GEth}	I_C = 1.5 mA, V_{CE} = V_{GE}, T_{vj} = 25 °C		3.25	4	4.75	V
Gate charge	Q_G	V_{GE} = ±15 V, V_{CC} = 400 V			0.63		µC
Internal gate resistor	R_{Gint}	T_{vj} = 25 °C			0		Ω
Input capacitance	C_{ies}	f = 100 kHz, T_{vj} = 25 °C, V_{CE} = 25 V, V_{GE} = 0 V			10.34		nF
Reverse transfer capacitance	C_{res}	f = 100 kHz, T_{vj} = 25 °C, V_{CE} = 25 V, V_{GE} = 0 V			0.036		nF
Collector-emitter cut-off current	I_{CES}	V_{CE} = 650 V, V_{GE} = 0 V	T_{vj} = 25 °C			93	µA
Gate-emitter leakage current	I_{GES}	V_{CE} = 0 V, V_{GE} = 20 V, T_{vj} = 25 °C				100	nA
Turn-on delay time (inductive load)	t_{don}	I_C = 150 A, V_{CC} = 300 V, V_{GE} = ±15 V, R_{Gon} = 20 Ω	T_{vj} = 25 °C		0.072		µs
			T_{vj} = 125 °C		0.065		
			T_{vj} = 150 °C		0.064		

(table continues...)

Table 6 **(continued) Characteristic values**

Parameter	Symbol	Note or test condition		Values			Unit
				Min.	Typ.	Max.	
Rise time (inductive load)	t_r	I_C = 150 A, V_{CC} = 300 V, V_{GE} = ±15 V, R_{Gon} = 20 Ω	T_{vj} = 25 °C		0.053		µs
			T_{vj} = 125 °C		0.059		
			T_{vj} = 150 °C		0.060		
Turn-off delay time (inductive load)	t_{doff}	I_C = 150 A, V_{CC} = 300 V, V_{GE} = ±15 V, R_{Goff} = 56 Ω	T_{vj} = 25 °C		0.660		µs
			T_{vj} = 125 °C		0.690		
			T_{vj} = 150 °C		0.700		
Fall time (inductive load)	t_f	I_C = 150 A, V_{CC} = 300 V, V_{GE} = ±15 V, R_{Goff} = 56 Ω	T_{vj} = 25 °C		0.032		µs
			T_{vj} = 125 °C		0.035		
			T_{vj} = 150 °C		0.040		
Turn-on energy loss per pulse	E_{on}	I_C = 150 A, V_{CC} = 300 V, L_σ = 35 nH, V_{GE} = ±15 V, R_{Gon} = 20 Ω, di/dt = 2300 A/µs (T_{vj} = 150 °C)	T_{vj} = 25 °C		3.85		mJ
			T_{vj} = 125 °C		4.7		
			T_{vj} = 150 °C		4.76		
Turn-off energy loss per pulse	E_{off}	I_C = 150 A, V_{CC} = 300 V, L_σ = 35 nH, V_{GE} = ±15 V, R_{Goff} = 56 Ω, dv/dt = 3700 V/µs (T_{vj} = 150 °C)	T_{vj} = 25 °C		2.73		mJ
			T_{vj} = 125 °C		2.94		
			T_{vj} = 150 °C		3.07		
Thermal resistance, junction to heat sink	R_{thJH}	per IGBT, Valid with IFX pre-applied Thermal Interface Material, λ_{grease} = 1 W/(m·K)				0.708	K/W
Temperature under switching conditions	$T_{vj\,op}$			-40		150	°C

4 Diode, D1 / D4

Table 7 **Maximum rated values**

Parameter	Symbol	Note or test condition		Values	Unit
Repetitive peak reverse voltage	V_{RRM}		T_{vj} = 25 °C	650	V
Implemented forward current	I_{FN}			225	A
Continuous DC forward current	I_F			150	A
Repetitive peak forward current	I_{FRM}	t_P = 1 ms		450	A
I^2t - value	I^2t	t_P = 10 ms, V_R = 0 V	T_{vj} = 125 °C	3850	A^2s
			T_{vj} = 150 °C	3680	

Table 8 **Characteristic values**

Parameter	Symbol	Note or test condition		Values			Unit
				Min.	Typ.	Max.	
Forward voltage	V_F	I_F = 150 A, V_{GE} = 0 V	T_{vj} = 25 °C		1.34	1.73	V
			T_{vj} = 125 °C		1.29		
			T_{vj} = 150 °C		1.25		
Peak reverse recovery current	I_{RM}	V_{CC} = 300 V, I_F = 150 A, V_{GE} = -15 V, -di_F/dt = 2300 A/µs (T_{vj} = 150 °C)	T_{vj} = 25 °C		51		A
			T_{vj} = 125 °C		84		
			T_{vj} = 150 °C		92		
Recovered charge	Q_r	V_{CC} = 300 V, I_F = 150 A, V_{GE} = -15 V, -di_F/dt = 2300 A/µs (T_{vj} = 150 °C)	T_{vj} = 25 °C		3.72		µC
			T_{vj} = 125 °C		8.65		
			T_{vj} = 150 °C		10.2		
Reverse recovery energy	E_{rec}	V_{CC} = 300 V, I_F = 150 A, V_{GE} = -15 V, -di_F/dt = 2300 A/µs (T_{vj} = 150 °C)	T_{vj} = 25 °C		0.44		mJ
			T_{vj} = 125 °C		1.1		
			T_{vj} = 150 °C		1.4		
Thermal resistance, junction to heat sink	R_{thJH}	per diode, Valid with IFX pre-applied Thermal Interface Material, λ_{grease} = 1 W/(m·K)				0.718	K/W
Temperature under switching conditions	$T_{vj\ op}$			-40		150	°C

5 Diode, D2 / D3

Table 9 **Maximum rated values**

Parameter	Symbol	Note or test condition		Values	Unit
Repetitive peak reverse voltage	V_{RRM}		T_{vj} = 25 °C	650	V
Implemented forward current	I_{FN}			225	A
Continuous DC forward current	I_F			150	A
Repetitive peak forward current	I_{FRM}	t_P = 1 ms		450	A
I^2t - value	I^2t	t_P = 10 ms, V_R = 0 V	T_{vj} = 125 °C	3850	A^2s
			T_{vj} = 150 °C	3680	

Table 10 Characteristic values

Parameter	Symbol	Note or test condition		Values			Unit
				Min.	Typ.	Max.	
Forward voltage	V_F	I_F = 150 A, V_{GE} = 0 V	T_{vj} = 25 °C		1.34	1.73	V
			T_{vj} = 125 °C		1.29		
			T_{vj} = 150 °C		1.25		
Peak reverse recovery current	I_{RM}	V_{CC} = 300 V, I_F = 150 A, V_{GE} = -15 V, -di_F/dt = 2300 A/µs (T_{vj} = 150 °C)	T_{vj} = 25 °C		51		A
			T_{vj} = 125 °C		84		
			T_{vj} = 150 °C		92		
Recovered charge	Q_r	V_{CC} = 300 V, I_F = 150 A, V_{GE} = -15 V, -di_F/dt = 2300 A/µs (T_{vj} = 150 °C)	T_{vj} = 25 °C		3.72		µC
			T_{vj} = 125 °C		8.65		
			T_{vj} = 150 °C		10.2		
Reverse recovery energy	E_{rec}	V_{CC} = 300 V, I_F = 150 A, V_{GE} = -15 V, -di_F/dt = 2300 A/µs (T_{vj} = 150 °C)	T_{vj} = 25 °C		0.44		mJ
			T_{vj} = 125 °C		1.1		
			T_{vj} = 150 °C		1.4		
Thermal resistance, junction to heat sink	R_{thJH}	per diode, Valid with IFX pre-applied Thermal Interface Material, λ_{grease} = 1 W/(m·K)				0.718	K/W
Temperature under switching conditions	$T_{vj\ op}$			-40		150	°C

6 Diode, D5 / D6

Table 11 Maximum rated values

Parameter	Symbol	Note or test condition		Values	Unit
Repetitive peak reverse voltage	V_{RRM}		T_{vj} = 25 °C	650	V
Implemented forward current	I_{FN}			150	A
Continuous DC forward current	I_F			75	A
Repetitive peak forward current	I_{FRM}	t_P = 1 ms		300	A
I^2t - value	I^2t	t_P = 10 ms, V_R = 0 V	T_{vj} = 125 °C	1810	A^2s
			T_{vj} = 150 °C	1720	

Table 12 **Characteristic values**

Parameter	Symbol	Note or test condition		Values			Unit
				Min.	Typ.	Max.	
Forward voltage	V_F	I_F = 75 A, V_{GE} = 0 V	T_{vj} = 25 °C		1.25	1.57	V
			T_{vj} = 125 °C		1.17		
			T_{vj} = 150 °C		1.13		
Peak reverse recovery current	I_{RM}	V_{CC} = 300 V, I_F = 75 A, V_{GE} = -15 V, -di$_F$/dt = 3100 A/µs (T_{vj} = 150 °C)	T_{vj} = 25 °C		70		A
			T_{vj} = 125 °C		110		
			T_{vj} = 150 °C		121		
Recovered charge	Q_r	V_{CC} = 300 V, I_F = 75 A, V_{GE} = -15 V, -di$_F$/dt = 3100 A/µs (T_{vj} = 150 °C)	T_{vj} = 25 °C		2.69		µC
			T_{vj} = 125 °C		5.67		
			T_{vj} = 150 °C		6.59		
Reverse recovery energy	E_{rec}	V_{CC} = 300 V, I_F = 75 A, V_{GE} = -15 V, -di$_F$/dt = 3100 A/µs (T_{vj} = 150 °C)	T_{vj} = 25 °C		0.37		mJ
			T_{vj} = 125 °C		1.03		
			T_{vj} = 150 °C		1.27		
Thermal resistance, junction to heat sink	R_{thJH}	per diode, Valid with IFX pre-applied Thermal Interface Material, λ_{grease} = 1 W/(m·K)				1.00	K/W
Temperature under switching conditions	$T_{vj\ op}$			-40		150	°C

7 NTC-Thermistor

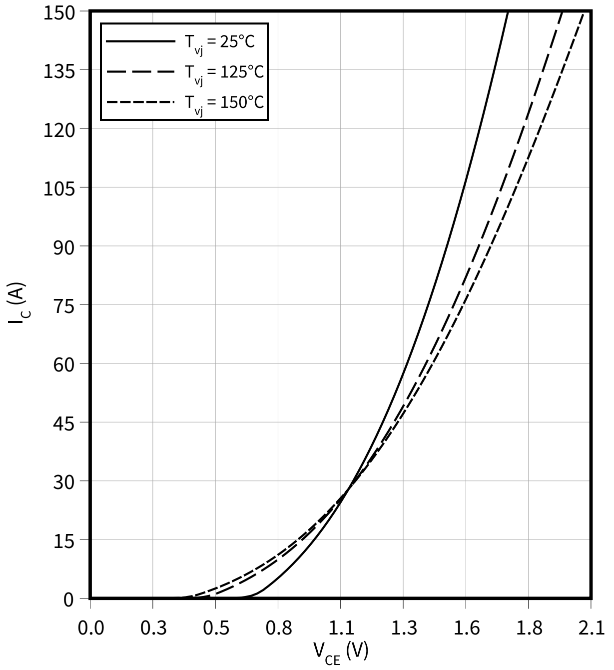
Table 13 **Characteristic values**

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

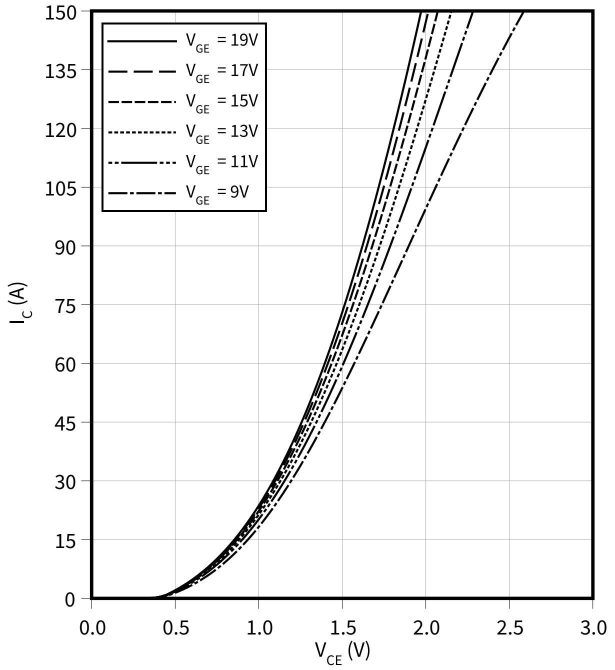
Note: *For an analytical description of the NTC characteristics please refer to AN2009-10, chapter 4.*

8 Characteristics diagrams

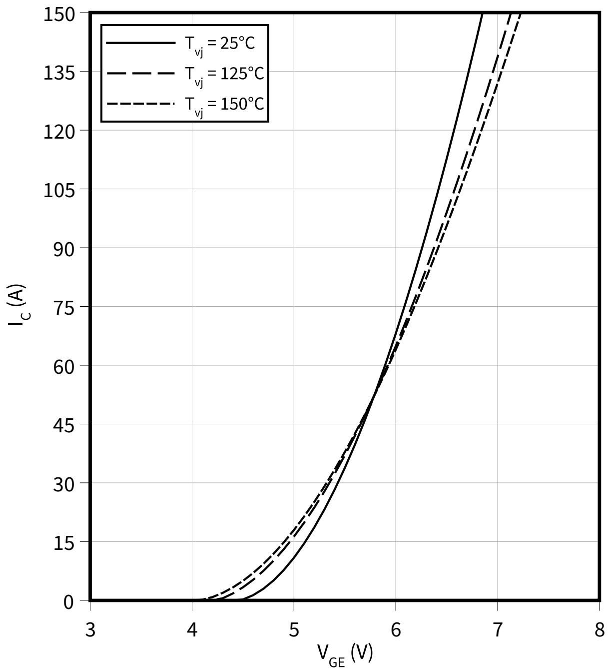
Output characteristic (typical), IGBT, T1 / T4
$I_C = f(V_{CE})$
$V_{GE} = 15$ V



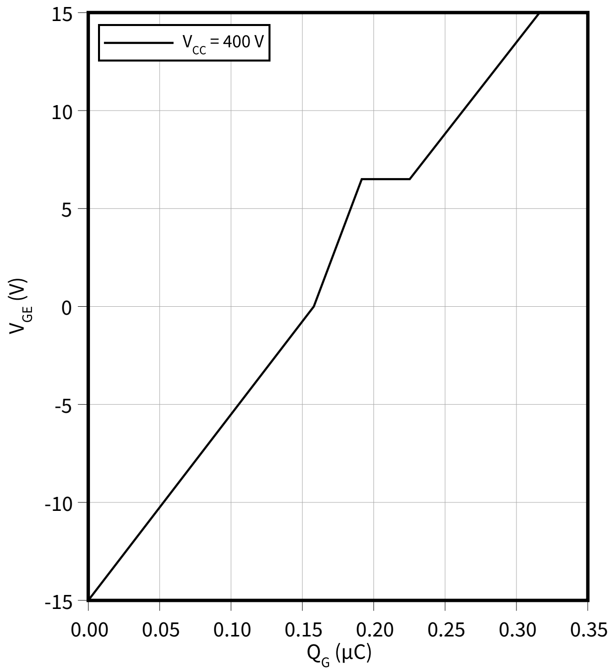
Output characteristic field (typical), IGBT, T1 / T4
$I_C = f(V_{CE})$
$T_{vj} = 150$ °C



Transfer characteristic (typical), IGBT, T1 / T4
$I_C = f(V_{GE})$
$V_{CE} = 20$ V



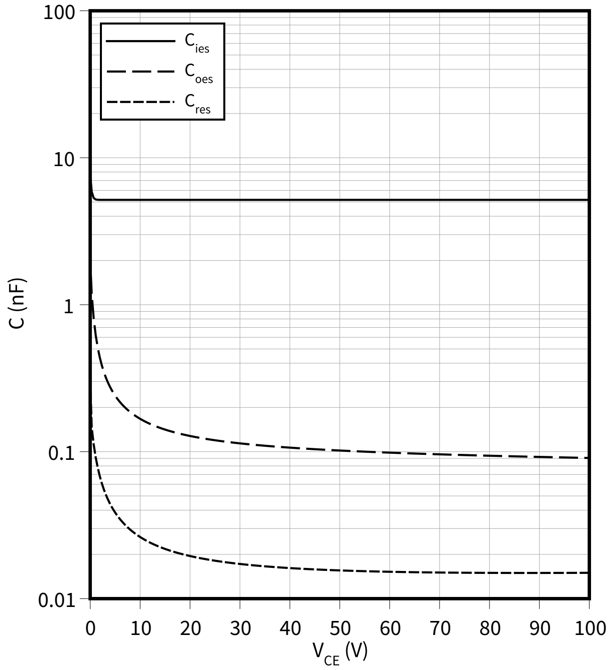
Gate charge characteristic (typical), IGBT, T1 / T4
$V_{GE} = f(Q_G)$
$I_C = 75$ A, $T_{vj} = 25$ °C



Capacity characteristic (typical), IGBT, T1 / T4

$C = f(V_{CE})$

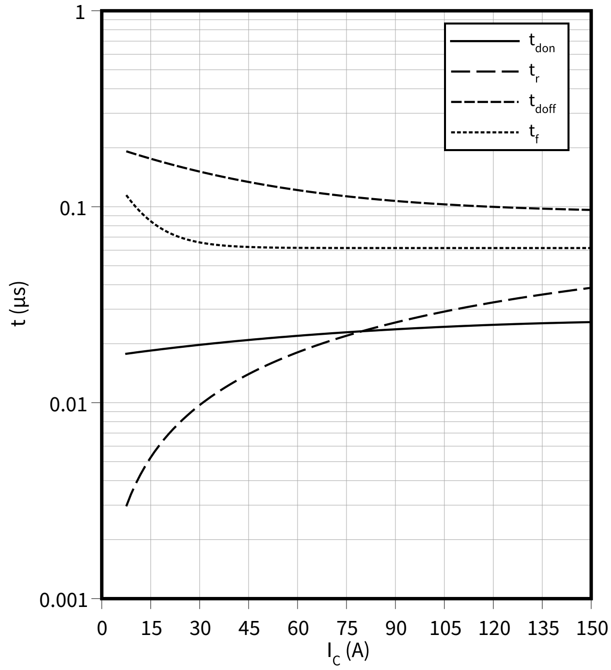
f = 100 kHz, V_{GE} = 0 V, T_{vj} = 25 °C



Switching times (typical), IGBT, T1 / T4

$t = f(I_C)$

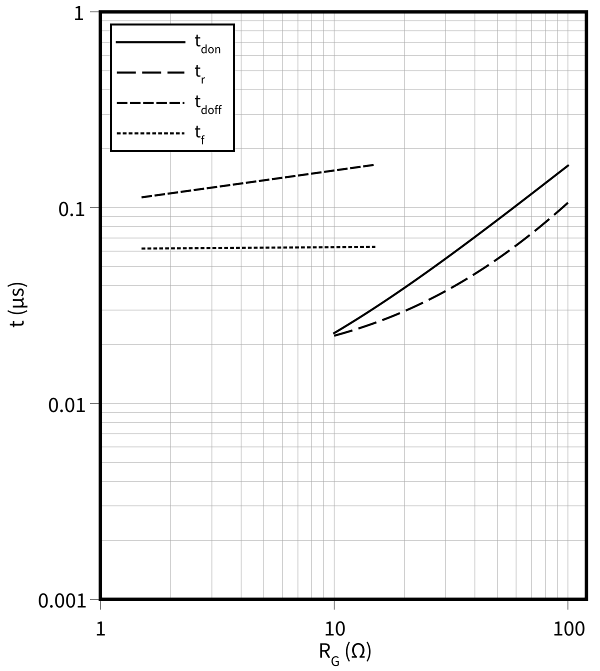
R_{Goff} = 1.5 Ω, R_{Gon} = 10 Ω, V_{CC} = 300 V, V_{GE} = ± 15 V, T_{vj} = 150 °C



Switching times (typical), IGBT, T1 / T4

$t = f(R_G)$

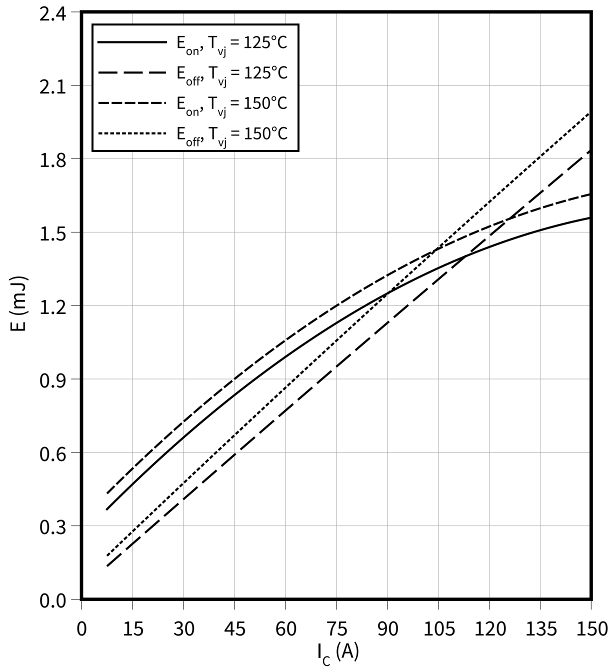
I_C = 75 A, V_{CC} = 300 V, V_{GE} = ± 15 V, T_{vj} = 150 °C



Switching losses (typical), IGBT, T1 / T4

$E = f(I_C)$

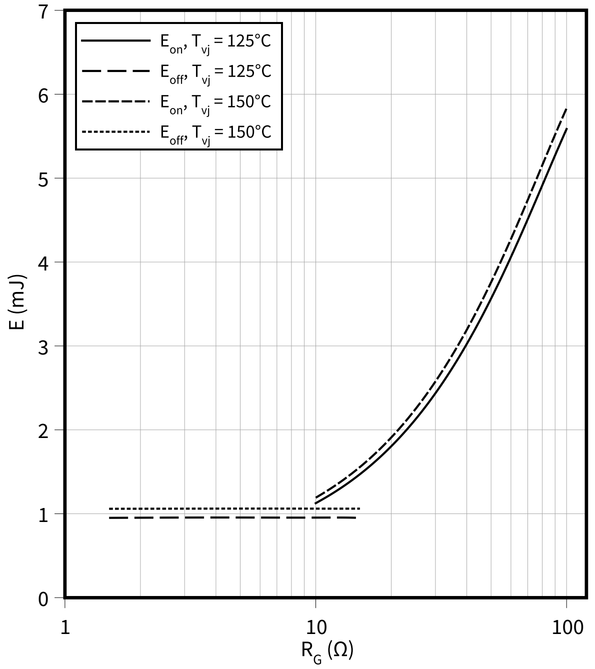
R_{Goff} = 1.5 Ω, R_{Gon} = 10 Ω, V_{CC} = 300 V, V_{GE} = ± 15 V



Switching losses (typical), IGBT, T1 / T4

$E = f(R_G)$

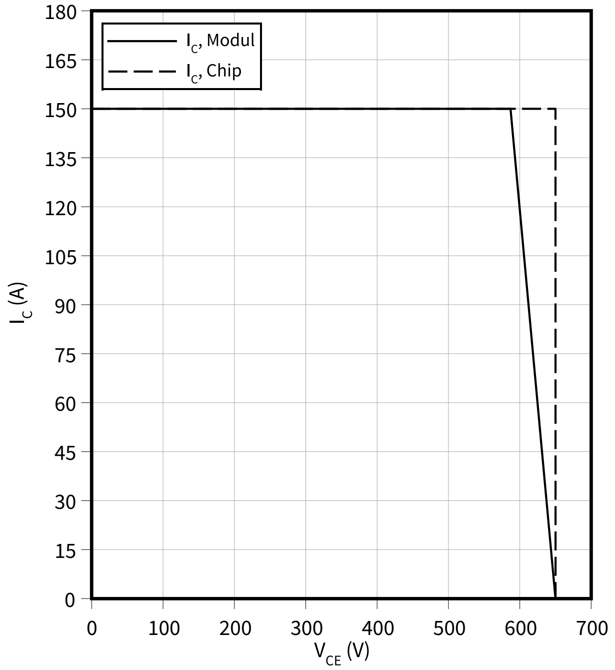
$I_C = 75$ A, $V_{CC} = 300$ V, $V_{GE} = \pm 15$ V



Reverse bias safe operating area (RBSOA), IGBT, T1 / T4

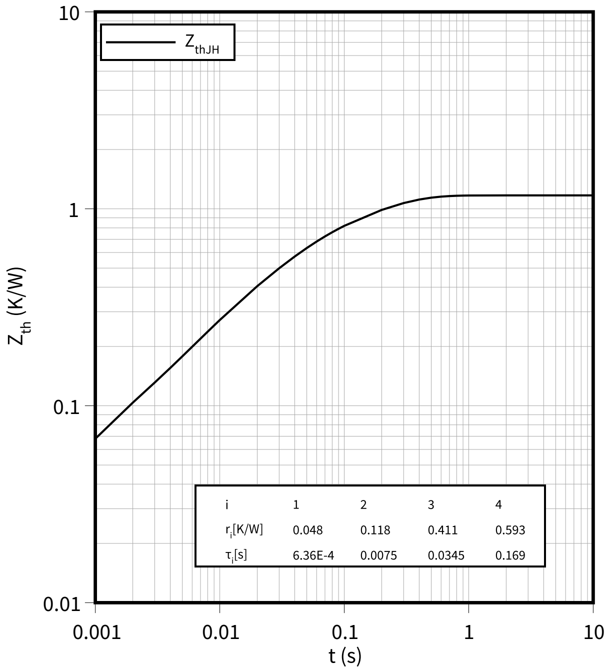
$I_C = f(V_{CE})$

$R_{Goff} = 1.5\ \Omega$, $V_{GE} = \pm 15$ V, $T_{vj} = 150$ °C



Transient thermal impedance, IGBT, T1 / T4

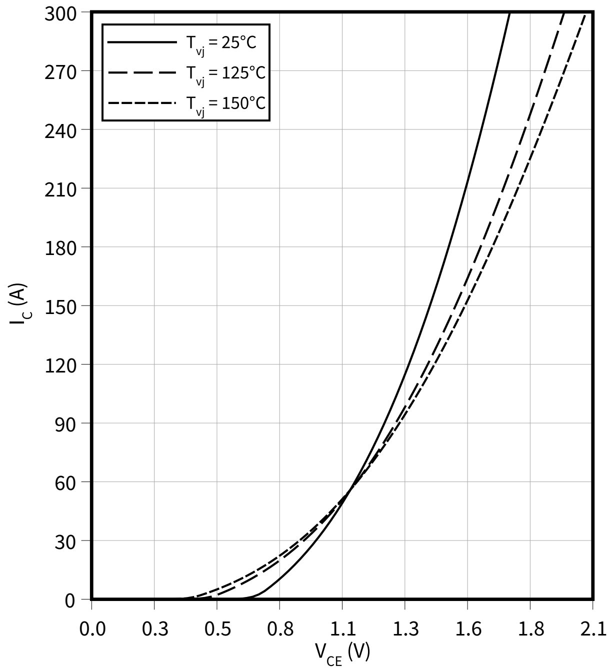
$Z_{th} = f(t)$



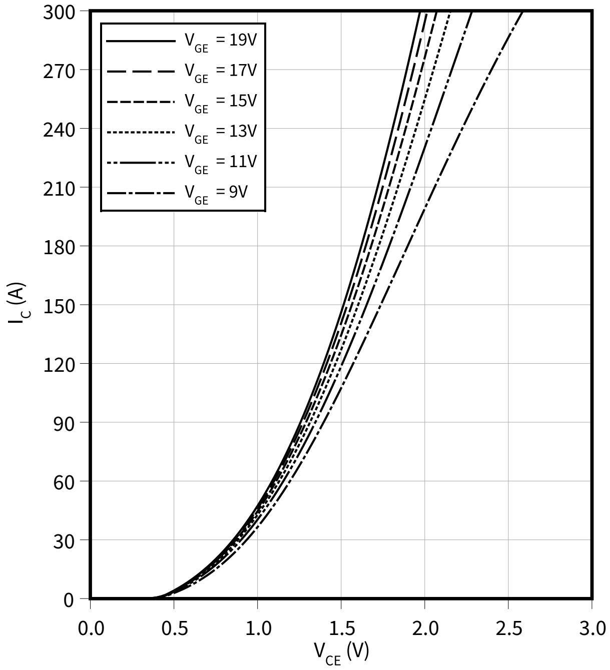
Output characteristic (typical), IGBT, T2 / T3

$I_C = f(V_{CE})$

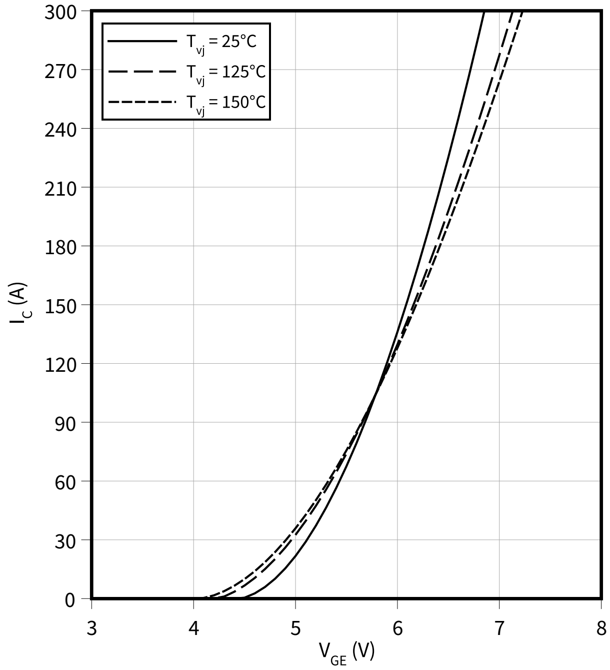
$V_{GE} = 15$ V



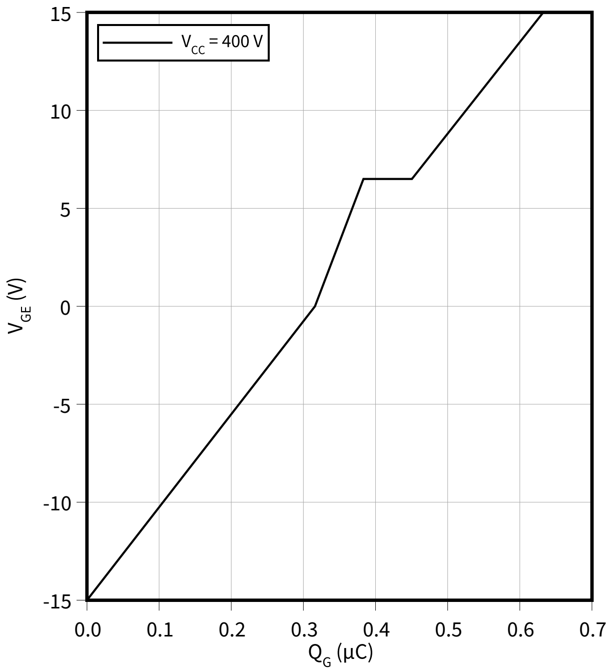
Output characteristic field (typical), IGBT, T2 / T3
$I_C = f(V_{CE})$
$T_{vj} = 150\ °C$



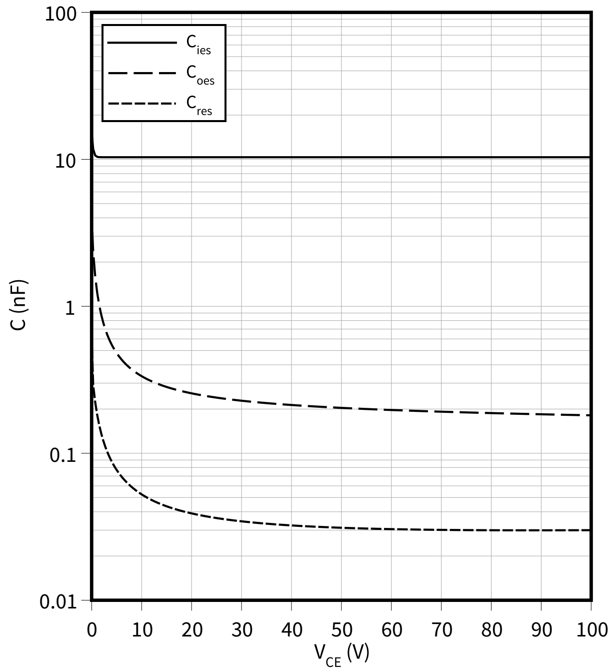
Transfer characteristic (typical), IGBT, T2 / T3
$I_C = f(V_{GE})$
$V_{CE} = 20\ V$



Gate charge characteristic (typical), IGBT, T2 / T3
$V_{GE} = f(Q_G)$
$I_C = 150\ A,\ T_{vj} = 25\ °C$



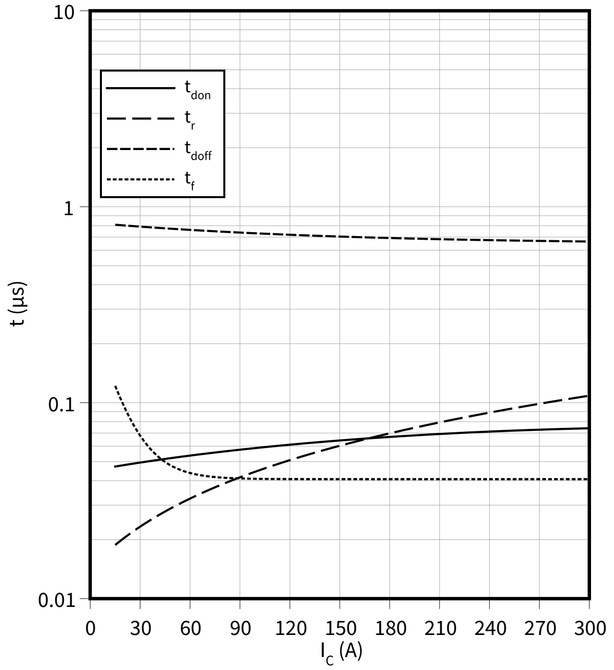
Capacity characteristic (typical), IGBT, T2 / T3
$C = f(V_{CE})$
$f = 100\ kHz,\ V_{GE} = 0\ V,\ T_{vj} = 25\ °C$



Switching times (typical), IGBT, T2 / T3

t = f(I_C)

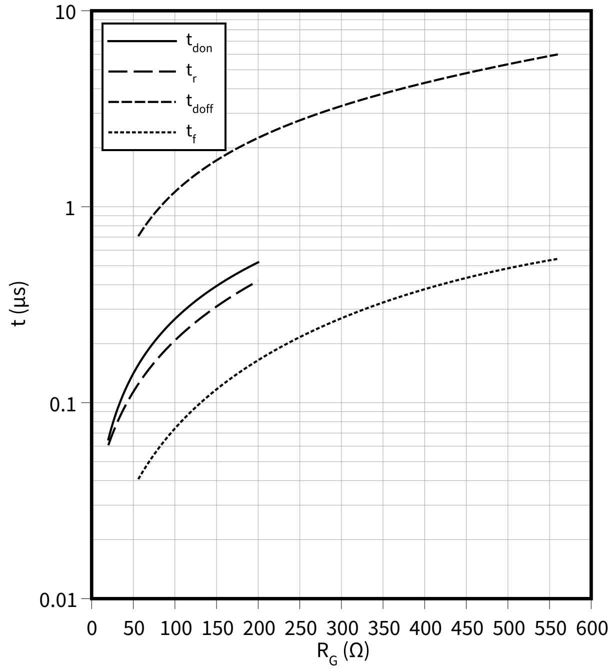
R_{Goff} = 56 Ω, R_{Gon} = 20 Ω, V_{CC} = 300 V, V_{GE} = ± 15 V, T_{vj} = 150 °C



Switching times (typical), IGBT, T2 / T3

t = f(R_G)

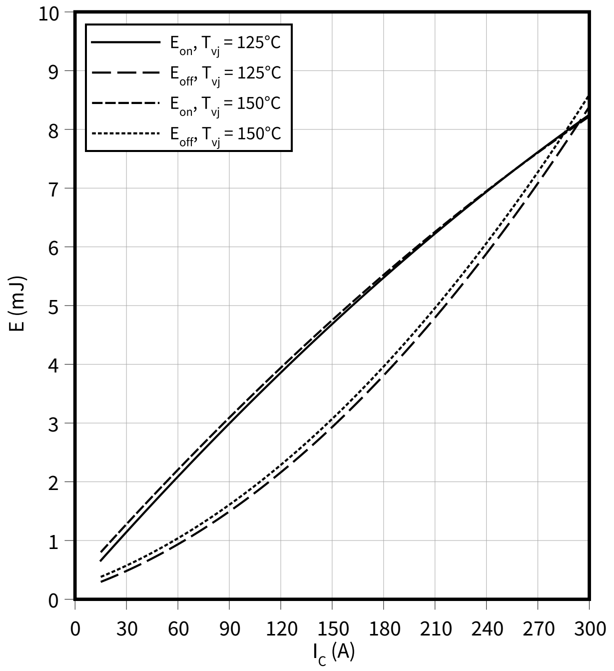
I_C = 150 A, V_{CC} = 300 V, V_{GE} = ± 15 V, T_{vj} = 150 °C



Switching losses (typical), IGBT, T2 / T3

E = f(I_C)

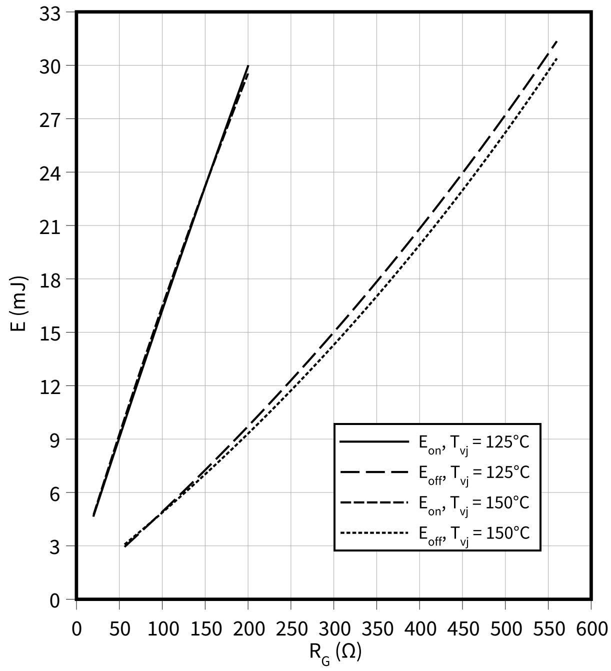
R_{Goff} = 56 Ω, R_{Gon} = 20 Ω, V_{CC} = 300 V, V_{GE} = ± 15 V



Switching losses (typical), IGBT, T2 / T3

E = f(R_G)

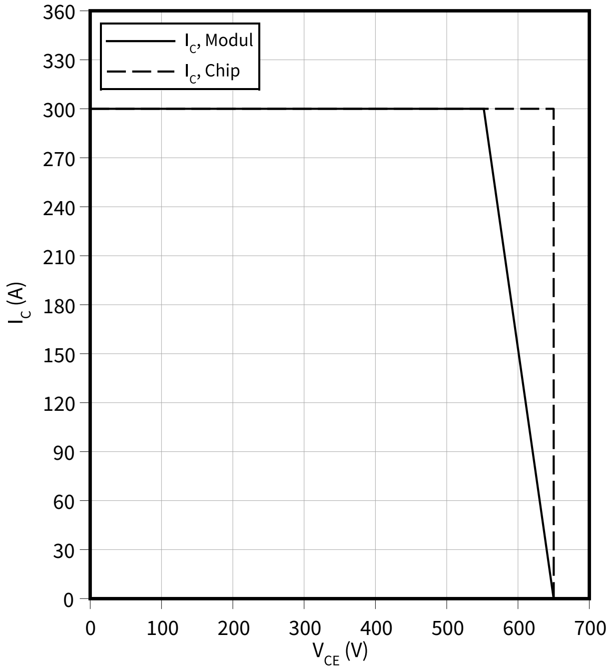
I_C = 150 A, V_{CC} = 300 V, V_{GE} = ± 15 V



Reverse bias safe operating area (RBSOA), IGBT, T2 / T3

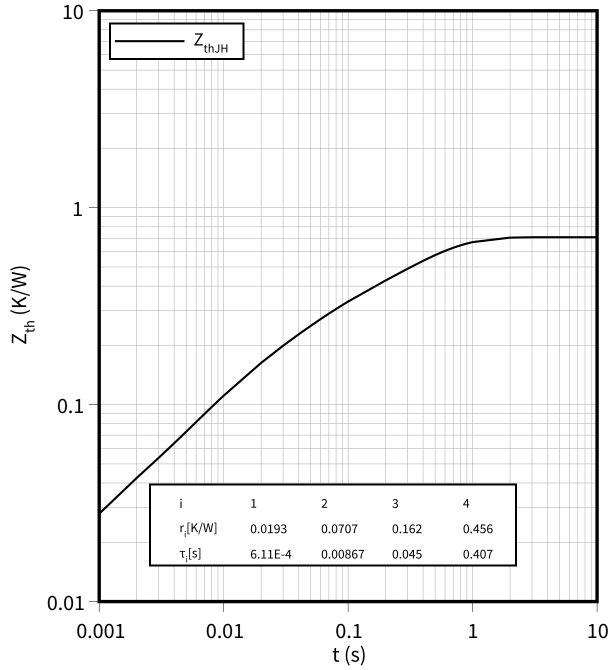
$I_C = f(V_{CE})$

$R_{Goff} = 56\ \Omega$, $V_{GE} = \pm 15$ V, $T_{vj} = 150$ °C



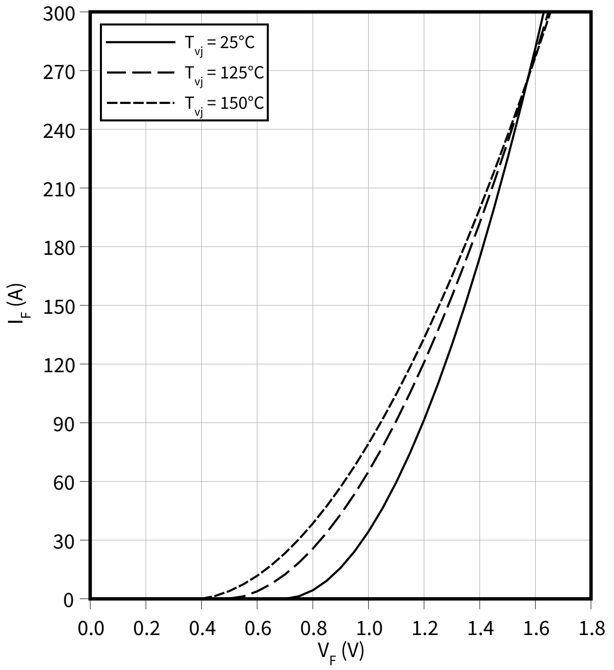
Transient thermal impedance, IGBT, T2 / T3

$Z_{th} = f(t)$



Forward characteristic (typical), Diode, D1 / D4

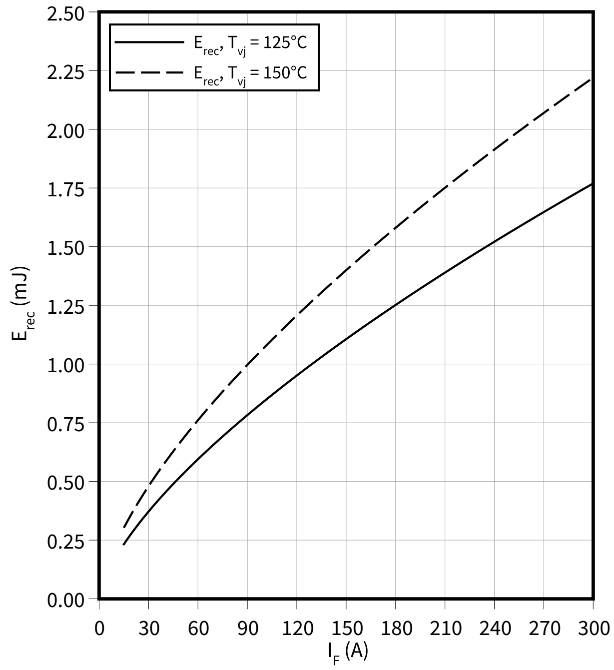
$I_F = f(V_F)$



Switching losses (typical), Diode, D1 / D4

$E_{rec} = f(I_F)$

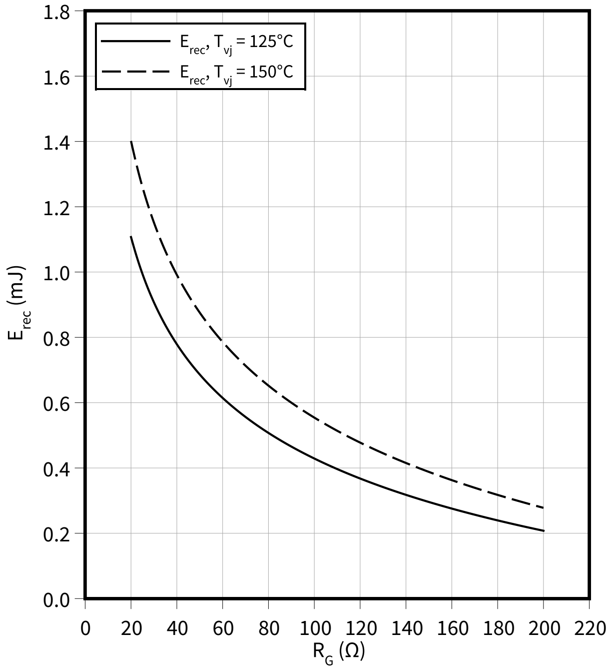
$R_{Gon} = 20\ \Omega$, $V_{CE} = 300$ V



Switching losses (typical), Diode, D1 / D4

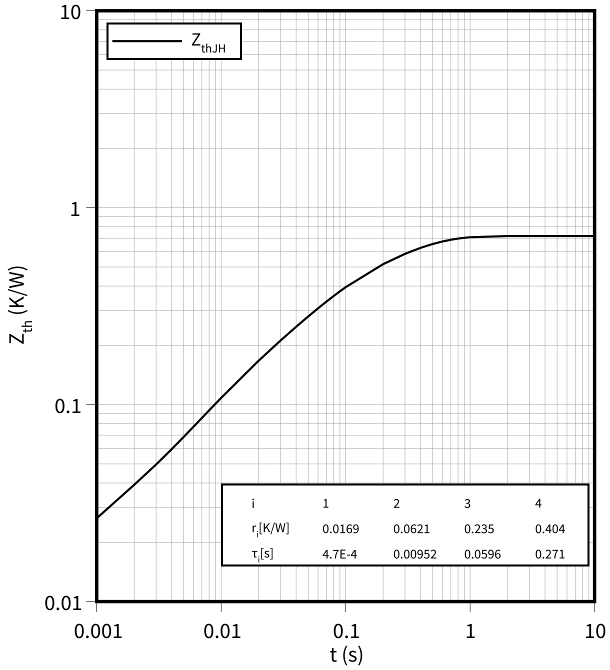
$E_{rec} = f(R_G)$

$V_{CE} = 300$ V, $I_F = 150$ A



Transient thermal impedance, Diode, D1 / D4

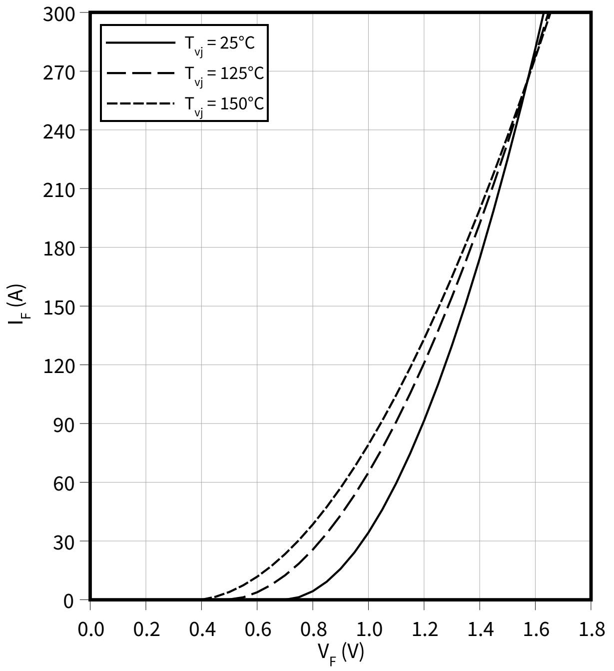
$Z_{th} = f(t)$



i	1	2	3	4
r_i[K/W]	0.0169	0.0621	0.235	0.404
τ_i[s]	4.7E-4	0.00952	0.0596	0.271

Forward characteristic (typical), Diode, D2 / D3

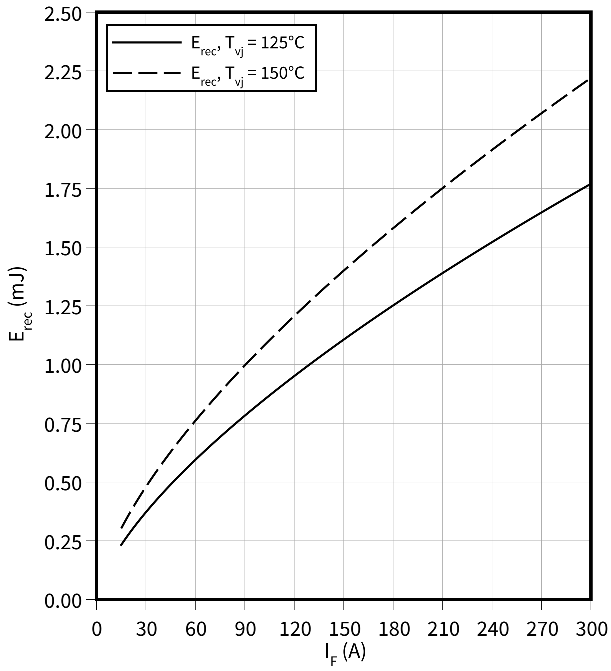
$I_F = f(V_F)$



Switching losses (typical), Diode, D2 / D3

$E_{rec} = f(I_F)$

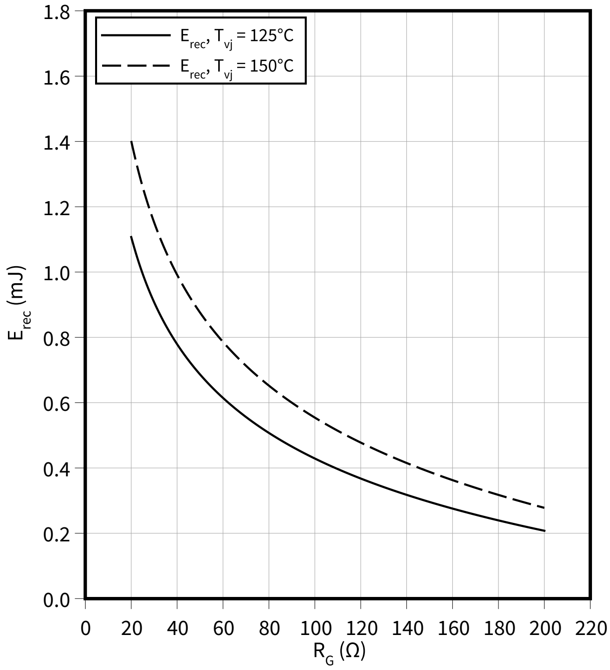
$R_{Gon} = 20\ \Omega$, $V_{CE} = 300$ V



Switching losses (typical), Diode, D2 / D3

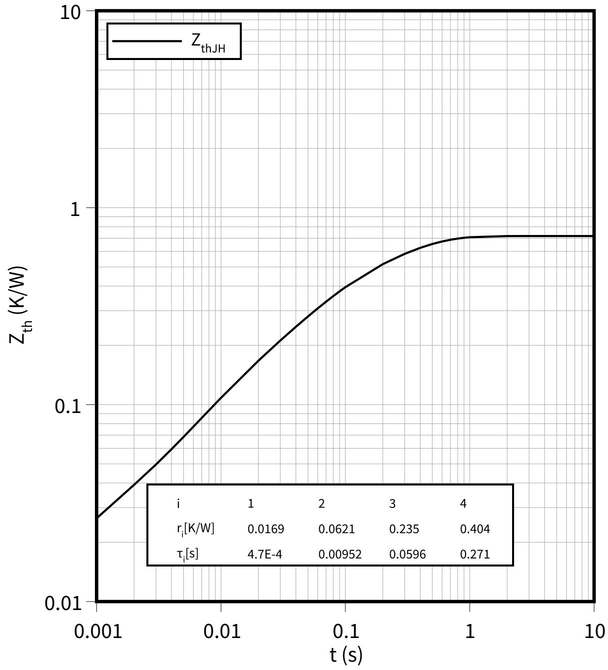
$E_{rec} = f(R_G)$

$V_{CE} = 300$ V, $I_F = 150$ A



Transient thermal impedance, Diode, D2 / D3

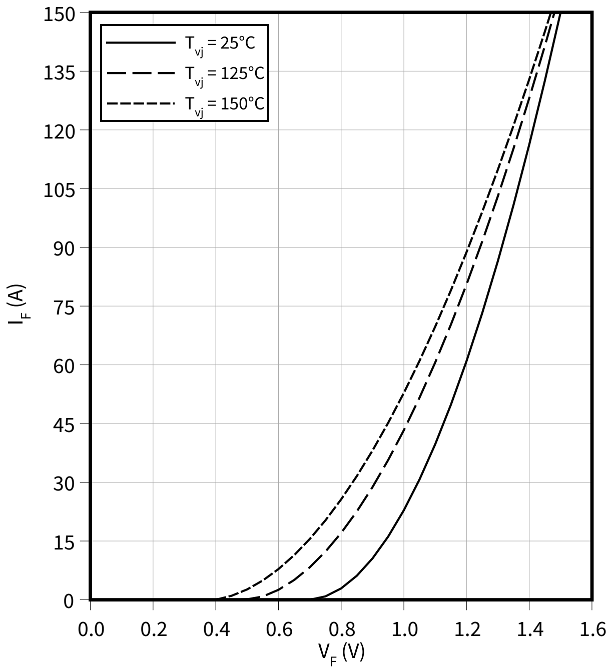
$Z_{th} = f(t)$



i	1	2	3	4
r_i[K/W]	0.0169	0.0621	0.235	0.404
τ_i[s]	4.7E-4	0.00952	0.0596	0.271

Forward characteristic (typical), Diode, D5 / D6

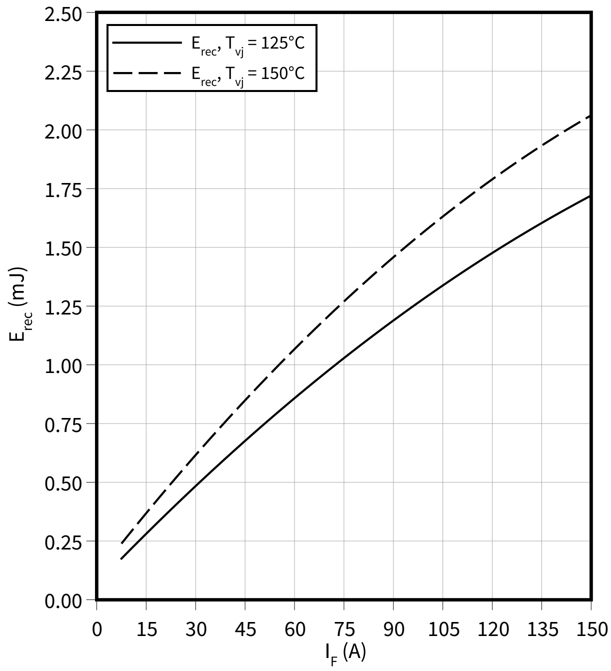
$I_F = f(V_F)$



Switching losses (typical), Diode, D5 / D6

$E_{rec} = f(I_F)$

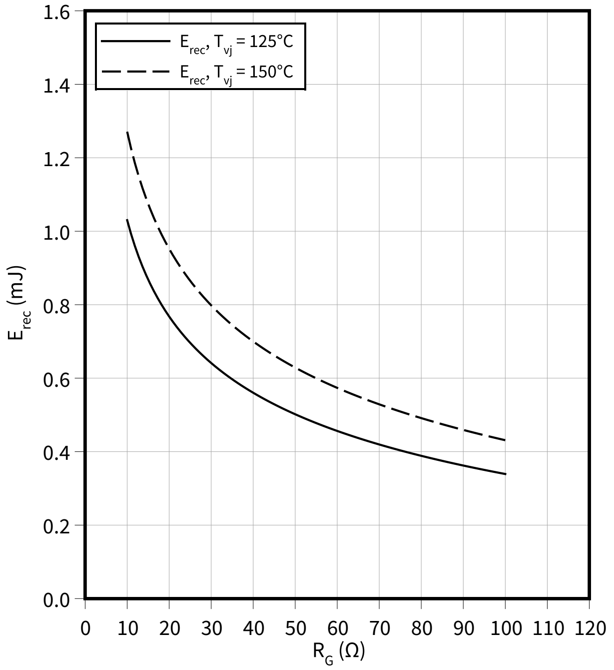
$R_{Gon} = 10\ \Omega$, $V_{CE} = 300$ V



Switching losses (typical), Diode, D5 / D6

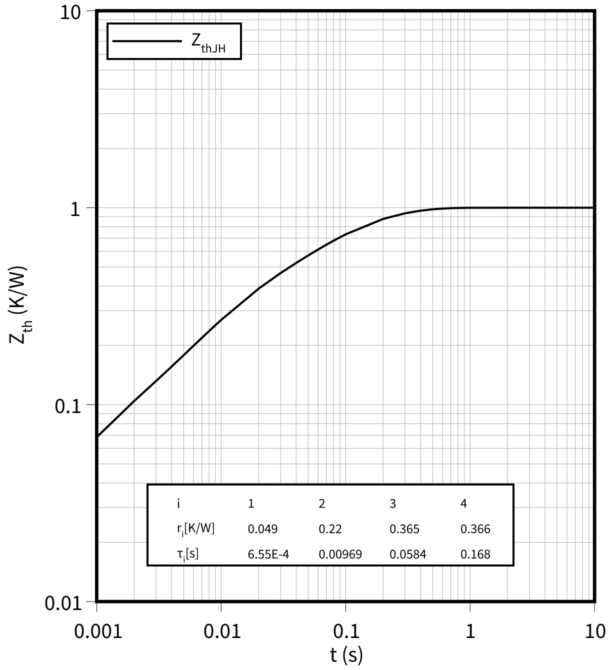
$E_{rec} = f(R_G)$

$V_{CE} = 300$ V, $I_F = 75$ A



Transient thermal impedance, Diode, D5 / D6

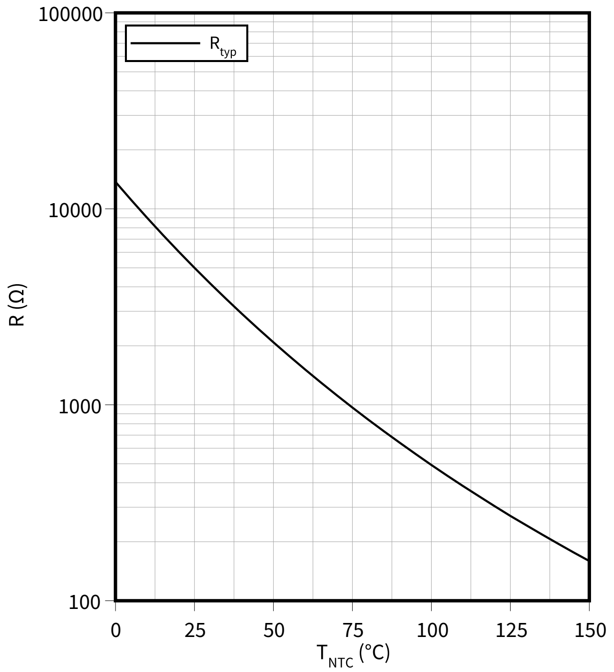
$Z_{th} = f(t)$



i	1	2	3	4
r_i[K/W]	0.049	0.22	0.365	0.366
τ_i[s]	6.55E-4	0.00969	0.0584	0.168

Temperature characteristic (typical), NTC-Thermistor

$R = f(T_{NTC})$



9 Circuit diagram

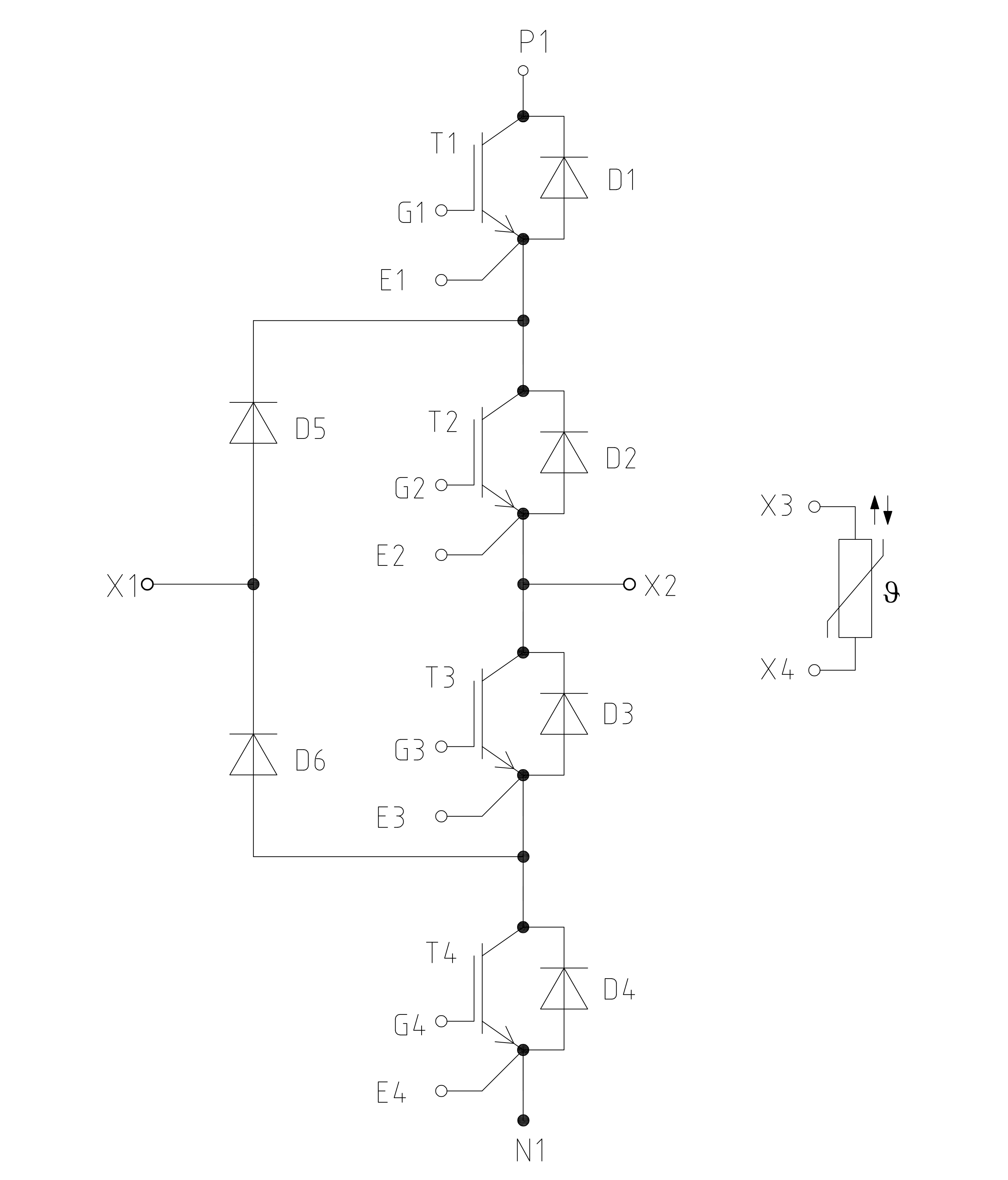


Figure 1

10 Package outlines

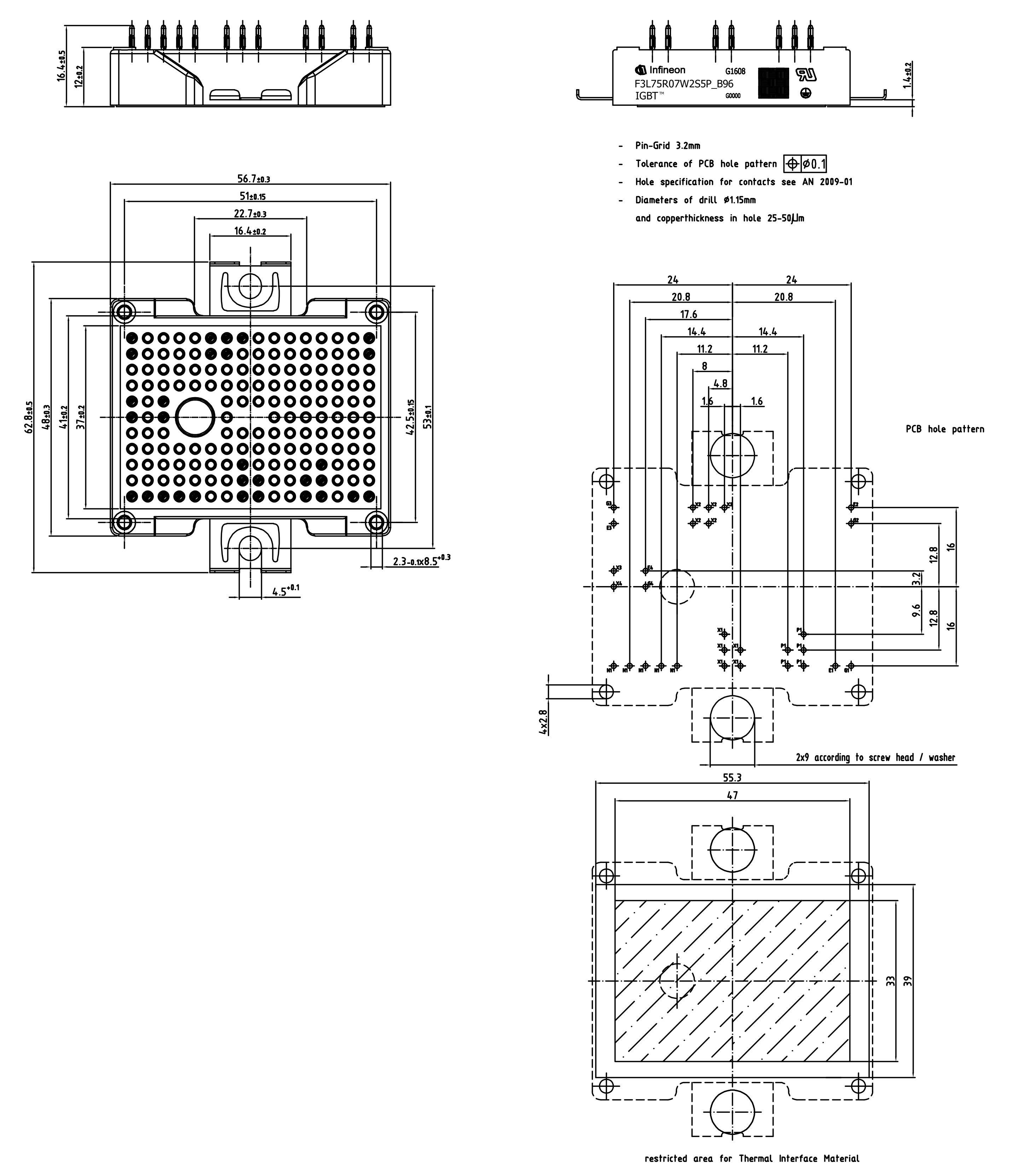


Figure 2

11 Module label code

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

Figure 3

Revision history

Document version	Date of release	Description of changes
0.10	2023-10-30	Initial version
1.00	2024-01-18	Final datasheet

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