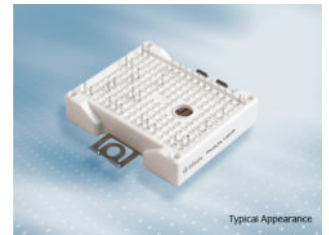


EasyPACK™ 2B module with Trench/Fieldstop IGBT H3 and rapid diode and PressFIT / NTC

Features

- Electrical features
 - $V_{CES} = 650\text{ V}$
 - $I_{C\text{ nom}} = 100\text{ A} / I_{CRM} = 200\text{ A}$
 - Increased blocking voltage capability up to 650 V
 - Low inductive design
 - Low switching losses
 - Low $V_{CE,sat}$
- Mechanical features
 - Al_2O_3 substrate with low thermal resistance
 - Compact design
 - PressFIT contact technology
 - Rugged mounting due to integrated mounting clamps



Potential applications

- Three-level applications
- Motor drives
- Solar applications

Product validation

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

Description

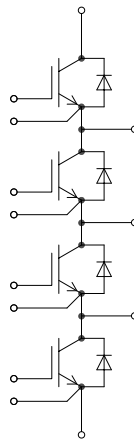


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1 Package

Table 1 Insulation coordination

Parameter	Symbol	Note or test condition	Values	Unit
Isolation test voltage	V_{ISOL}	RMS, $f = 50 \text{ Hz}$, $t = 1 \text{ min}$	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}			41		nH
Storage temperature	T_{stg}		-40		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.

2 IGBT, T1 / T4

Table 3 Maximum rated values

Parameter	Symbol	Note or test condition		Values	Unit
Collector-emitter voltage	V_{CES}		$T_{vj} = 25 \text{ °C}$	650	V
Implemented collector current	I_{CN}			50	A
Continuous DC collector current	I_{CDC}	$T_{vj \text{ max}} = 175 \text{ °C}$	$T_H = 65 \text{ °C}$	40	A
Repetitive peak collector current	I_{CRM}	$t_P = 1 \text{ ms}$		100	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	$V_{CE\ sat}$	$I_C = 50\ A, V_{GE} = 15\ V$	$T_{vj} = 25\ ^\circ C$		1.68	2.00	V
			$T_{vj} = 125\ ^\circ C$		1.86		
			$T_{vj} = 150\ ^\circ C$		1.89		
Gate threshold voltage	V_{GEth}	$I_C = 0.8\ mA, V_{CE} = V_{GE}, T_{vj} = 25\ ^\circ C$		5.05	5.75	6.45	V
Gate charge	Q_G	$V_{GE} = \pm 15\ V, V_{CE} = 400\ V$			0.5		μC
Internal gate resistor	R_{Gint}	$T_{vj} = 25\ ^\circ C$			0		Ω
Input capacitance	C_{ies}	$f = 100\ kHz, T_{vj} = 25\ ^\circ C, V_{CE} = 650\ V, V_{GE} = 0\ V$			2.95		nF
Reverse transfer capacitance	C_{res}	$f = 100\ kHz, T_{vj} = 25\ ^\circ C, V_{CE} = 650\ V, V_{GE} = 0\ V$			0.096		nF
Collector-emitter cut-off current	I_{CES}	$V_{CE} = 650\ V, V_{GE} = 0\ V$	$T_{vj} = 25\ ^\circ C$			0.021	mA
Gate-emitter leakage current	I_{GES}	$V_{CE} = 650\ V, V_{GE} = 0\ V, T_{vj} = 25\ ^\circ C$				100	nA
Turn-on delay time (inductive load)	t_{don}	$I_C = 50\ A, V_{CE} = 300\ V, V_{GE} = \pm 15\ V, R_{Gon} = 2.2\ \Omega$	$T_{vj} = 25\ ^\circ C$		0.014		μs
			$T_{vj} = 125\ ^\circ C$		0.015		
			$T_{vj} = 150\ ^\circ C$		0.015		
Rise time (inductive load)	t_r	$I_C = 50\ A, V_{CE} = 300\ V, V_{GE} = \pm 15\ V, R_{Gon} = 2.2\ \Omega$	$T_{vj} = 25\ ^\circ C$		0.008		μs
			$T_{vj} = 125\ ^\circ C$		0.010		
			$T_{vj} = 150\ ^\circ C$		0.011		
Turn-off delay time (inductive load)	t_{doff}	$I_C = 50\ A, V_{CE} = 300\ V, V_{GE} = \pm 15\ V, R_{Goff} = 2.2\ \Omega$	$T_{vj} = 25\ ^\circ C$		0.124		μs
			$T_{vj} = 125\ ^\circ C$		0.147		
			$T_{vj} = 150\ ^\circ C$		0.150		
Fall time (inductive load)	t_f	$I_C = 50\ A, V_{CE} = 300\ V, V_{GE} = \pm 15\ V, R_{Goff} = 2.2\ \Omega$	$T_{vj} = 25\ ^\circ C$		0.038		μs
			$T_{vj} = 125\ ^\circ C$		0.073		
			$T_{vj} = 150\ ^\circ C$		0.084		
Turn-on energy loss per pulse	E_{on}	$I_C = 50\ A, V_{CE} = 300\ V, L_\sigma = 35\ nH, V_{GE} = \pm 15\ V, R_{Gon} = 2.2\ \Omega, di/dt = 4100\ A/\mu s (T_{vj} = 150\ ^\circ C)$	$T_{vj} = 25\ ^\circ C$		0.244		mJ
			$T_{vj} = 125\ ^\circ C$		0.406		
			$T_{vj} = 150\ ^\circ C$		0.451		
Turn-off energy loss per pulse	E_{off}	$I_C = 50\ A, V_{CE} = 300\ V, L_\sigma = 35\ nH, V_{GE} = \pm 15\ V, R_{Goff} = 2.2\ \Omega, dv/dt = 5100\ V/\mu s (T_{vj} = 150\ ^\circ C)$	$T_{vj} = 25\ ^\circ C$		0.593		mJ
			$T_{vj} = 125\ ^\circ C$		0.94		
			$T_{vj} = 150\ ^\circ C$		1.06		
Thermal resistance, junction to heat sink	R_{thJH}	per IGBT			1.19		K/W
Temperature under switching conditions	$T_{vj\ op}$			-40		150	$^\circ C$

3 Diode, D1 / D4

Table 5 Maximum rated values

Parameter	Symbol	Note or test condition		Values	Unit
Repetitive peak reverse voltage	V_{RRM}		$T_{vj} = 25\text{ °C}$	650	V
Continuous DC forward current	I_F			75	A
Repetitive peak forward current	I_{FRM}	$t_p = 1\text{ ms}$		150	A
I^2t - value	I^2t	$V_R = 0\text{ V}, t_p = 10\text{ ms}$	$T_{vj} = 125\text{ °C}$	680	A^2s
			$T_{vj} = 150\text{ °C}$	660	

Table 6 Characteristic values

Parameter	Symbol	Note or test condition	Values			Unit
			Min.	Typ.	Max.	
Forward voltage	V_F	$I_F = 75\text{ A}$	$T_{vj} = 25\text{ °C}$		1.65	V
			$T_{vj} = 125\text{ °C}$		1.55	
			$T_{vj} = 150\text{ °C}$		1.50	
Peak reverse recovery current	I_{RM}	$I_F = 75\text{ A}, V_R = 300\text{ V}, V_{GE} = -15\text{ V}, -di_F/dt = 3400\text{ A}/\mu s (T_{vj} = 150\text{ °C})$	$T_{vj} = 25\text{ °C}$		63	A
			$T_{vj} = 125\text{ °C}$		75	
			$T_{vj} = 150\text{ °C}$		79.1	
Recovered charge	Q_r	$I_F = 75\text{ A}, V_R = 300\text{ V}, V_{GE} = -15\text{ V}, -di_F/dt = 3400\text{ A}/\mu s (T_{vj} = 150\text{ °C})$	$T_{vj} = 25\text{ °C}$		2	μC
			$T_{vj} = 125\text{ °C}$		3.8	
			$T_{vj} = 150\text{ °C}$		4.5	
Reverse recovery energy	E_{rec}	$I_F = 75\text{ A}, V_R = 300\text{ V}, V_{GE} = -15\text{ V}, -di_F/dt = 3400\text{ A}/\mu s (T_{vj} = 150\text{ °C})$	$T_{vj} = 25\text{ °C}$		0.433	mJ
			$T_{vj} = 125\text{ °C}$		0.813	
			$T_{vj} = 150\text{ °C}$		0.959	
Thermal resistance, junction to heat sink	R_{thJH}	per diode			1.16	K/W
Temperature under switching conditions	$T_{vj\text{ op}}$			-40	150	°C

4 IGBT, T2 / T3

Table 7 Maximum rated values

Parameter	Symbol	Note or test condition		Values	Unit
Collector-emitter voltage	V_{CES}		$T_{vj} = 25\text{ °C}$	650	V

(table continues...)

Table 7 (continued) Maximum rated values

Parameter	Symbol	Note or test condition		Values	Unit
Implemented collector current	I_{CN}			100	A
Continuous DC collector current	I_{CDC}	$T_{vj\ max} = 175\ ^\circ\text{C}$	$T_H = 65\ ^\circ\text{C}$	70	A
Repetitive peak collector current	I_{CRM}	$t_p = 1\ \text{ms}$		200	A
Gate-emitter peak voltage	V_{GES}			± 20	V

Table 8 Characteristic values

Parameter	Symbol	Note or test condition		Values			Unit
				Min.	Typ.	Max.	
Collector-emitter saturation voltage	$V_{CE\ sat}$	$I_C = 100\ \text{A}, V_{GE} = 15\ \text{V}$	$T_{vj} = 25\ ^\circ\text{C}$		1.46	1.90	V
			$T_{vj} = 125\ ^\circ\text{C}$		1.61		
			$T_{vj} = 150\ ^\circ\text{C}$		1.68		
Gate threshold voltage	V_{GEth}	$I_C = 1.6\ \text{mA}, V_{CE} = V_{GE}, T_{vj} = 25\ ^\circ\text{C}$		5.05	5.75	6.45	V
Gate charge	Q_G	$V_{GE} = \pm 15\ \text{V}, V_{CE} = 400\ \text{V}$			1.1		μC
Internal gate resistor	R_{Gint}	$T_{vj} = 25\ ^\circ\text{C}$			2		Ω
Input capacitance	C_{ies}	$f = 100\ \text{kHz}, T_{vj} = 25\ ^\circ\text{C}, V_{CE} = 650\ \text{V}, V_{GE} = 0\ \text{V}$			6.2		nF
Reverse transfer capacitance	C_{res}	$f = 100\ \text{kHz}, T_{vj} = 25\ ^\circ\text{C}, V_{CE} = 650\ \text{V}, V_{GE} = 0\ \text{V}$			0.19		nF
Collector-emitter cut-off current	I_{CES}	$V_{CE} = 650\ \text{V}, V_{GE} = 0\ \text{V}$	$T_{vj} = 25\ ^\circ\text{C}$			0.016	mA
Gate-emitter leakage current	I_{GES}	$V_{CE} = 650\ \text{V}, V_{GE} = 0\ \text{V}, T_{vj} = 25\ ^\circ\text{C}$				100	nA
Turn-on delay time (inductive load)	t_{don}	$I_C = 100\ \text{A}, V_{CE} = 300\ \text{V}, V_{GE} = \pm 15\ \text{V}, R_{Gon} = 2.2\ \Omega$	$T_{vj} = 25\ ^\circ\text{C}$		0.072		μs
			$T_{vj} = 125\ ^\circ\text{C}$		0.082		
			$T_{vj} = 150\ ^\circ\text{C}$		0.083		
Rise time (inductive load)	t_r	$I_C = 100\ \text{A}, V_{CE} = 300\ \text{V}, V_{GE} = \pm 15\ \text{V}, R_{Gon} = 2.2\ \Omega$	$T_{vj} = 25\ ^\circ\text{C}$		0.024		μs
			$T_{vj} = 125\ ^\circ\text{C}$		0.027		
			$T_{vj} = 150\ ^\circ\text{C}$		0.027		
Turn-off delay time (inductive load)	t_{doff}	$I_C = 100\ \text{A}, V_{CE} = 300\ \text{V}, V_{GE} = \pm 15\ \text{V}, R_{Goff} = 2.2\ \Omega$	$T_{vj} = 25\ ^\circ\text{C}$		0.185		μs
			$T_{vj} = 125\ ^\circ\text{C}$		0.215		
			$T_{vj} = 150\ ^\circ\text{C}$		0.220		
Fall time (inductive load)	t_f	$I_C = 100\ \text{A}, V_{CE} = 300\ \text{V}, V_{GE} = \pm 15\ \text{V}, R_{Goff} = 2.2\ \Omega$	$T_{vj} = 25\ ^\circ\text{C}$		0.027		μs
			$T_{vj} = 125\ ^\circ\text{C}$		0.063		
			$T_{vj} = 150\ ^\circ\text{C}$		0.084		

(table continues...)

Table 8 (continued) **Characteristic values**

Parameter	Symbol	Note or test condition	Values			Unit
			Min.	Typ.	Max.	
Turn-on energy loss per pulse	E_{on}	$I_C = 100\text{ A}$, $V_{CE} = 300\text{ V}$, $L_\sigma = 35\text{ nH}$, $V_{GE} = \pm 15\text{ V}$, $R_{Gon} = 2.2\ \Omega$, $di/dt = 3600\text{ A}/\mu\text{s}$ ($T_{vj} = 150\text{ }^\circ\text{C}$)	$T_{vj} = 25\text{ }^\circ\text{C}$	0.981		mJ
			$T_{vj} = 125\text{ }^\circ\text{C}$	1.42		
			$T_{vj} = 150\text{ }^\circ\text{C}$	1.53		
Turn-off energy loss per pulse	E_{off}	$I_C = 100\text{ A}$, $V_{CE} = 300\text{ V}$, $L_\sigma = 35\text{ nH}$, $V_{GE} = \pm 15\text{ V}$, $R_{Goff} = 2.2\ \Omega$, $dv/dt = 5300\text{ V}/\mu\text{s}$ ($T_{vj} = 150\text{ }^\circ\text{C}$)	$T_{vj} = 25\text{ }^\circ\text{C}$	1.37		mJ
			$T_{vj} = 125\text{ }^\circ\text{C}$	2.06		
			$T_{vj} = 150\text{ }^\circ\text{C}$	2.3		
Thermal resistance, junction to heat sink	R_{thJH}	per IGBT		0.830		K/W
Temperature under switching conditions	$T_{vj\text{ op}}$		-40		150	$^\circ\text{C}$

5 Diode, D2 / D3

Table 9 **Maximum rated values**

Parameter	Symbol	Note or test condition		Values	Unit
Repetitive peak reverse voltage	V_{RRM}		$T_{vj} = 25\text{ }^{\circ}\text{C}$	650	V
Continuous DC forward current	I_F			50	A
Repetitive peak forward current	I_{FRM}	$t_P = 1\text{ ms}$		100	A
I^2t - value	I^2t	$V_R = 0\text{ V}$, $t_P = 10\text{ ms}$	$T_{vj} = 125\text{ }^{\circ}\text{C}$	390	A^2s
			$T_{vj} = 150\text{ }^{\circ}\text{C}$	370	

Table 10 **Characteristic values**

Parameter	Symbol	Note or test condition	Values			Unit
			Min.	Typ.	Max.	
Forward voltage	V_F	$I_F = 50\text{ A}$	$T_{vj} = 25\text{ }^\circ\text{C}$	1.65	2.15	V
			$T_{vj} = 125\text{ }^\circ\text{C}$	1.55		
			$T_{vj} = 150\text{ }^\circ\text{C}$	1.50		
Peak reverse recovery current	I_{RM}	$I_F = 50\text{ A}$, $V_R = 300\text{ V}$, $V_{GE} = -15\text{ V}$, $-di_F/dt = 4100\text{ A}/\mu\text{s}$ ($T_{vj} = 150\text{ }^\circ\text{C}$)	$T_{vj} = 25\text{ }^\circ\text{C}$	59.9		A
			$T_{vj} = 125\text{ }^\circ\text{C}$	72.3		
			$T_{vj} = 150\text{ }^\circ\text{C}$	76.6		

(table continues...)

Table 10 (continued) **Characteristic values**

Parameter	Symbol	Note or test condition	Values			Unit
			Min.	Typ.	Max.	
Recovered charge	Q_r	$I_F = 50 \text{ A}$, $V_R = 300 \text{ V}$, $V_{GE} = -15 \text{ V}$, $-di_F/dt = 4100 \text{ A}/\mu\text{s}$ ($T_{vj} = 150 \text{ }^\circ\text{C}$)	$T_{vj} = 25 \text{ }^\circ\text{C}$	1.49		μC
			$T_{vj} = 125 \text{ }^\circ\text{C}$	2.75		
			$T_{vj} = 150 \text{ }^\circ\text{C}$	3.18		
Reverse recovery energy	E_{rec}	$I_F = 50 \text{ A}$, $V_R = 300 \text{ V}$, $V_{GE} = -15 \text{ V}$, $-di_F/dt = 4100 \text{ A}/\mu\text{s}$ ($T_{vj} = 150 \text{ }^\circ\text{C}$)	$T_{vj} = 25 \text{ }^\circ\text{C}$	0.332		mJ
			$T_{vj} = 125 \text{ }^\circ\text{C}$	0.638		
			$T_{vj} = 150 \text{ }^\circ\text{C}$	0.734		
Thermal resistance, junction to heat sink	R_{thJH}	per diode		1.64		K/W
Temperature under switching conditions	$T_{vj\text{ op}}$		-40		150	$^\circ\text{C}$

6 NTC-Thermistor

Table 11 **Characteristic values**

Parameter	Symbol	Note or test condition	Values			Unit
			Min.	Typ.	Max.	
Rated resistance	R_{25}	$T_{NTC} = 25 \text{ }^\circ\text{C}$		5		k Ω
Deviation of R_{100}	$\Delta R/R$	$T_{NTC} = 100 \text{ }^\circ\text{C}$, $R_{100} = 493 \text{ } \Omega$	-5		5	%
Power dissipation	P_{25}	$T_{NTC} = 25 \text{ }^\circ\text{C}$			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

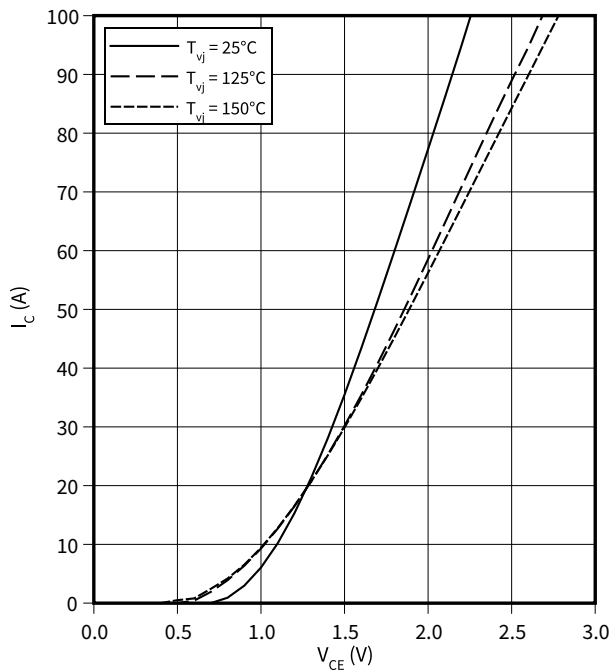
Note: Specification according to the valid application note.

7 Characteristics diagrams

Output characteristic (typical), IGBT, T1 / T4

$I_C = f(V_{CE})$

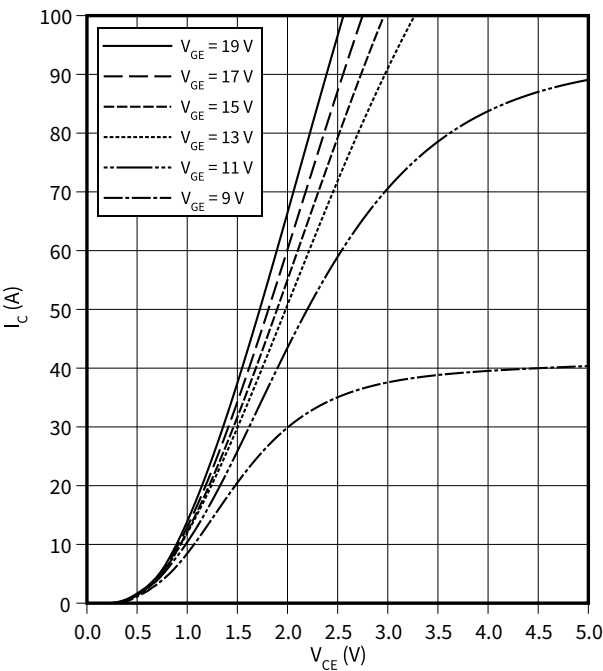
$V_{GE} = 15\text{ V}$



Output characteristic field (typical), IGBT, T1 / T4

$I_C = f(V_{CE})$

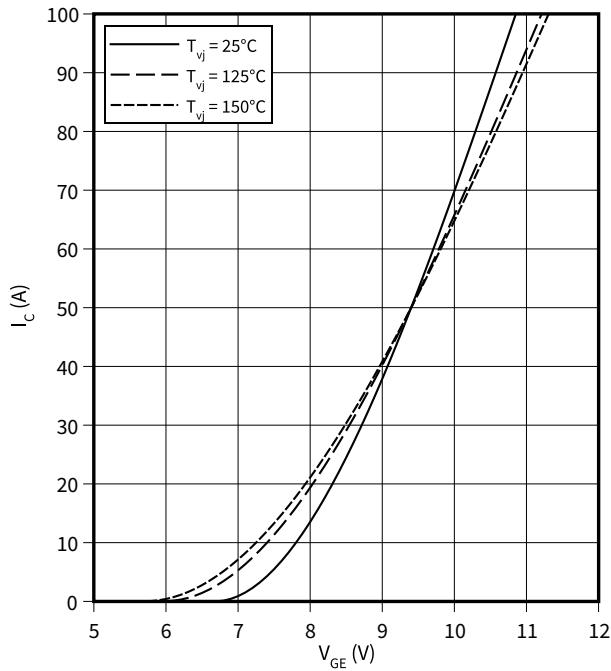
$T_{vj} = 150^\circ\text{C}$



Transfer characteristic (typical), IGBT, T1 / T4

$I_C = f(V_{GE})$

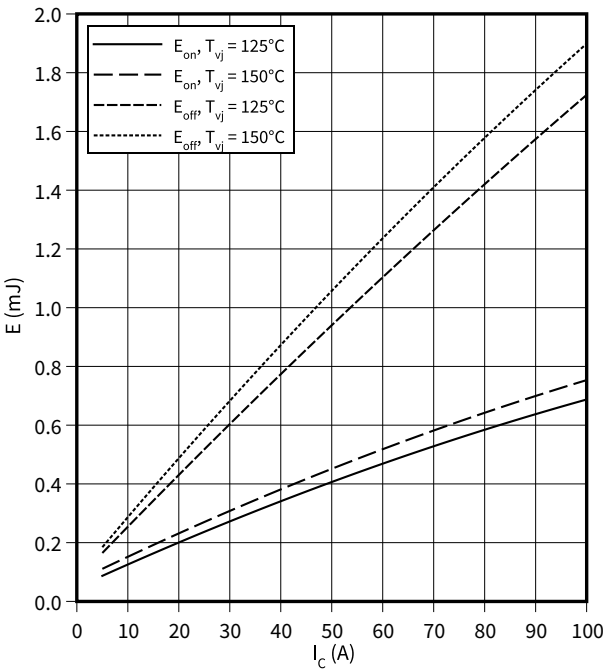
$V_{CE} = 20\text{ V}$



Switching losses (typical), IGBT, T1 / T4

$E = f(I_C)$

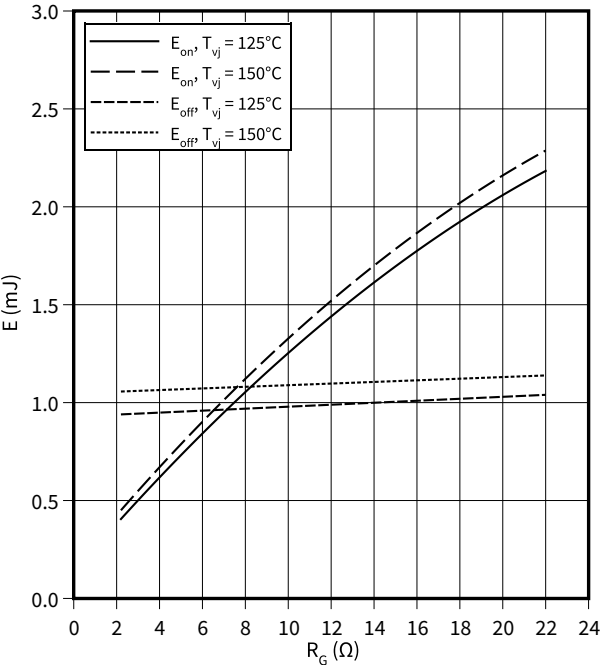
$R_{Goff} = 2.2\ \Omega$, $R_{Gon} = 2.2\ \Omega$, $V_{CE} = 300\text{ V}$, $V_{GE} = \pm 15\text{ V}$



7 Characteristics diagrams

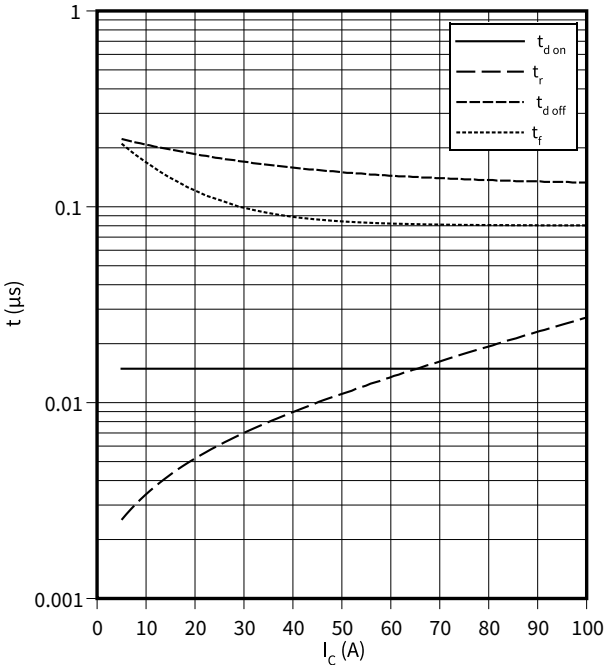
Switching losses (typical), IGBT, T1 / T4

$E = f(R_G)$
 $I_C = 50\text{ A}$, $V_{CE} = 300\text{ V}$, $V_{GE} = \pm 15\text{ V}$



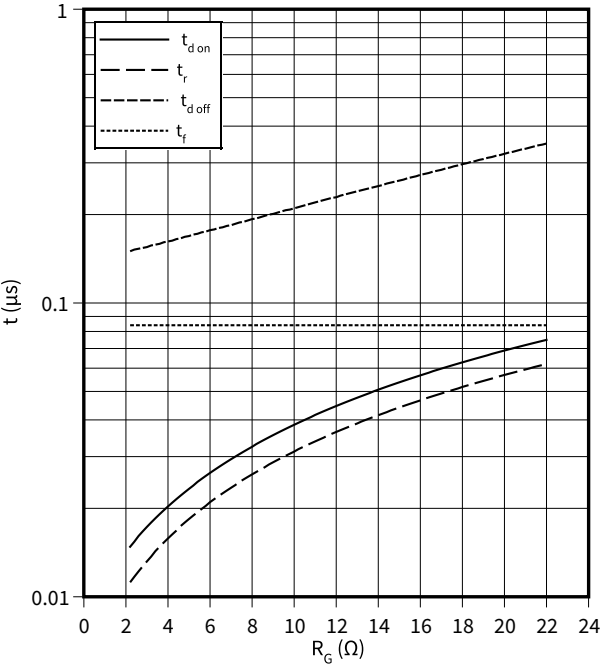
Switching times (typical), IGBT, T1 / T4

$t = f(I_C)$
 $R_{Goff} = 2.2\text{ }\Omega$, $R_{Gon} = 2.2\text{ }\Omega$, $V_{CE} = 300\text{ V}$, $V_{GE} = \pm 15\text{ V}$, $T_{vj} = 150\text{ }^\circ\text{C}$



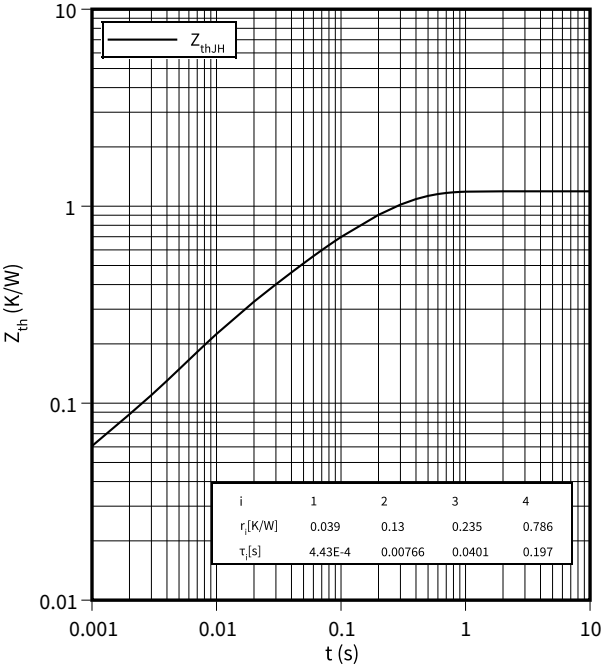
Switching times (typical), IGBT, T1 / T4

$t = f(R_G)$
 $I_C = 50\text{ A}$, $V_{CE} = 300\text{ V}$, $V_{GE} = \pm 15\text{ V}$, $T_{vj} = 150\text{ }^\circ\text{C}$



Transient thermal impedance, IGBT, T1 / T4

$Z_{th} = f(t)$

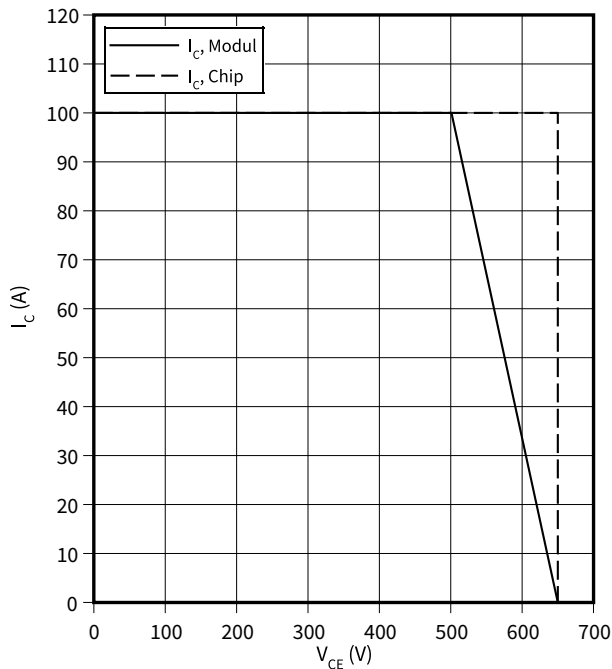


7 Characteristics diagrams

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

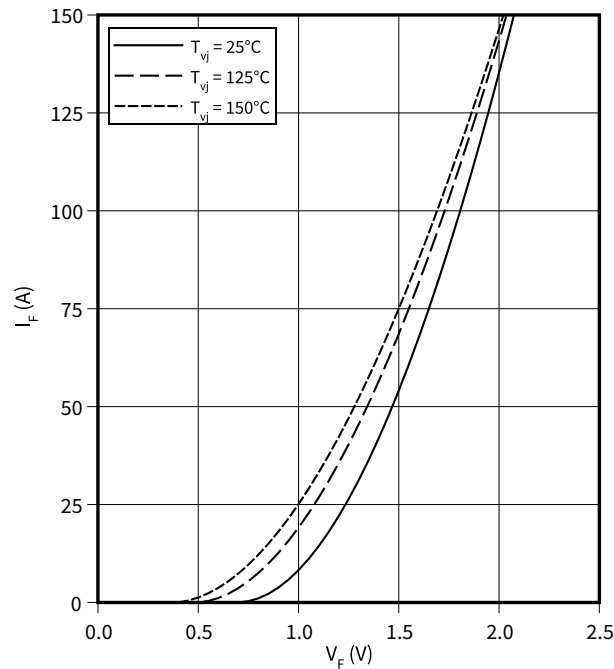
$I_C = f(V_{CE})$

$R_{Goff} = 2.2 \, \Omega$, $V_{GE} = \pm 15 \, V$, $T_{vj} = 150 \, ^\circ C$



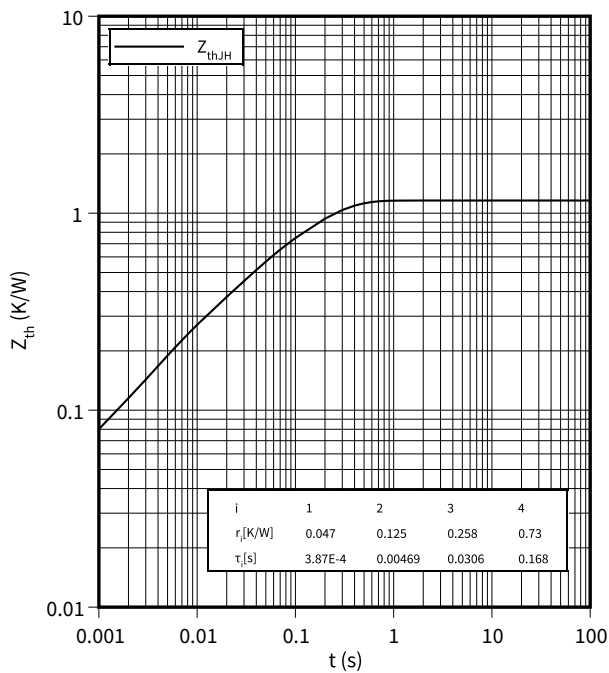
Forward characteristic (typical), Diode, D1 / D4

$I_F = f(V_F)$



Transient thermal impedance, Diode, D1 / D4

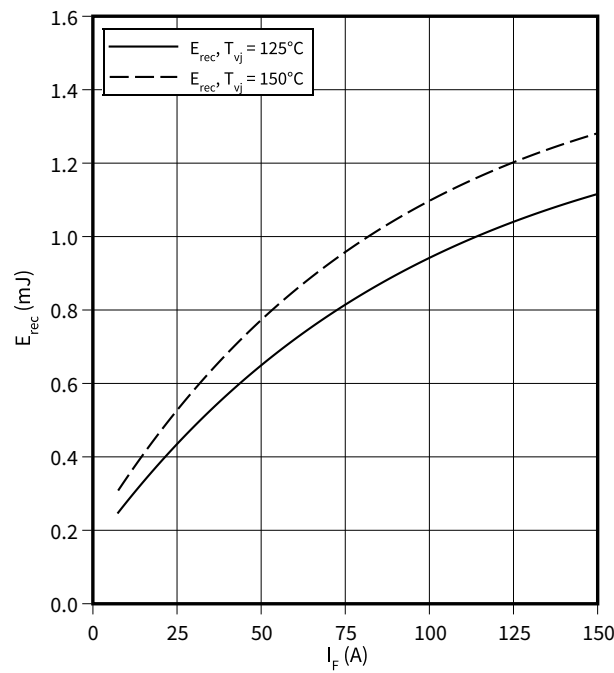
$Z_{th} = f(t)$



Switching losses (typical), Diode, D1 / D4

$E_{rec} = f(I_F)$

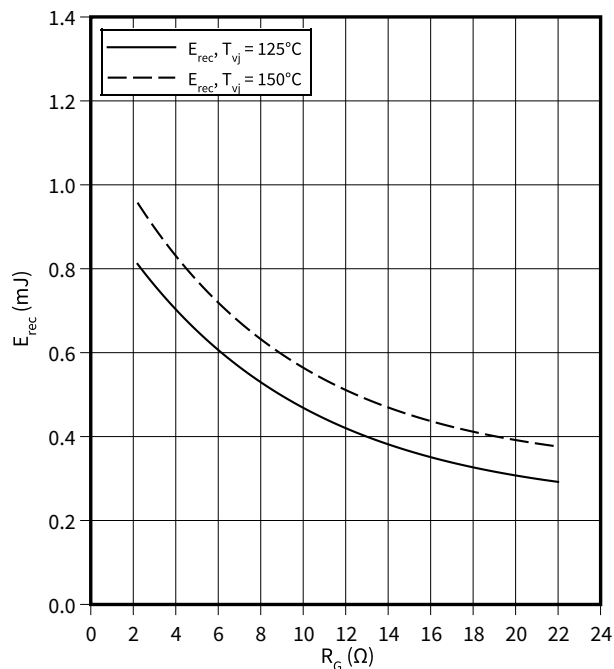
$R_{Gon} = 2.2 \, \Omega$, $V_{CE} = 300 \, V$



Switching losses (typical), Diode, D1 / D4

$$E_{\text{rec}} = f(R_G)$$

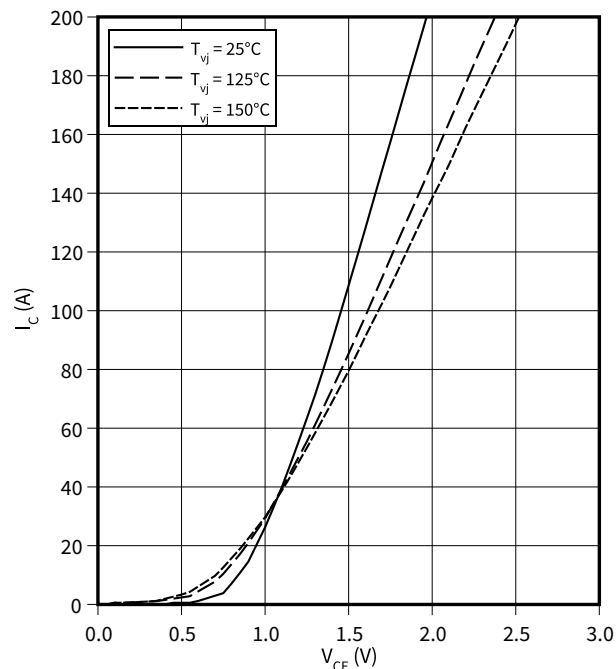
$V_{\text{CE}} = 300 \text{ V}$, $I_F = 75 \text{ A}$



Output characteristic (typical), IGBT, T2 / T3

$$I_C = f(V_{\text{CE}})$$

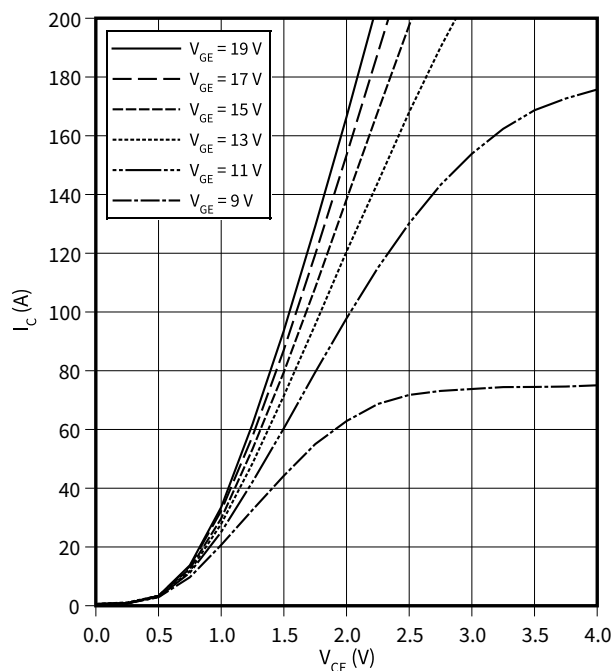
$V_{\text{GE}} = 15 \text{ V}$



Output characteristic field (typical), IGBT, T2 / T3

$$I_C = f(V_{\text{CE}})$$

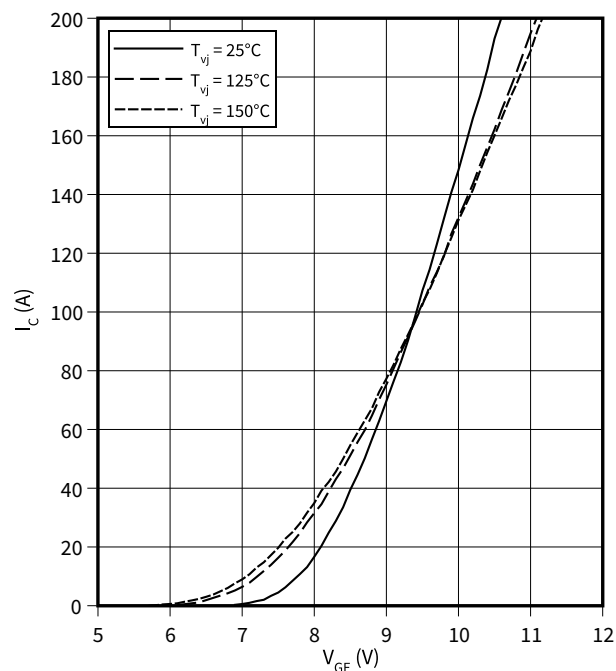
$T_{\text{vj}} = 150^\circ\text{C}$



Transfer characteristic (typical), IGBT, T2 / T3

$$I_C = f(V_{\text{GE}})$$

$V_{\text{CE}} = 20 \text{ V}$

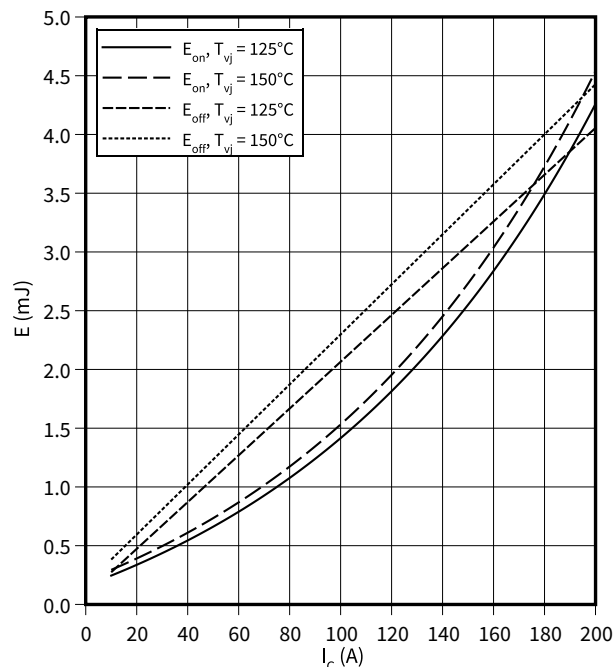


7 Characteristics diagrams

Switching losses (typical), IGBT, T2 / T3

$$E = f(I_C)$$

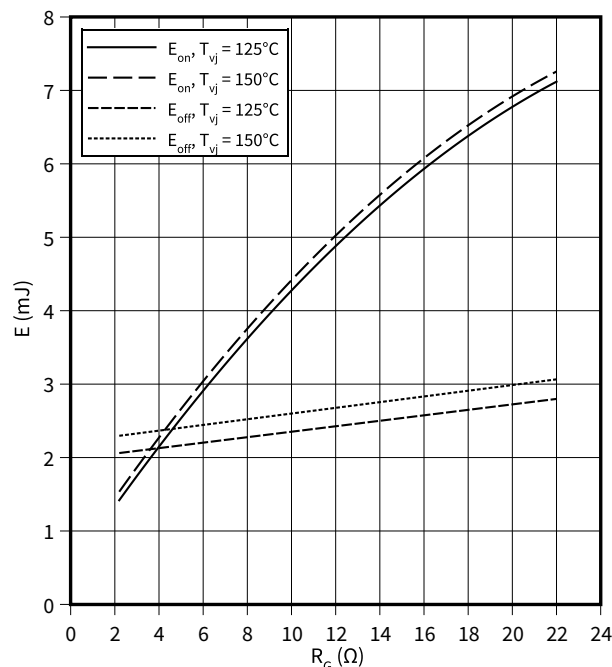
$R_{Goff} = 2.2 \Omega$, $R_{Gon} = 2.2 \Omega$, $V_{CE} = 300 \text{ V}$, $V_{GE} = \pm 15 \text{ V}$



Switching losses (typical), IGBT, T2 / T3

$$E = f(R_G)$$

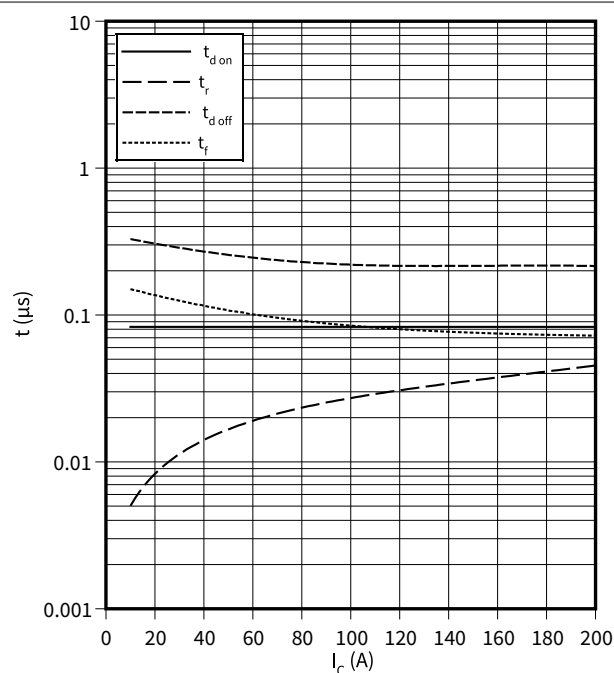
$I_C = 100 \text{ A}$, $V_{CE} = 300 \text{ V}$, $V_{GE} = \pm 15 \text{ V}$



Switching times (typical), IGBT, T2 / T3

$$t = f(I_C)$$

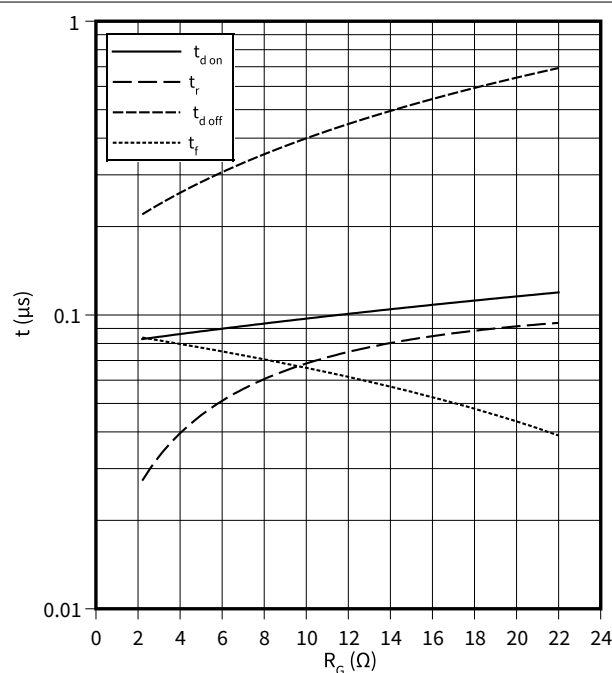
$R_{Goff} = 2.2 \Omega$, $R_{Gon} = 2.2 \Omega$, $V_{CE} = 300 \text{ V}$, $V_{GE} = \pm 15 \text{ V}$, $T_{vj} = 150^\circ\text{C}$



Switching times (typical), IGBT, T2 / T3

$$t = f(R_G)$$

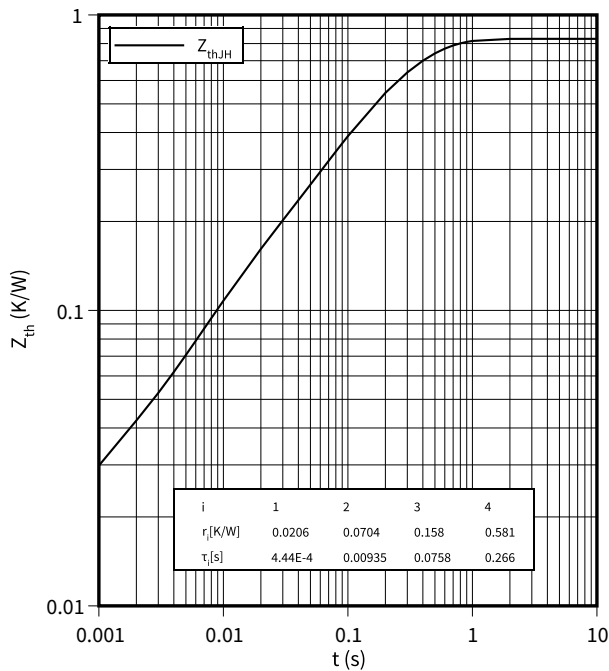
$I_C = 100 \text{ A}$, $V_{CE} = 300 \text{ V}$, $V_{GE} = \pm 15 \text{ V}$, $T_{vj} = 150^\circ\text{C}$



7 Characteristics diagrams

Transient thermal impedance, IGBT, T2 / T3

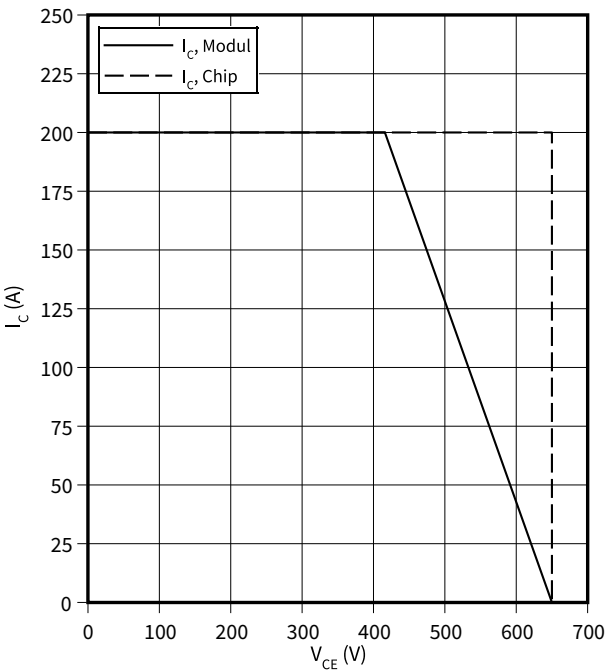
$Z_{th} = f(t)$



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

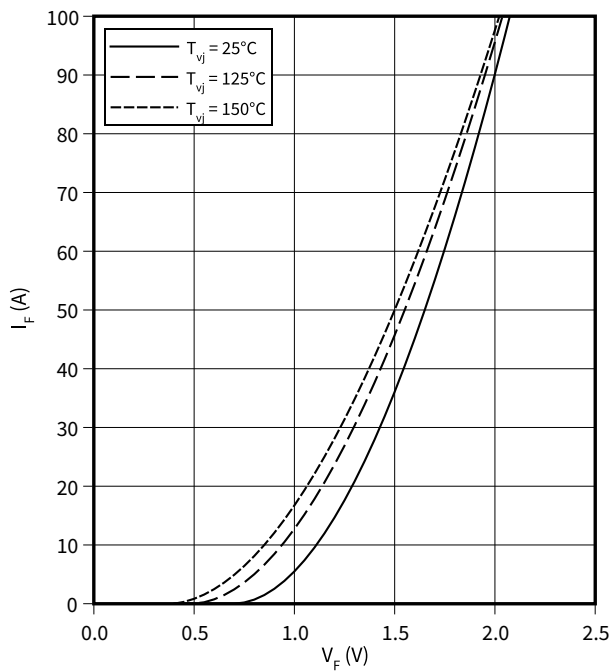
$I_C = f(V_{CE})$

$R_{Goff} = 2.2 \Omega, V_{GE} = \pm 15 V, T_{vj} = 150^\circ C$



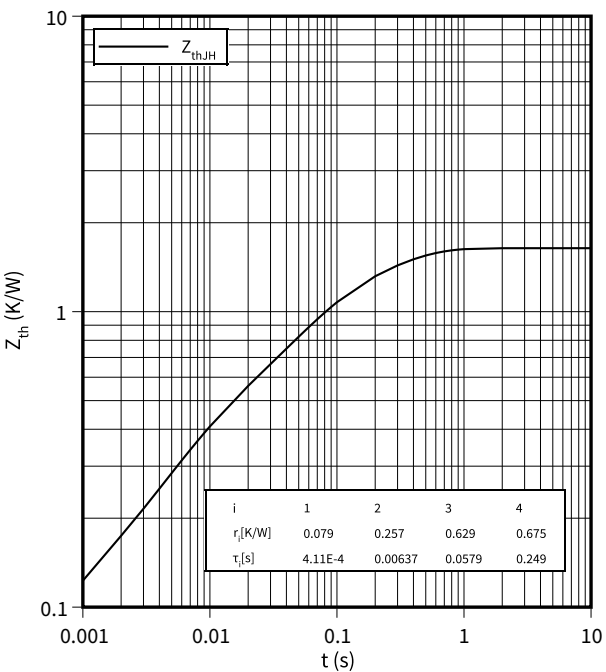
Forward characteristic (typical), Diode, D2 / D3

$I_F = f(V_F)$



Transient thermal impedance, Diode, D2 / D3

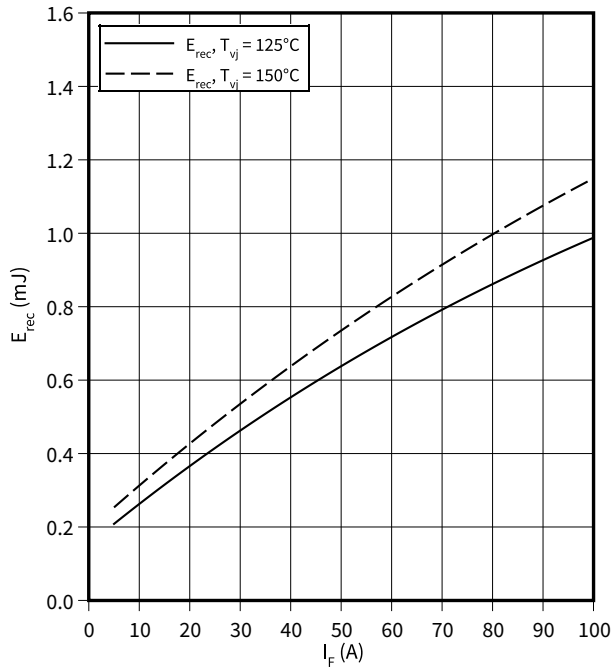
$Z_{th} = f(t)$



7 Characteristics diagrams

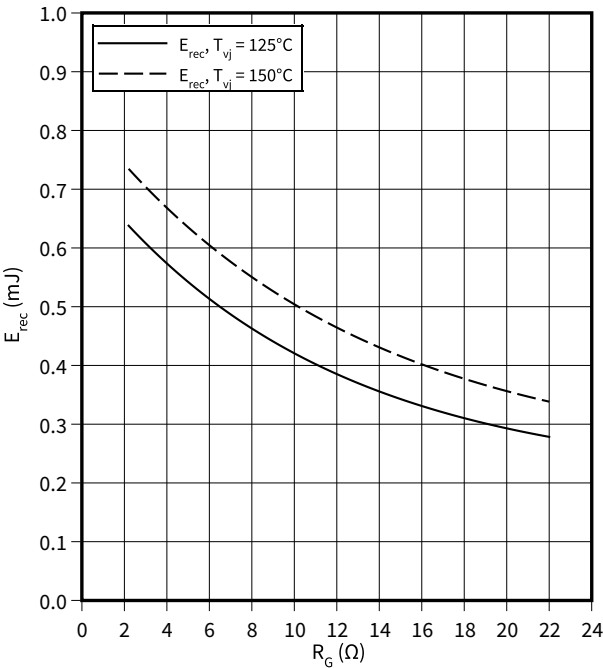
Switching losses (typical), Diode, D2 / D3

$E_{rec} = f(I_F)$
 $R_{Gon} = 2.2 \, \Omega$, $V_{CE} = 300 \, V$



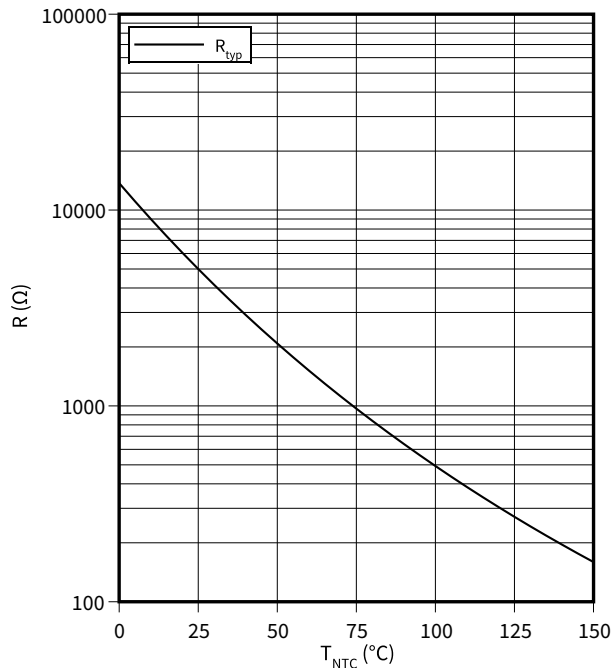
Switching losses (typical), Diode, D2 / D3

$E_{rec} = f(R_G)$
 $V_{CE} = 300 \, V$, $I_F = 50 \, A$



Temperature characteristic (typical), NTC-Thermistor

$R = f(T_{NTC})$



8 Circuit diagram

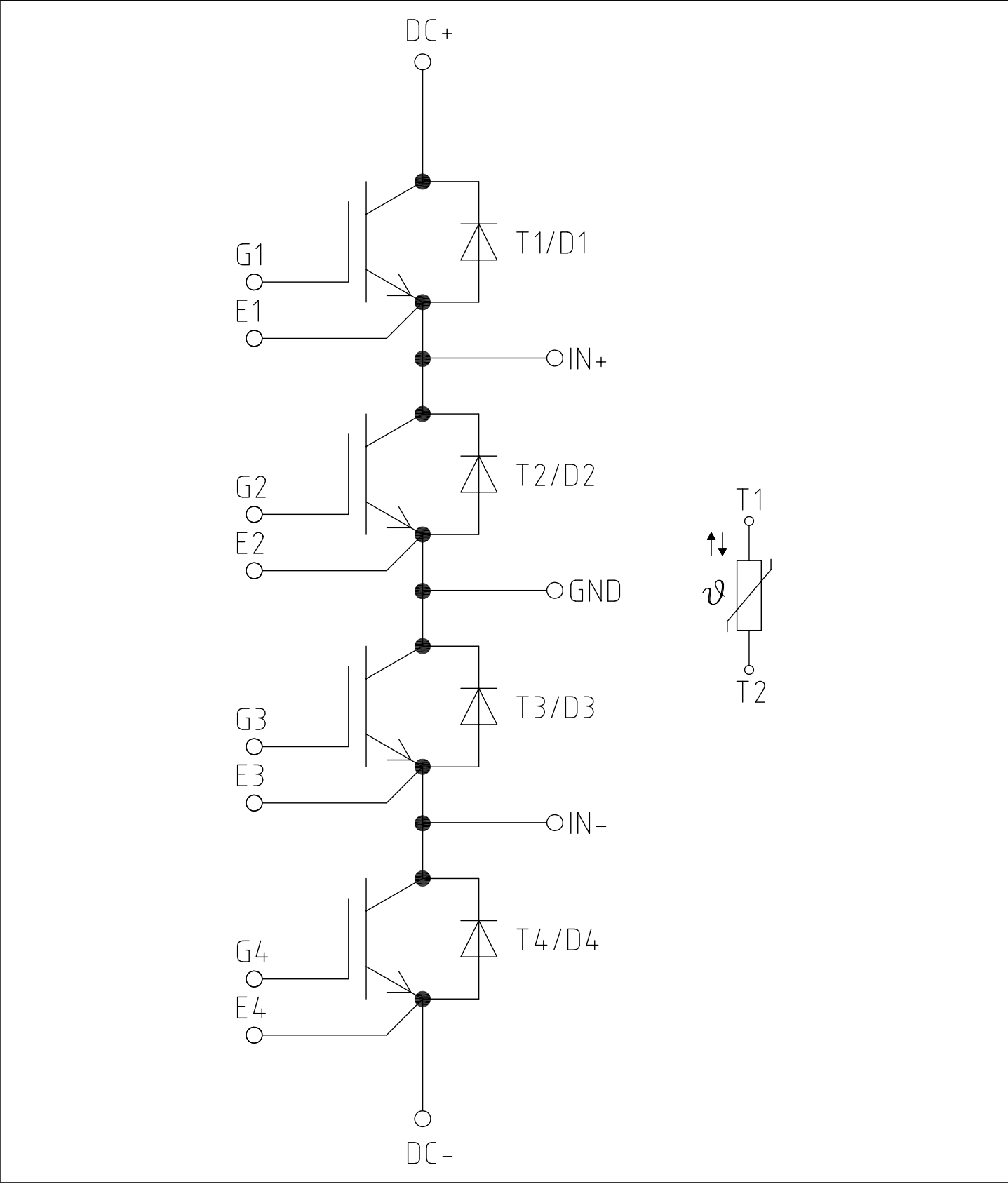


Figure 1

Package outlines

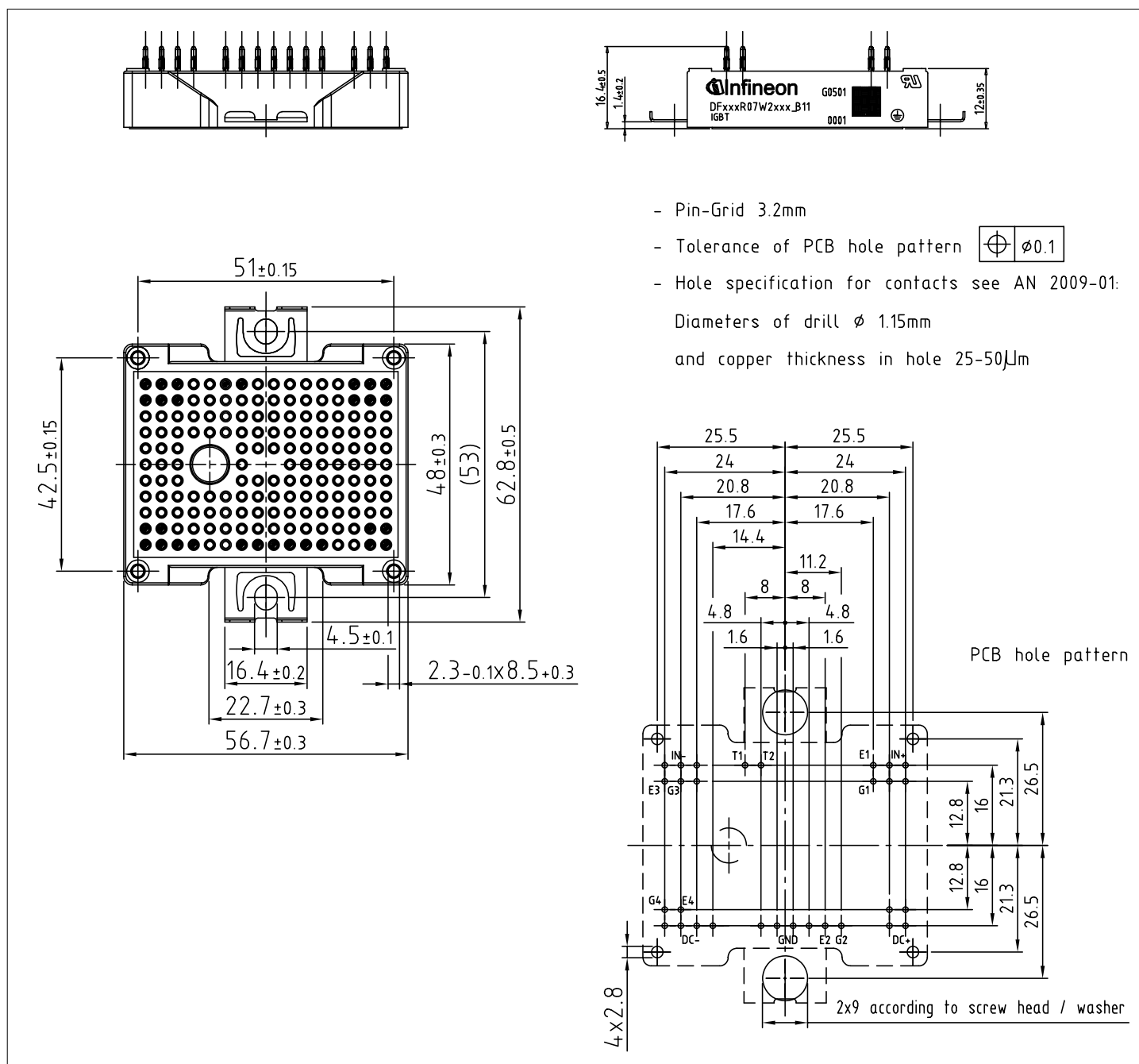


Figure 2

10 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	 7154914284655054991153071549142846550549911530		

Figure 3

Revision history

Document revision	Date of release	Description of changes
0.10	2021-06-30	Target datasheet
1.00	2021-11-15	Final datasheet

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