

flowPIM®1, 600V
Maximum Ratings / Höchstzulässige Werte

Parameter	Condition	Symbol	Datasheet values max.	Unit
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**Input Rectifier Bridge
Gleichrichter**

Repetitive peak reverse voltage Periodische Rückw. Spitzensperrspannung		V_{RRM}	1600	V
Forward current per diode Dauergrenzstrom	DC current $T_h=80^\circ\text{C}$ $T_c=80^\circ\text{C}$	I_{FAV}	29 40, limited by nr. of wires	A
Surge forward current Stoßstrom Grenzwert	$t_p=10\text{ms}$ $T_j=25^\circ\text{C}$	I_{FSM}	200	A
I^2t -value Grenzlastintegral	$t_p=10\text{ms}$ $T_j=25^\circ\text{C}$	I^2t	200	A ² s
Power dissipation per Diode Verlustleistung pro Diode	$T_j=150^\circ\text{C}$ $T_h=80^\circ\text{C}$ $T_c=80^\circ\text{C}$	P_{tot}	35 53	W

**Transistor Inverter
Transistor Wechselrichter**

Collector-emitter break down voltage Kollektor-Emitter-Sperrspannung		V_{CE}	600	V
DC collector current Kollektor-Dauergleichstrom	$T_j=150^\circ\text{C}$ $T_h=80^\circ\text{C}$ $T_c=80^\circ\text{C}$	I_C	8, limited by nr. of wires 8, limited by nr. of wires	A
Repetitive peak collector current Periodischer Kollektorspitzenstrom	$t_p=1\text{ms}$ $T_h=80^\circ\text{C}$	I_{cpuls}	18	A
Power dissipation per IGBT Verlustleistung pro IGBT	$T_j=150^\circ\text{C}$ $T_h=80^\circ\text{C}$ $T_c=80^\circ\text{C}$	P_{tot}	28,5 43	W
Gate-emitter peak voltage Gate-Emitter-Spitzenspannung		V_{GE}	± 20	V
SC withstand time Kurzschlußverhalten	$T_j \leq 150^\circ\text{C}$ $V_{GE}=15\text{V}$ $V_{CE}=600\text{V}$	t_{SC}	10	us

**Diode Inverter
Diode Wechselrichter**

DC forward current Dauergleichstrom	$T_j=150^\circ\text{C}$ $T_h=80^\circ\text{C}$ $T_c=80^\circ\text{C}$	I_F	8, limited by nr. of wires 8, limited by nr. of wires	A
Repetitive peak forward current Periodischer Spitzenstrom	$t_p=1\text{ms}$ $T_h=80^\circ\text{C}$	I_{FRM}	24	A
Power dissipation per Diode Verlustleistung pro Diode	$T_j=150^\circ\text{C}$ $T_h=80^\circ\text{C}$ $T_c=80^\circ\text{C}$	P_{tot}	21 32	W

**Transistor BRC
Transistor BRC**

Collector-emitter break down voltage Kollektor-Emitter-Sperrspannung		V_{CE}	600	V
DC collector current Kollektor-Dauergleichstrom	$T_j=150^\circ\text{C}$ $T_h=80^\circ\text{C}$ $T_c=80^\circ\text{C}$	I_C	8, limited by nr. of wires 8, limited by nr. of wires	A
Repetitive peak collector current Periodischer Kollektorspitzenstrom	$t_p=1\text{ms}$ $T_h=80^\circ\text{C}$	I_{cpuls}	18	A
Power dissipation per IGBT Verlustleistung pro IGBT	$T_j=150^\circ\text{C}$ $T_h=80^\circ\text{C}$ $T_c=80^\circ\text{C}$	P_{tot}	28,5 43	W
Gate-emitter peak voltage Gate-Emitter-Spitzenspannung		V_{GE}	± 20	V
SC withstand time Kurzschlußverhalten	$T_j \leq 150^\circ\text{C}$ $V_{GE}=15\text{V}$ $V_{CE}=600/1200\text{V}$	t_{SC}	10	us

flowPIM®1, 600V
Maximum Ratings / Höchstzulässige Werte

Parameter	Condition	Symbol	Datasheet values max.	Unit
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Diode BRC
Diode BRC

DC forward current Dauergleichstrom	$T_j=150^{\circ}\text{C}$ $T_h=80^{\circ}\text{C}$ $T_c=80^{\circ}\text{C}$	I_F	8, limited by nr. of wires 8, limited by nr. of wires	A
Repetitive peak forward current Periodischer Spitzenstrom	$t_p=1\text{ms}$ $T_h=80^{\circ}\text{C}$	I_{FRM}	24	A
Power dissipation per Diode Verlustleistung pro Diode	$T_j=150^{\circ}\text{C}$ $T_h=80^{\circ}\text{C}$ $T_c=80^{\circ}\text{C}$	P_{tot}	21 32	W

Thermal properties
Thermische Eigenschaften

max. Chip temperature max. Chiptemperatur		T_{jmax}	150	$^{\circ}\text{C}$
Storage temperature Lagertemperatur		T_{stg}	-40...+125	$^{\circ}\text{C}$
Operation temperature Betriebstemperatur		T_{op}	-40...+125	$^{\circ}\text{C}$

Insulation properties
Modulisation

Insulation voltage Isolationsspannung	$t=1\text{min}$	V_{is}	4000	Vdc
Creepage distance Kriechstrecke			min 12,7	mm
Clearance Luftstrecke			min 12,7	mm

flowPIM®1, 600V
Characteristic values/ Charakteristische Werte

Description	Symbol	Conditions					Datasheet values			Unit
		T(°C)	Other conditions (Rgon-Rgoff)	V _{GE} (V) V _{GS} (V)	V _R (V) V _{CE} (V) V _{DS} (V)	I _C (A) I _F (A) I _d (A)	Min	Typ	Max	

Input Rectifier Bridge
Gleichrichter

Forward voltage Durchlaßspannung	V _F	T _J =25°C				30	0,8	1,24	1,4	V
Threshold voltage (for power loss calc. only) Schleusenspannung	V _{to}	T _J =25°C				30		0,92		V
Slope resistance (for power loss calc. only) Ersatzwiderstand	r _t	T _J =25°C				30		10		mOhm
Reverse current Sperrstrom	I _r	T _J =25°C			1200				0,01	mA
Thermal resistance chip to heatsink per chip Wärmewiderstand Chip-Kühlkörper pro Chip	R _{thJH}		Thermal grease thickness≤50um					2		K/W
Thermal resistance chip to case per chip Wärmewiderstand Chip-Gehäuse pro Chip	R _{thJC}		Wärmeleitpaste Dicke≤50um λ = 0,61 W/mK					1,3		K/W

Transistor Inverter, inductive load
Transistor Wechselrichter

Gate emitter threshold voltage Gate-Schwellenspannung	V _{GE(th)}	T _J =25°C T _J =125°C	V _{CE} =V _{GE}			0,0002	3	4	5	V
Collector-emitter saturation voltage Kollektor-Emitter Sättigungsspannung	V _{CE(sat)}	T _J =25°C T _J =125°C		15		8	1,5	2,3 2,6	3	V
Collector-emitter cut-off incl.FRED Kollektor-Emitter Reststrom inkl.FRED	I _{CES}	T _J =25°C T _J =125°C		0	600				0,03	mA
Gate-emitter leakage current Gate-Emitter Reststrom	I _{GES}	T _J =25°C T _J =150°C		25	0				100	nA
Integrated Gate resistor Integrierter Gate Widerstand	R _{gint}									Ohm
Turn-on delay time Einschaltverzögerungszeit	t _{d(on)}	T _J =25°C T _J =125°C	Rgon=48 Ohm	15	300	8		14		ns
Rise time Anstiegszeit	t _r	T _J =25°C T _J =125°C	Rgon=48 Ohm	15	300	8		12		ns
Turn-off delay time Abschaltverzögerungszeit	t _{d(off)}	T _J =25°C T _J =125°C	Rgoff=24 Ohm	15	300	8		138		ns
Fall time Fallzeit	t _f	T _J =25°C T _J =125°C	Rgoff=24 Ohm	15	300	8		34		ns
Turn-on energy loss per pulse Einschaltverlustenergie pro Puls	E _{on}	T _J =25°C T _J =125°C	Rgon=48 Ohm	15	300	8		0,16		mWs
Turn-off energy loss per pulse Abschaltverlustenergie pro Puls	E _{off}	T _J =25°C T _J =125°C	Rgoff=24 Ohm	15	300	8		0,161		mWs
Input capacitance Eingangskapazität	C _{ies}	T _J =25°C T _J =125°C	f=1MHz	0	25			0,35	0,42	nF
Output capacitance Ausgangskapazität	C _{oss}	T _J =25°C T _J =125°C	f=1MHz	0	25			0,038		nF
Reverse transfer capacitance Rückwirkungskapazität	C _{rss}	T _J =25°C T _J =125°C	f=1MHz	0	25			0,023		nF
Gate charge Gate Ladung	Q _{Gate}	T _J =25°C T _J =125°C		15	480	6		32	42	nC
Thermal resistance chip to heatsink per chip Wärmewiderstand Chip-Kühlkörper pro Chip	R _{thJH}		Thermal grease thickness≤50um					2,5		K/W
Thermal resistance chip to case per chip Wärmewiderstand Chip-Gehäuse pro Chip	R _{thJC}		Wärmeleitpaste Dicke≤50um λ = 0,61 W/mK					1,65		K/W

flowPIM®1, 600V
Characteristic values/ Charakteristische Werte

Description	Symbol	Conditions					Datasheet values			Unit
		T(C°)	Other conditions (Rgon-Rgoff)	V _{GE} (V) V _{GS} (V)	V _R (V) V _{CE} (V) V _{DS} (V)	I _C (A) I _F (A) I _d (A)	Min	Typ	Max	

Diode Inverter
Diode Wechselrichter

Diode forward voltage Durchlaßspannung	V _F	T _J =25°C T _J =125°C				8	1	1,7 1,4	2,2	V
Peak reverse recovery current Rückstromspitze	I _{RM}	T _J =25°C T _J =125°C	Rgon=48 Ohm	15	300	8		13,2		A
Reverse recovery time Sperrverzögerungszeit	t _{rr}	T _J =25°C T _J =125°C	Rgon=48 Ohm	15	300	8		73		ns
Reverse recovered charge Sperrverzögerungsladung	Q _{rr}	T _J =25°C T _J =125°C	Rgon=48 Ohm	15	300	8		0,46		uC
Reverse recovered energy Sperrverzögerungsenergie	E _{rec}	T _J =25°C T _J =125°C	Rgon=48 Ohm	15	300	8		0,07		mWs
Thermal resistance chip to heatsink per chip Wärmewiderstand Chip-Kühlkörper pro Chip	R _{thJH}		Thermal grease thickness≤50um					3,4		K/W
Thermal resistance chip to case per chip Wärmewiderstand Chip-Gehäuse pro Chip	R _{thJC}		Wärmeleitpaste Dicke≤50um λ = 0,61 W/mK					2,25		K/W

Transistor BRC
Transistor BRC

Gate emitter threshold voltage Gate-Schwellenspannung	V _{GE(th)}	T _J =25°C T _J =125°C	VCE=VGE			0,0002	3	4	5	V
Collector-emitter saturation voltage Kollektor-Emitter Sättigungsspannung	V _{CE(sat)}	T _J =25°C T _J =125°C		15		8	1,5	2,3 2,6	3	V
Collector-emitter cut-off Kollektor-Emitter Reststrom	I _{CES}	T _J =25°C T _J =125°C		0	600				0,03	mA
Gate-emitter leakage current Gate-Emitter Reststrom	I _{GES}	T _J =25°C T _J =150°C		25	0				100	nA
Integrated Gate resistor Integrierter Gate Widerstand	R _{gint}									Ohm
Turn-on delay time Einschaltverzögerungszeit	t _{d(on)}	T _J =25°C T _J =125°C	Rgon=48 Ohm	15	300	8		13		ns
Rise time Anstiegszeit	t _r	T _J =25°C T _J =125°C	Rgon=48 Ohm	15	300	8		15		ns
Turn-off delay time Abschaltverzögerungszeit	t _{d(off)}	T _J =25°C T _J =125°C	Rgoff=24 Ohm	15	300	8		130		ns
Fall time Fallzeit	t _f	T _J =25°C T _J =125°C	Rgoff=24 Ohm	15	300	8		34		ns
Turn-on energy loss per pulse Einschaltverlustenergie pro Puls	E _{on}	T _J =25°C T _J =125°C	Rgon=48 Ohm	15	300	8		0,159		mWs
Turn-off energy loss per pulse Abschaltverlustenergie pro Puls	E _{off}	T _J =25°C T _J =125°C	Rgoff=24 Ohm	15	300	8		0,161		mWs
Input capacitance Eingangskapazität	C _{iss}	T _J =25°C T _J =125°C	f=1MHz	0	25			0,264	0,317	nF
Output capacitance Ausgangskapazität	C _{oss}	T _J =25°C T _J =125°C	f=1MHz	0	25			0,029		nF
Reverse transfer capacitance Rückwirkungskapazität	C _{rss}	T _J =25°C T _J =125°C	f=1MHz	0	25			0,017		nF
Gate charge Gate Ladung	Q _{Gate}	T _J =25°C T _J =125°C		15	480	6		24	31	nC
Thermal resistance chip to heatsink per chip Wärmewiderstand Chip-Kühlkörper pro Chip	R _{thJH}		Thermal grease thickness≤50um					2,5		K/W
Thermal resistance chip to case per chip Wärmewiderstand Chip-Gehäuse pro Chip	R _{thJC}		Wärmeleitpaste Dicke≤50um λ = 0,61 W/mK					1,65		K/W

flowPIM®1, 600V
Characteristic values/ Charakteristische Werte

Description	Symbol	Conditions					Datasheet values			Unit
		T(°C)	Other conditions (Rgon-Rgoff)	V _{GE} (V) V _{GS} (V)	V _R (V) V _{CE} (V) V _{DS} (V)	I _C (A) I _F (A) I _d (A)	Min	Typ	Max	

Diode BRC
Diode BRC

Diode forward voltage Durchlaßspannung	V _F	T _J =25°C T _J =125°C				8	1	1,7 1,35	2,2	V
Reverse current Sperrstrom	I _r	T _J =25°C			600				0,06	µA
Peak reverse recovery current Rückstromspitze	I _{RM}	T _J =25°C T _J =125°C	Rgon=48 Ohm	15	300	8		13,2		A
Reverse recovery time Sperrverzögerungszeit	t _{rr}	T _J =25°C T _J =125°C	Rgon=48 Ohm	15	300	8		73		ns
Reverse recovered charge Sperrverzögerungsladung	Q _{rr}	T _J =25°C T _J =125°C	Rgon=48 Ohm	15	300	8		0,46		µC
Reverse recovered energy Sperrverzögerungsenergie	E _{rec}	T _J =25°C T _J =125°C	Rgon=48 Ohm	15	300	8		0,07		mWs
Thermal resistance chip to heatsink per chip Wärmewiderstand Chip-Kühlkörper pro Chip	R _{thJH}		Thermal grease thickness≤50µm					3,4		K/W
Thermal resistance chip to case per chip Wärmewiderstand Chip-Gehäuse pro Chip	R _{thJC}		Wärmeleitpaste Dicke≤50µm λ = 0,61 W/mK					2,25		K/W

NTC-Thermistor
NTC-Widerstand

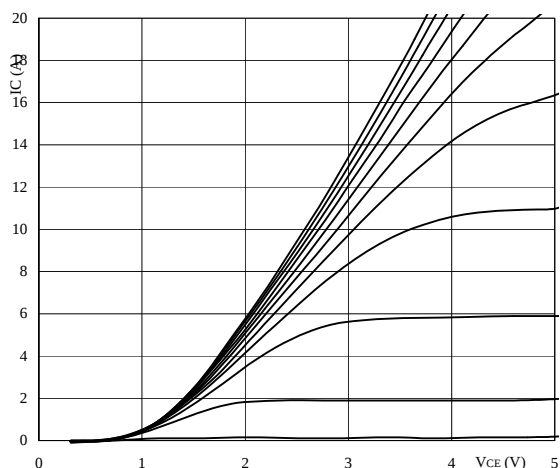
Rated resistance Nennwiderstand	R ₂₅	TC=25°C	Tol. ±5%				4,2	4,7	5,3	kOhm
Deviation of R100 Abweichung von R100	D _{R/R}	TC=100°C						2,56		%/K
Power dissipation given Epcos-Typ Verlustleistung Epcos-Typ angeben	P	TC=25°C						210		mW
B-value B-Wert	B _(25/100)		Tol. ±3%					3530		K

Output inverter

Figure 1. Typical output characteristics

Output inverter IGBT

$I_C = f(V_{CE})$



parameter: $t_p = 250 \text{ us}$

$T_j = 25 \text{ °C}$

VGE parameter: from:

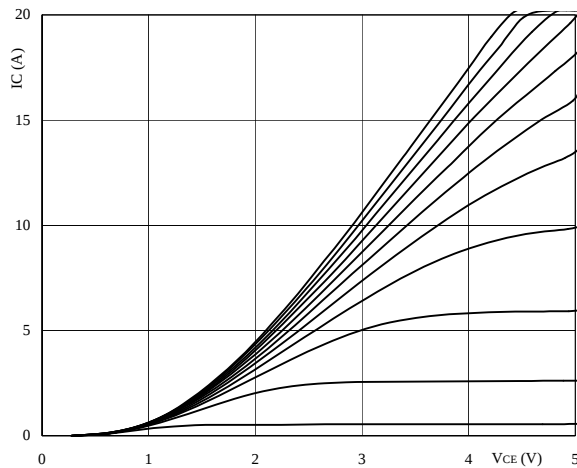
5 V to 15 V

in 1 V steps

Figure 2. Typical output characteristics

Output inverter IGBT

$I_C = f(V_{CE})$



parameter: $t_p = 250 \text{ us}$

$T_j = 125 \text{ °C}$

VGE parameter: from:

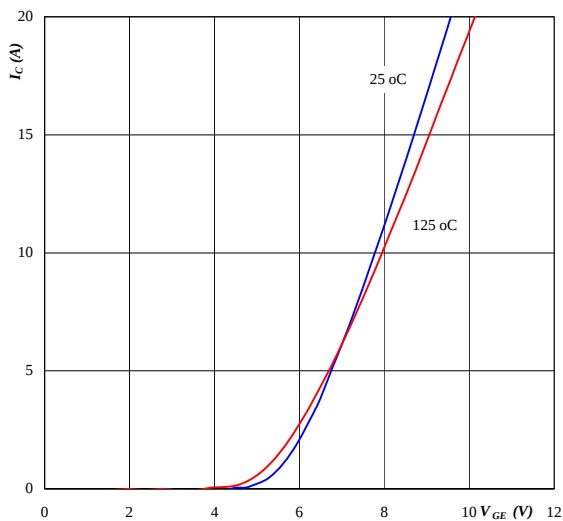
5 V to 15 V

in 1 V steps

Figure 3. Typical transfer characteristics

Output inverter IGBT

$I_C = f(V_{GE})$



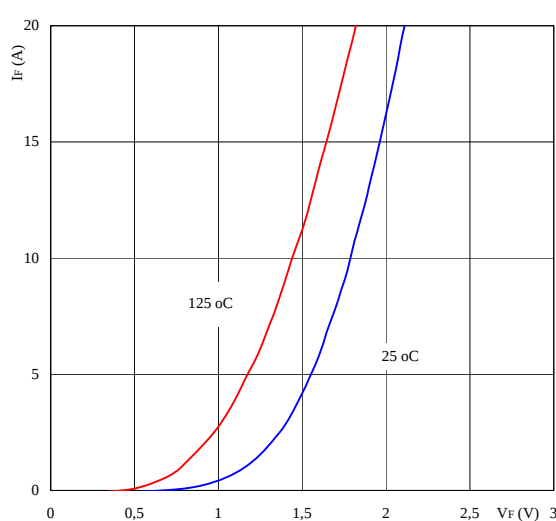
parameter: $t_p = 250 \text{ us}$

$V_{CE} = 9 \text{ V}$

Figure 4. Typical diode forward current as a function of forward voltage

Output inverter FRED

$I_F = f(V_F)$



parameter: $t_p = 250 \text{ us}$

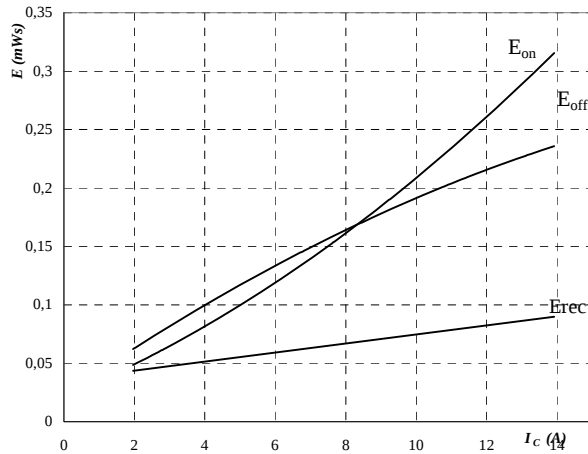
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Output inverter

Figure 5. Typical switching energy losses as a function of collector current

Output inverter IGBT

$$E = f(I_c)$$



inductive load, $T_j = 125^\circ\text{C}$

VCE = 300 V

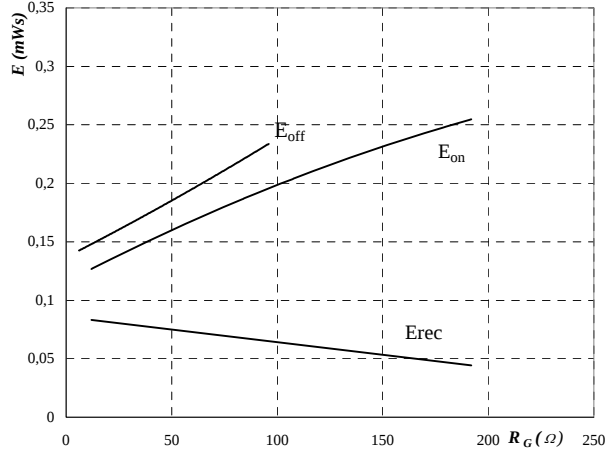
VGE = 15 V

$$R_{Gon} = 2 \cdot R_{Goff} = 48 \text{ W}$$

Figure 6. Typical switching energy losses as a function of gate resistor

Output inverter IGBT

$$E = f(R_G)$$



inductive load, $T_j = 125^\circ\text{C}$

VCE = 300 V

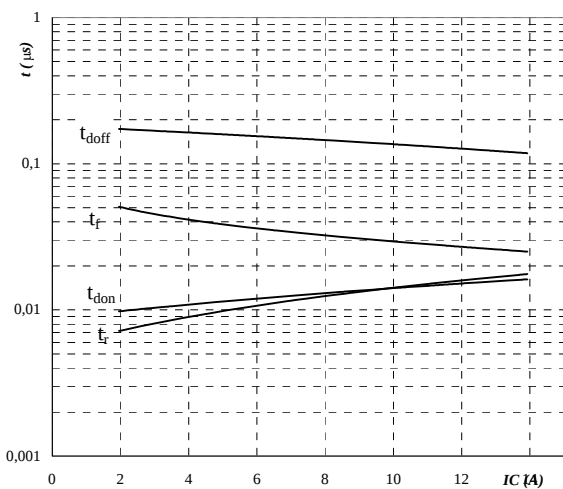
VGE = 15 V

$$I_c = 8 \text{ A}$$

Figure 7. Typical switching times as a function of collector current

Output inverter IGBT

$$t = f(I_c)$$



inductive load, $T_j = 125^\circ\text{C}$

VCE = 300 V

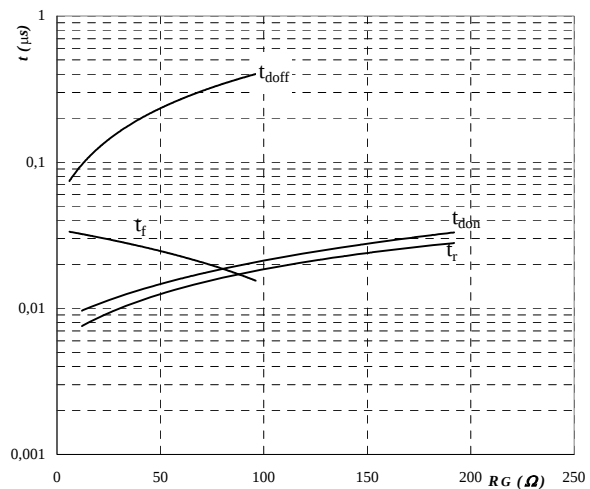
VGE = 15 V

$$R_{Gon} = 2 \cdot R_{Goff} = 48 \text{ W}$$

Figure 8. Typical switching times as a function of gate resistor

Output inverter IGBT

$$t = f(R_G)$$



inductive load, $T_j = 125^\circ\text{C}$

VCE = 300 V

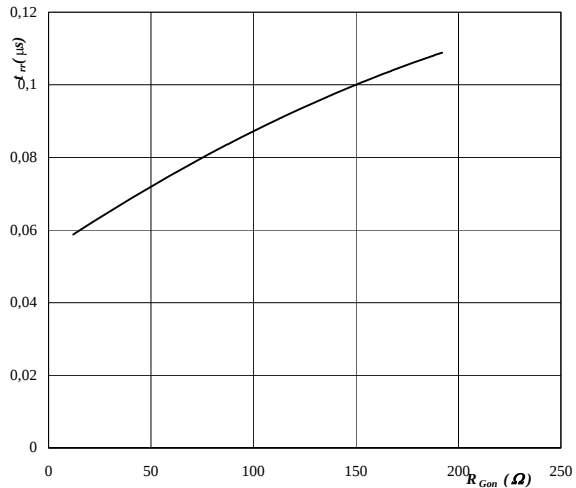
VGE = 15 V

$$I_c = 8 \text{ A}$$

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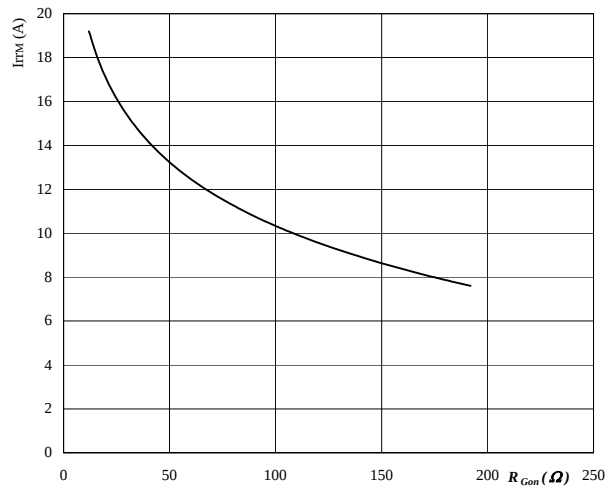
Output inverter

Figure 9. Typical reverse recovery time as a function of IGBT turn on gate resistor
Output inverter FRED diode
 $t_{rr} = f(R_{gon})$



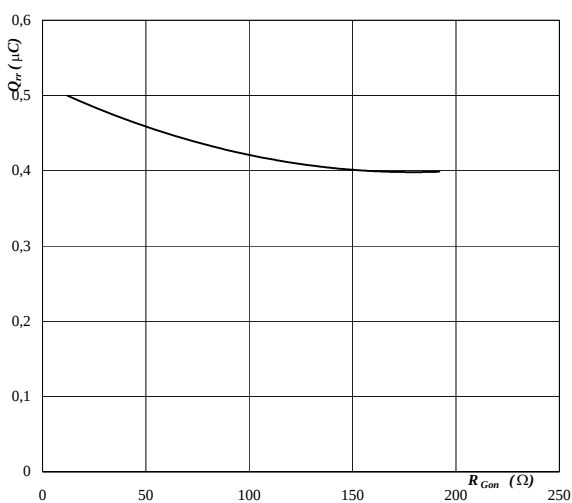
$T_j = 125\text{ }^{\circ}\text{C}$
 $V_R = 300\text{ V}$
 $I_F = 8\text{ A}$

Figure 10. Typical reverse recovery current as a function of IGBT turn on gate resistor
Output inverter FRED diode
 $I_{RRM} = f(R_{gon})$



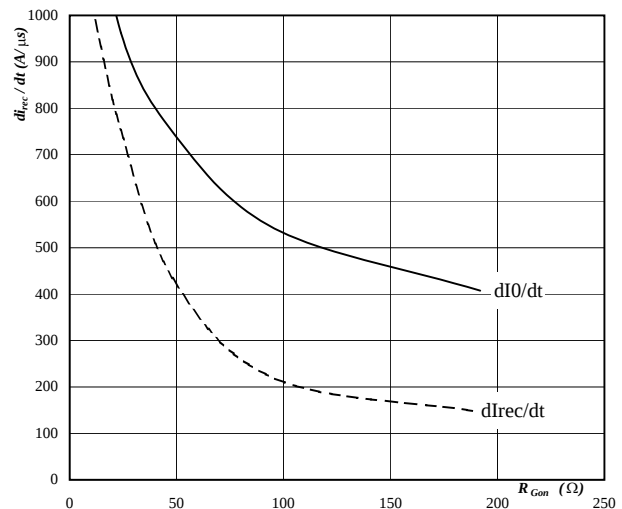
$T_j = 125\text{ }^{\circ}\text{C}$
 $V_R = 300\text{ V}$
 $I_F = 8\text{ A}$

Figure 11. Typical reverse recovery charge as a function of IGBT turn on gate resistor
Output inverter FRED diode
 $Q_{rr} = f(R_{gon})$



$T_j = 125\text{ }^{\circ}\text{C}$
 $V_R = 300\text{ V}$
 $I_F = 8\text{ A}$

Figure 12. Typical rate of fall of forward and reverse recovery current as a function of IGBT turn on gate resistor
Output inverter FRED diode
 $dI_0/dt, dI_{rec}/dt = f(R_{gon})$

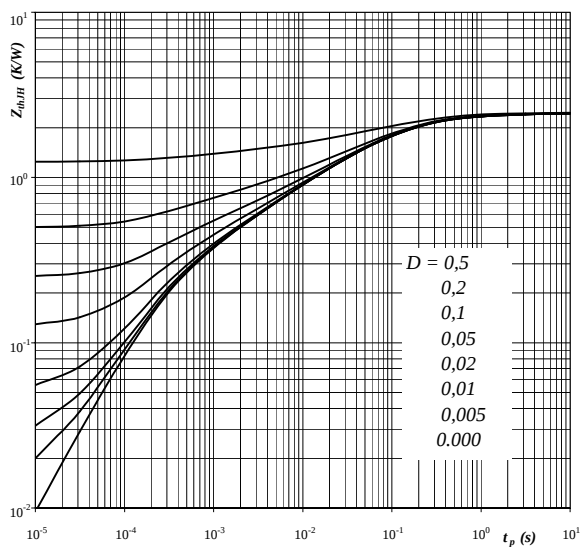


$T_j = 125\text{ }^{\circ}\text{C}$
 $V_R = 300\text{ V}$
 $I_F = 8\text{ A}$

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Output inverter

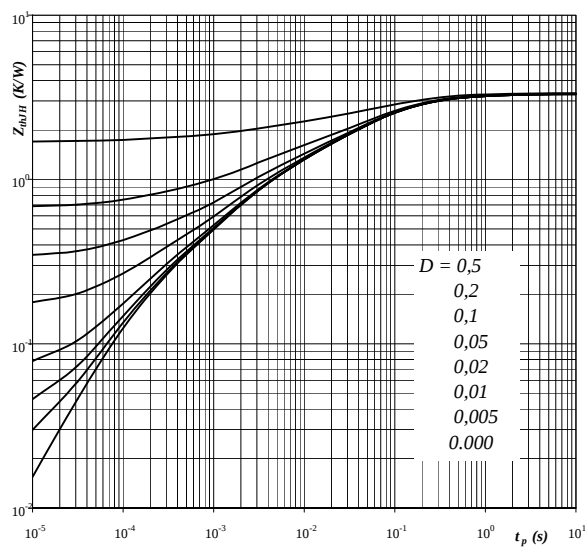
Figure 13. IGBT transient thermal impedance as a function of pulse width
 $Z_{thJH} = f(t_p)$


Parameter: $D = t_p / T$
 R_{thJH} : 2,5 K/W

IGBT thermal model values

R (C/W)	Tau (s)
0,05	1,2E+02
0,16	1,7E+00
0,65	2,0E-01
0,71	5,3E-02
0,47	9,8E-03
0,24	1,7E-03
0,21	2,8E-04

Figure 14. FRED transient thermal impedance as a function of pulse width
 $Z_{thJH} = f(t_p)$


Parameter: $D = t_p / T$
 R_{thJH} : 3,4 K/W

FRED thermal model values

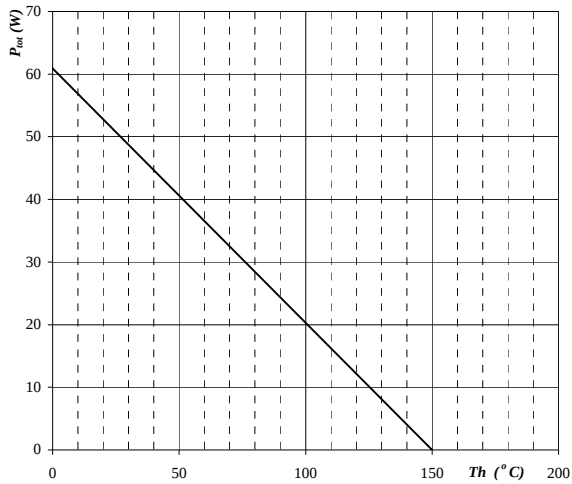
R (C/W)	Tau (s)
0,10	1,2E+02
0,16	1,6E+00
0,84	1,8E-01
1,09	4,6E-02
0,64	6,9E-03
0,42	1,3E-03
0,16	1,4E-04

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Output inverter

Figure 15. Power dissipation as a function of heatsink temperature

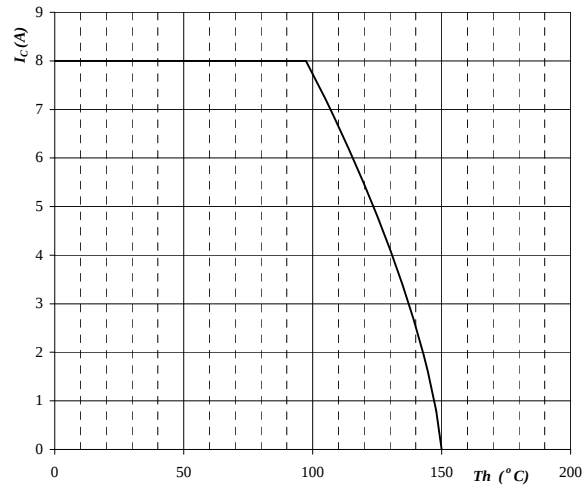
Output inverter IGBT
 $P_{tot} = f(T_h)$



parameter: $T_j = 150^\circ\text{C}$

Figure 16. Collector current as a function of heatsink temperature

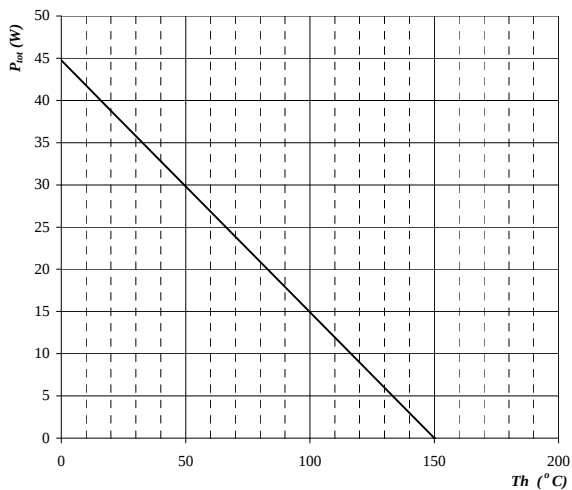
Output inverter IGBT
 $I_c = f(T_h)$



parameter: $T_j = 150^\circ\text{C}$
 $V_{GE} = 15\text{ V}$

Figure 17. Power dissipation as a function of heatsink temperature

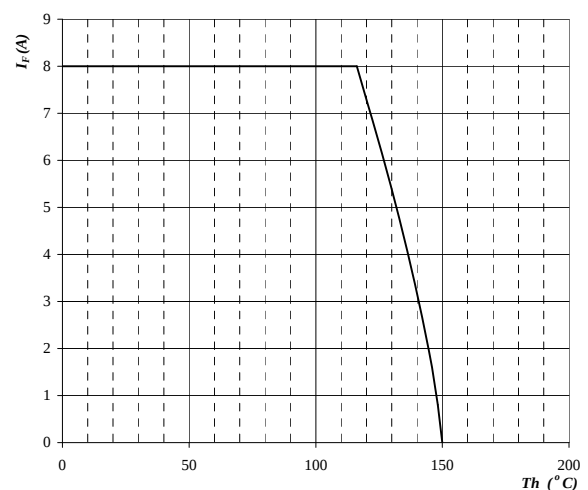
Output inverter FRED
 $P_{tot} = f(T_h)$



parameter: $T_j = 150^\circ\text{C}$

Figure 18. Forward current as a function of heatsink temperature

Output inverter FRED
 $I_F = f(T_h)$



parameter: $T_j = 150^\circ\text{C}$

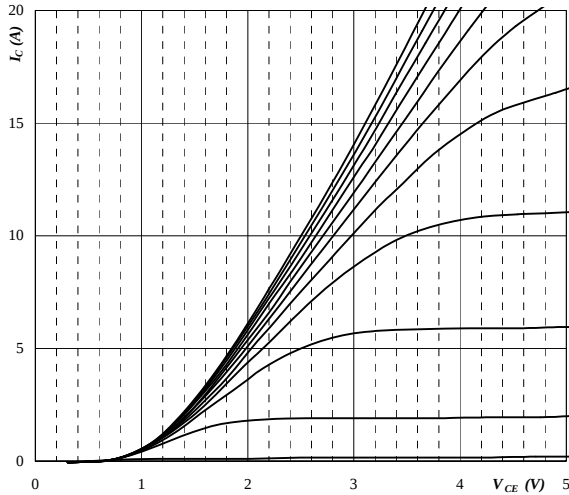
flowPIM®1, 600V

Brake

Figure 19. Typical output characteristics

Brake IGBT

$I_c = f(V_{CE})$

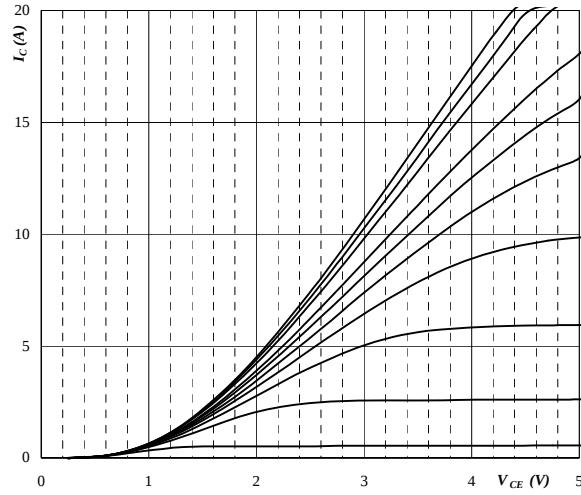


parameter: $t_p = 250 \text{ us}$ $T_j = 25 \text{ °C}$
VGE parameter: from: 5 V to 15 V
in 1 V steps

Figure 20. Typical output characteristics

Brake IGBT

$I_c = f(V_{CE})$

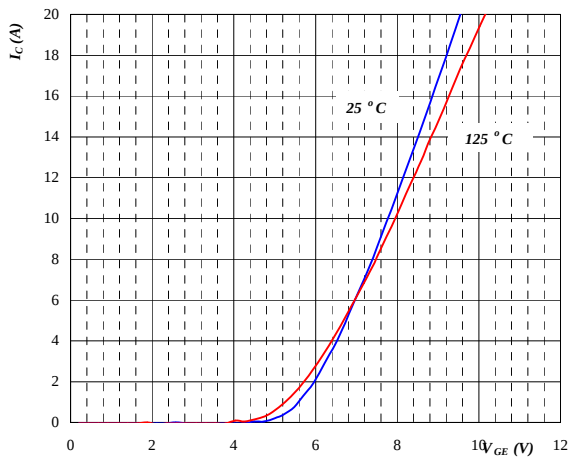


parameter: $t_p = 250 \text{ us}$ $T_j = 125 \text{ °C}$
VGE parameter: from: 5 V to 15 V
in 1 V steps

Figure 21. Typical transfer characteristics

Brake IGBT

$I_c = f(V_{GE})$

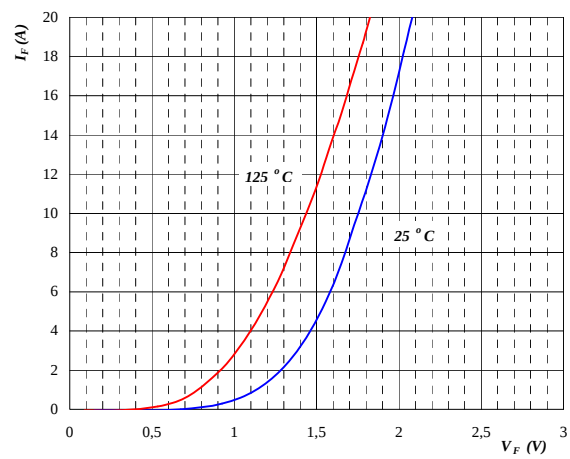


parameter: $t_p = 250 \text{ us}$ $V_{CE} = 10 \text{ V}$

Figure 22. Typical diode forward current as a function of forward voltage

Brake FRED

$I_F = f(V_F)$



parameter: $t_p = 250 \text{ us}$

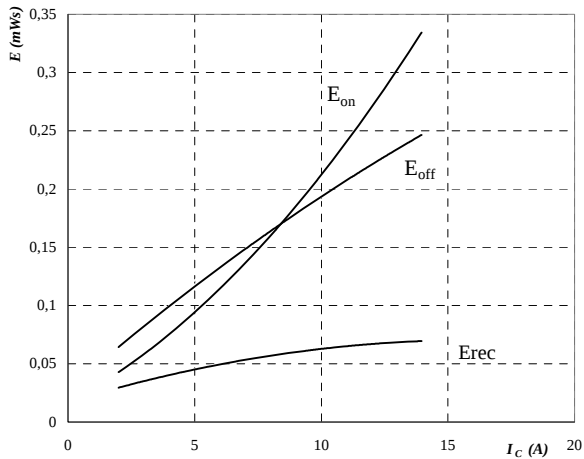
flowPIM®1, 600V

Brake

Figure 23. Typical switching energy losses as a function of collector current

Brake IGBT

$$E = f(I_C)$$



inductive load, $T_j = 125^\circ\text{C}$

$V_{CE} = 300\text{ V}$

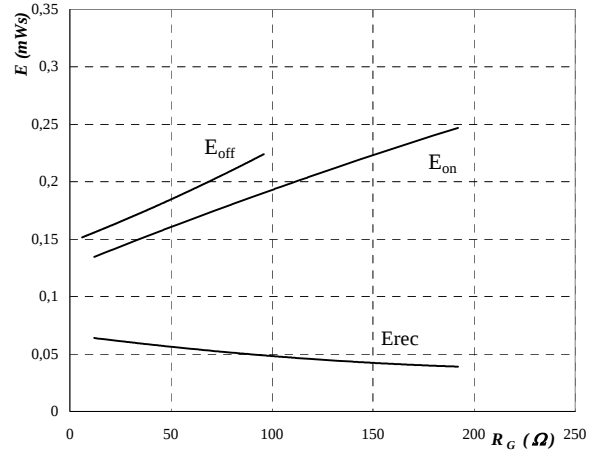
$V_{GE} = 15\text{ V}$

$R_{Gon} = 2 \cdot R_{Goff} = 48\text{ }\Omega$

Figure 24. Typical switching energy losses as a function of gate resistor

Brake IGBT

$$E = f(R_G)$$



inductive load, $T_j = 125^\circ\text{C}$

$V_{CE} = 300\text{ V}$

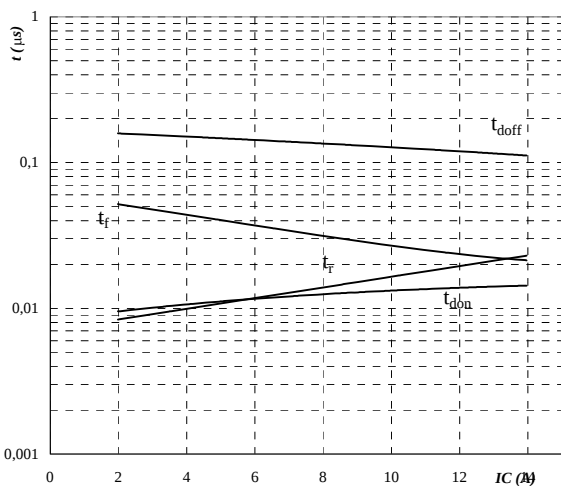
$V_{GE} = 15\text{ V}$

$I_C = 8\text{ A}$

Figure 25. Typical switching times as a function of collector current

Brake IGBT

$$t = f(I_C)$$



inductive load, $T_j = 125^\circ\text{C}$

$V_{CE} = 300\text{ V}$

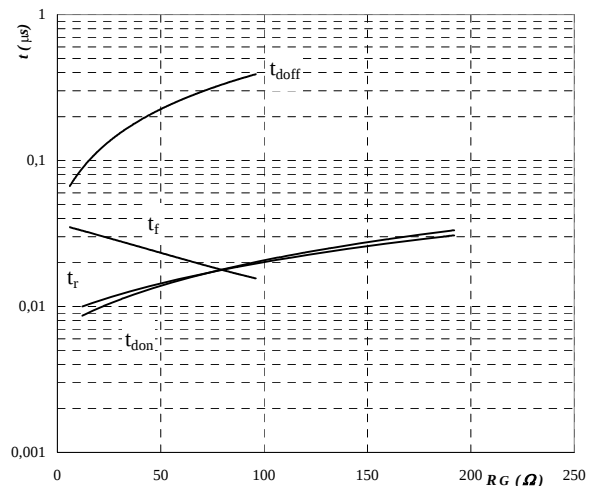
$V_{GE} = 15\text{ V}$

$R_{Gon} = 2 \cdot R_{Goff} = 48\text{ }\Omega$

Figure 26. Typical switching times as a function of gate resistor

Brake IGBT

$$t = f(R_G)$$



inductive load, $T_j = 125^\circ\text{C}$

$V_{CE} = 300\text{ V}$

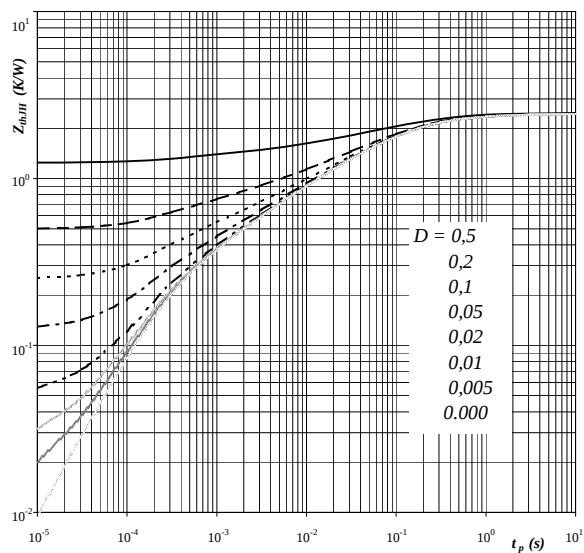
$V_{GE} = 15\text{ V}$

$I_C = 8\text{ A}$

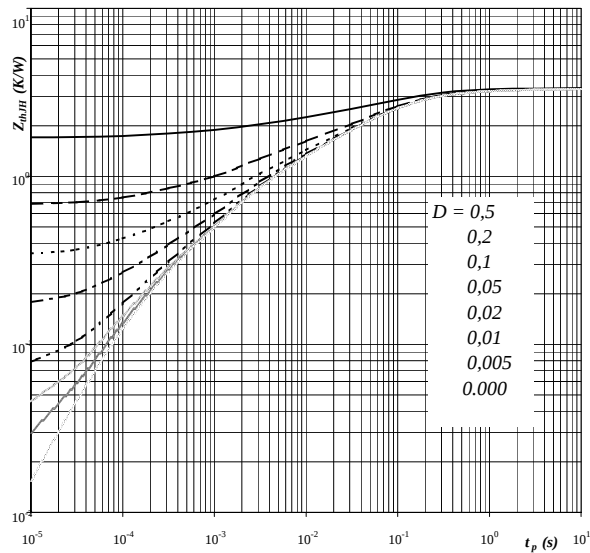
flowPIM®1, 600V

Brake

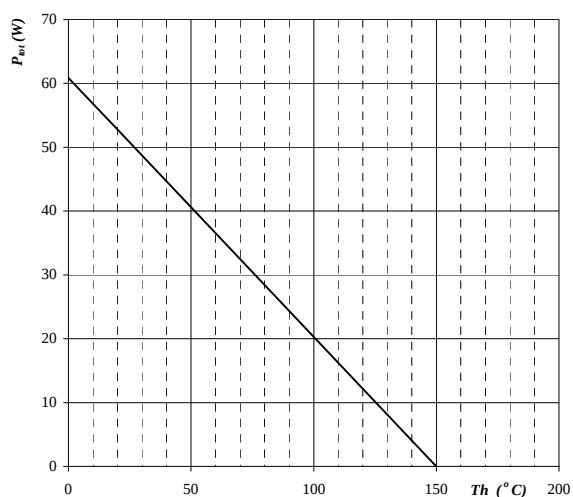
**Figure 27.. IGBT transient thermal impedance
as a function of pulse width**
 $Z_{thJH} = f(t_p)$



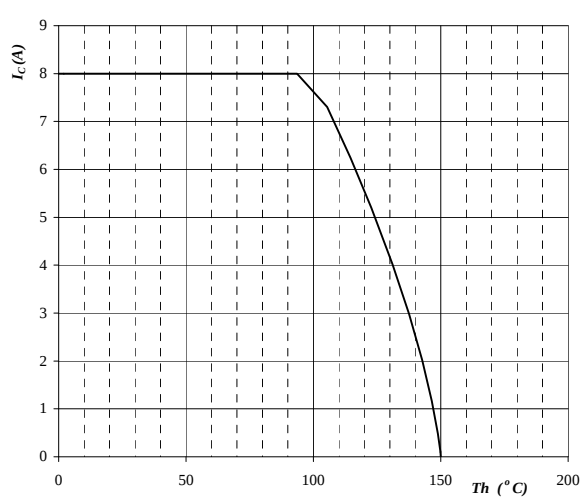
**Figure 28. FRED transient thermal impedance
as a function of pulse width**
 $Z_{thJH} = f(t_p)$



**Figure 29.. Power dissipation as a
function of heatsink temperature**
Brake IGBT
 $P_{tot} = f(T_h)$



**Figure 30. Collector current as a
function of heatsink temperature**
Brake IGBT
 $I_c = f(T_h)$



flowPIM[®]1, 600V

Brake

Figure 31. Power dissipation as a function of heatsink temperature
Brake FRED
 $P_{tot} = f(T_h)$

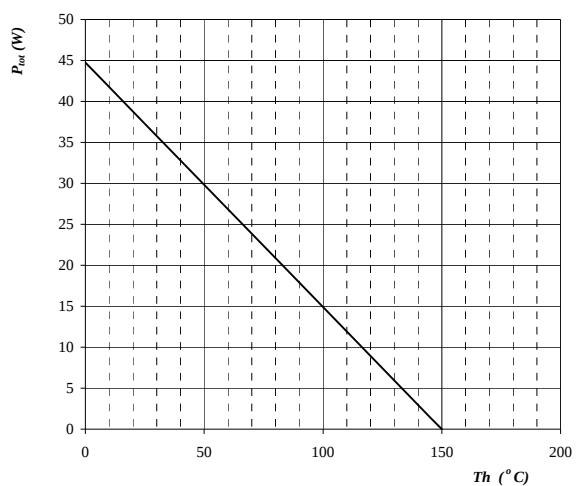
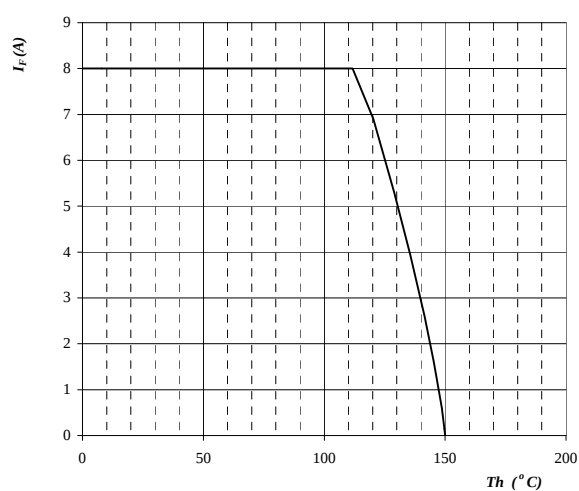

parameter: $T_j = 150^{\circ}\text{C}$

Figure 32. Forward current as a function of heatsink temperature
Brake FRED
 $I_F = f(T_h)$

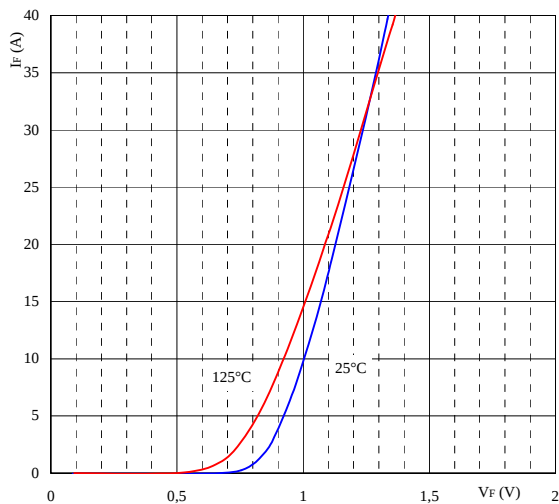

parameter: $T_j = 150^{\circ}\text{C}$

flowPIM®1, 600V

Input rectifier bridge

Figure 33. Typical diode forward current as a function of forward voltage

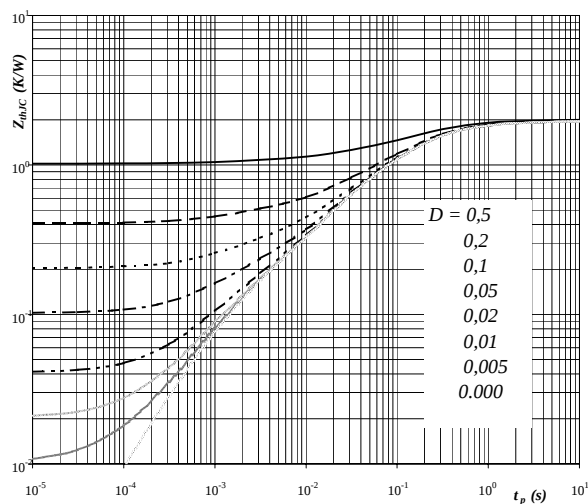
Rectifier diode $I_F = f(V_F)$



parameter: $t_p = 250 \text{ us}$

Figure 34. Diode transient thermal impedance as a function of pulse width

$Z_{thJC} = f(t_p)$

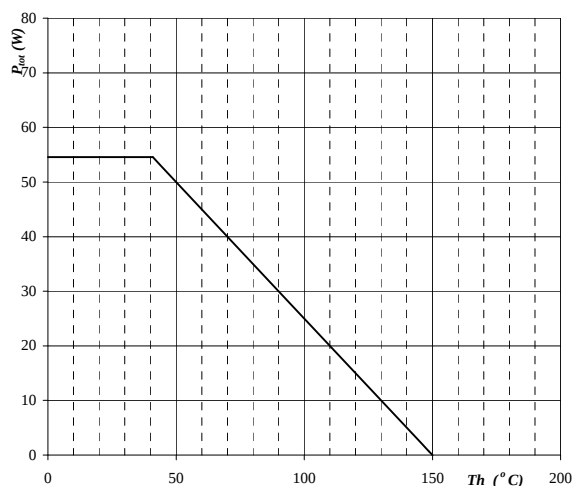


Parameter: $D = t_p / T$

$R_{thJH} = 2.0 \text{ K/W}$

Figure 35. Power dissipation as a function of heatsink temperature

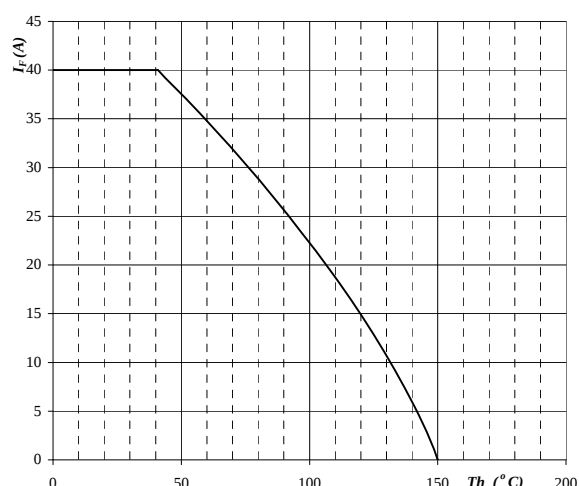
Rectifier diode
 $P_{tot} = f(T_h)$



parameter: $T_j = 150^\circ\text{C}$

Figure 36. Forward current as a function of heatsink temperature

Rectifier diode
 $I_F = f(T_h)$



parameter: $T_j = 150^\circ\text{C}$

flowPIM[®]1, 600V

Thermistor

**Figure 37. Typical NTC characteristic
as a function of temperature**

$$R_T = f(T)$$

