Maximum Ratings / Höchstzulässige Werte

Parameter	Condition		Symbol	Datasheet values max.	Unit
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°C; Tc=80°C	I_{FAV}	30 40-limited by wires	A
Surge forward current Stoßstrom Grenzwert	t_p=10ms	T_j=25°C	I_{FSM}	200	A
I^2t-value Grenzlastintegral	t_p=10ms	T_j=25°C	I^2t	200	A^2s
Power dissipation per Diode Verlustleistung pro Diode	T_j=150°C	T_h=80°C T_c=80°C	P_{tot}	37 54	W
Transistor Inverter **Transistor Wechselrichter**					
Collector-emitter break down voltage Kollektor-Emitter-Sperrspannung			V_{CE}	1200	V
DC collector current Kollektor-Dauergleichstrom	T_j=150°C	T_h=80°C, T_c=80°C	I_C	16 20-limited by wires	A
Repetitive peak collector current Periodischer Kollektorspitzenstrom	t_p=1ms	T_h=80°C	I_{cpuls}	32	A
Power dissipation per IGBT Verlustleistung pro IGBT	T_j=150°C	T_h=80°C T_c=80°C	P_{tot}	39 59	W
Gate-emitter peak voltage Gate-Emitter-Spitzenspannung			V_{GE}	±20	V
SC withstand time Kurzschlußverhalten	Tj≤150°C V_{CE}=V_{CEBR}	V_{GE}=15V	t_{SC}	10	us
Diode Inverter **Diode Wechselrichter**					
DC forward current Dauergleichstrom	T_j=150°C	T_h=80°C, T_c=80°C	I_F	16 20-limited by wires	A
Repetitive peak forward current Periodischer Spitzenstrom	t_p=1ms	T_h=80°C	I_{FRM}	31	A
Power dissipation per Diode Verlustleistung pro Diode	T_j=150°C	T_h=80°C T_c=80°C	P_{tot}	27 40	W

Maximum Ratings / Höchstzulässige Werte

Parameter	Condition		Symbol	Datasheet values max.	Unit
Transistor BRC **Transistor Wechselrichter**					
Collector-emitter break down voltage Kollektor-Emitter-Sperrspannung			V_{CE}	1200	V
DC collector current Kollektor-Dauergleichstrom	T_j=150°C	T_h=80°C T_c=80°C	I_C	11 14	A
Repetitive peak collector current Periodischer Kollektorspitzenstrom	t_p=1ms	T_h=80°C	I_{cpuls}	22	A
Power dissipation per IGBT Verlustleistung pro IGBT	T_j=150°C	T_h=80°C T_c=80°C	P_{tot}	27 41	W
Gate-emitter peak voltage Gate-Emitter-Spitzenspannung			V_{GE}	±20	V
SC withstand time Kurzschlußverhalten	Tj≤150°C VCE=600/1200 V	VGE=15V	t_{SC}	10	us
Diode BRC **Diode BRC**					
DC forward current Dauergleichstrom	T_j=150°C	T_h=80°C T_c=80°C	I_F	12 16	A
Repetitive peak forward current Periodischer Spitzenstrom	t_p=1ms	T_h=80°C	I_{FRM}	24	A
Power dissipation per Diode Verlustleistung pro Diode	T_j=150°C	T_h=80°C T_c=80°C	P_{tot}	23 35	W
Thermal properties **Thermische Eigenschaften**					
max. Chip temperature max. Chiptemperatur			T_{jmax}	150	°C
Storage temperature Lagertemperatur			T_{stg}	-40…+125	°C
Operation temperature Betriebstemperatur			T_{op}	-40…+125	°C
Insulation properties **Modulisolation**					
Insulation voltage Isolationsspannung		t=1min	V_{is}	4000	Vdc
Creepage distance Kriechstrecke				min 12,7	mm
Clearance Luftstrecke				min 12,7	mm

Characteristic values

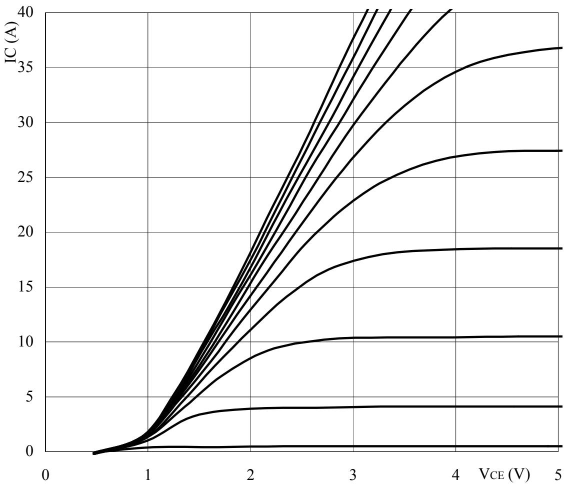
Description	Symbol	Conditions T(C°)	Other conditions (Rgon-Rgoff)	VGE(V) VGS(V)	VCE(V) VDS(V)	IC(A) IF(A) Id(A)	Datasheet values Min	Typ	Max	Unit
Input Rectifier Bridge Gleichrichter										
Forward voltage Durchlaßpannung	V_F	Tj=25°C Tj=125°C				30		1,22 1,21	1,45	V
Threshold voltage (for power loss calc. only) Schleusenspannung	V_{to}	Tj=25°C Tj=125°C				30		0,91 0,81		V
Slope resistance (for power loss calc. only) Ersatzwiderstand	r_t	Tj=25°C Tj=125°C				 30		0,01 0,013		Ohm
Reverse current Sperrstrom	I_r	Tj=25°C Tj=150°C			1500				0,01 4	mA
Thermal resistance chip to heatsink per chip Wärmewiderstand Chip-Kühlkörper pro Chip	R_{thJH}		Thermal grease thickness≤50um Warmeleitpaste Dicke≤50um λ = 0,61 W/mK					1,95 1,29		K/W
Transistor Inverter, inductive load Transistor Wechselrichter										
Gate emitter threshold voltage Gate-Schwellenspannung	$V_{GE(th)}$	Tj=25°C Tj=125°C	VCE=VGE			0,0006	5	5,8	6,5	V
Collector-emitter saturation voltage Kollektor-Emitter Sättigungsspannung	$V_{CE(sat)}$	Tj=25°C Tj=125°C		15		15		1,89 2,19	2,35	V
Collector-emitter cut-off Kollektor-Emitter Reststrom	I_{CES}	Tj=25°C Tj=125°C		0	1200				0,1 2	mA
Gate-emitter leakage current Gate-Emitter Reststrom	I_{GES}	Tj=25°C Tj=125°C		20	0				200	nA
Integrated Gate resistor Integrirter Gate Widerstand	R_{gint}							-		Ohm
Turn-on delay time Einschaltverzögerungszeit	$t_{d(on)}$	Tj=25°C Tj=125°C	Rgon=40Ohm Rgoff=20Ohm	15	600	15		 32		ns
Rise time Anstiegszeit	t_r	Tj=25°C Tj=125°C	Rgon=40Ohm Rgoff=20Ohm	15	600	15		 20		ns
Turn-off delay time Abschaltverzögerungszeit	$t_{d(off)}$	Tj=25°C Tj=125°C	Rgon=40Ohm Rgoff=20Ohm	15	600	15		 451		ns
Fall time Fallzeit	t_f	Tj=25°C Tj=125°C	Rgon=40Ohm Rgoff=20Ohm	15	600	15		 276		ns
Turn-on energy loss per pulse Einschaltverlustenergie pro Puls	E_{on}	Tj=25°C Tj=125°C	Rgon=40Ohm Rgoff=20Ohm	15	600	15		 1,61		mWs
Turn-off energy loss per pulse Abschaltverlustenergie pro Puls	E_{off}	Tj=25°C Tj=125°C	Rgon=40Ohm Rgoff=20Ohm	15	600	15		 2,19		mWs
Input capacitance Eingangskapazität	C_{ies}	Tj=25°C Tj=125°C	f=1MHz	0	25			1,1		nF
Output capacitance Ausgangskapazität	C_{oss}	Tj=25°C Tj=125°C	f=1MHz	0	25			0,058		nF
Reverse transfer capacitance Rückwirkungskapazität	C_{rss}	Tj=25°C Tj=125°C	f=1MHz	0	25			0,048		nF
Gate charge Gate Ladung	Q_{Gate}	Tj=25°C Tj=125°C		15	960	15		85		nC
Thermal resistance chip to heatsink per chip Wärmewiderstand Chip-Kühlkörper pro Chip Thermal resistance chip to case per chip Wärmewiderstand Chip-Gehause pro Chip	R_{thJH}		Thermal grease thickness≤50um Warmeleitpaste Dicke≤50um λ = 0,61 W/mK					1,81 1,19		K/W
Diode Inverter Diode Wechselrichter										
Diode forward voltage Durchlaßspannung	V_F	Tj=25°C Tj=125°C				15		2,32 1,78	3	V
Peak reverse recovery current Rückstromspitze	I_{RRM}	Tj=25°C Tj=125°C	Rgon=40Ohm	15	600	15		 31		A
Reverse recovery time Sperreverzögerungszeit	t_{rr}	Tj=25°C Tj=125°C	Rgon=40Ohm	15	600	15		 355		ns
Reverse recovered charge Sperrverzögerungsladung	Q_{rr}	Tj=25°C Tj=125°C	Rgon=40Ohm	15	600	15		 3,5		uC
Reverse recovered energy Sperrverzögerungsenergie	Erec		Rgon=40Ohm	15	600	15		 1,32		mWs
Thermal resistance chip to heatsink per chip Wärmewiderstand Chip-Kühlkörper pro Chip Thermal resistance chip to case per chip Wärmewiderstand Chip-Gehause pro Chip	R_{thJH}		Thermal grease thickness≤50um Warmeleitpaste Dicke≤50um λ = 0,61 W/mK					2,64 1,74		K/W

Characteristic values

Description	Symbol	Conditions					Datasheet values			Unit
		T(C°)	Other conditions (Rgon-Rgoff)	VGE(V) VGS(V)	VCE(V) VDS(V)	IC(A) IF(A) Id(A)	Min	Typ	Max	
Transistor BRC **Transistor BRC**										
Gate emitter threshold voltage Gate-Schwellenspannung	$V_{GE(th)}$	Tj=25°C Tj=125°C	VCE=VGE			0,0003	5	5,8	6,5	V
Collector-emitter saturation voltage Kollektor-Emitter Sättigungsspannung	$V_{CE(sat)}$	Tj=25°C Tj=125°C		15		10		1,87 2,19	2,7	V
Collector-emitter cut-off Kollektor-Emitter Reststrom	I_{CES}	Tj=25°C Tj=125°C		0	1200				0,05 2	mA
Gate-emitter leakage current Gate-Emitter Reststrom	I_{GES}	Tj=25°C Tj=125°C		20	0				200	nA
Turn-on delay time Einschaltverzögerungszeit	$t_{d(on)}$	Tj=25°C Tj=125°C	Rgon=80Ohm Rgoff=40Ohm	15	600	10		 34		ns
Rise time Anstiegszeit	t_r	Tj=25°C Tj=125°C	Rgon=80Ohm Rgoff=40Ohm	15	600	10		 20		ns
Turn-off delay time Abschaltverzögerungszeit	$t_{d(off)}$	Tj=25°C Tj=125°C	Rgon=80Ohm Rgoff=40Ohm	15	600	10		 442		ns
Fall time Fallzeit	t_f	Tj=25°C Tj=125°C	Rgon=80Ohm Rgoff=40Ohm	15	600	10		 284		ns
Turn-on energy loss per pulse Einschaltverlustenergie pro Puls	E_{on}	Tj=25°C Tj=125°C	Rgon=80Ohm Rgoff=40Ohm	15	600	10		 0,92		uWs
Turn-off energy loss per pulse Abschaltverlustenergie pro Puls	E_{off}	Tj=25°C Tj=125°C	Rgon=80Ohm Rgoff=40Ohm	15	600	10		 1,47		uWs
Input capacitance Eingangskapazität	C_{iss}	Tj=25°C Tj=125°C	f=1MHz	0	25			0,6		nF
Output capacitance Ausgangskapazität	C_{oss}	Tj=25°C Tj=125°C	f=1MHz	0	25			0,037		nF
Reverse transfer capacitance Rückwirkungskapazität	Cies	Tj=25°C Tj=125°C	f=1MHz	0	25			0,029		nF
Gate charge Gate Ladung	Qgate	Tj=25°C Tj=125°C		15	960	10		53		nC
Thermal resistance chip to heatsink per chip Wärmewiderstand Chip-Kühlkörper pro Chip Thermal resistance chip to case per chip Wärmewiderstand Chip-Gehause pro Chip	R_{thJH}		Thermal grease thickness≤50um Warmeleitpaste Dicke≤50um λ = 0,61 W/mK					2,56 1,69		K/W
Diode BRC **Diode BRC**										
Diode forward voltage Durchlaßspannung	V_F	Tj=25°C Tj=125°C				10		1,8 1,79	2,5	V
Reverse current Sperrstrom	I_r	Tj=25°C Tj=150°C			1200				250 700	uA
Reverse recovery time Sperreverzögerungszeit	t_{rr}	Tj=25°C Tj=125°C	Rgon=80Ohm	15	600	10		 423		ns
Reverse recovered charge Sperrverzögerungsladung	Q_{rr}	Tj=25°C Tj=125°C	Rgon=80Ohm	15	600	10		 2,1		uC
Reverse recovery energy Sperrverzögerungsenergie	E_{rec}	Tj=25°C Tj=125°C	Rgon=80Ohm	15	600	10		 0,88		uWs
Thermal resistance chip to heatsink per chip Wärmewiderstand Chip-Kühlkörper pro Chip Thermal resistance chip to case per chip Wärmewiderstand Chip-Gehause pro Chip	R_{thJH}		Thermal grease thickness≤50um Warmeleitpaste Dicke≤50um λ = 0,61 W/mK					3,05 2,01		K/W
NTC-Thermistor **NTC-Widerstand**										
Rated resistance Nennwiderstand	R_{25}	Tj=25°C	Tol. ±5%				20,9	22	23,1	kOhm
Deviation of R100 Abweichung von R100	$D_{R/R}$	Tc=100°C	R100=1503Ohm					2,9		%/K
Power dissipation given Epcos-Typ Verlustleistung Epcos-Typ angeben	P	Tj=25°C						210		mW
B-value B-Wert	$B_{(25/100)}$	Tj=25°C	Tol. ±3%					3980		K

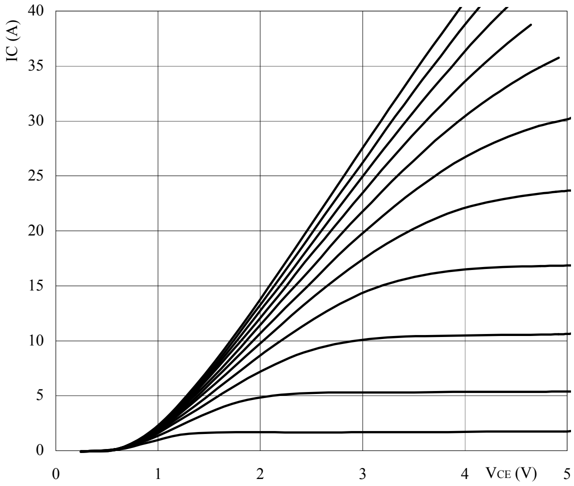
Output inverter

Figure 1. Typical output characteristics
Output inverter IGBT
Ic= f(VCE)



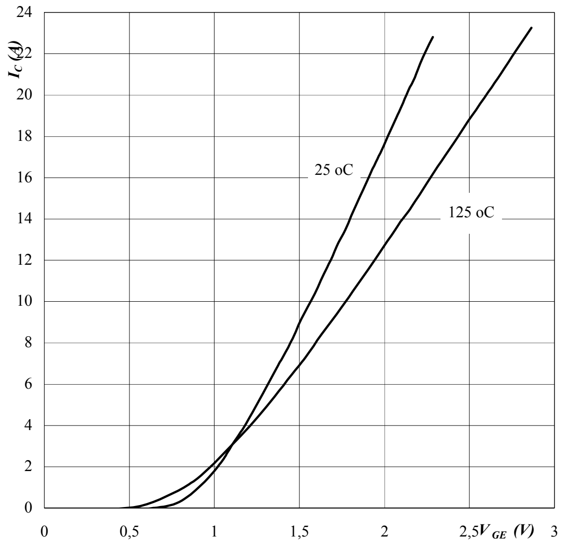
parameter: tp = 250 µs Tj = 25 °C
VGE parameter: from: 7 V to 17 V
in 1 V steps

Figure 2. Typical output characteristics
Output inverter IGBT
Ic= f(VCE)



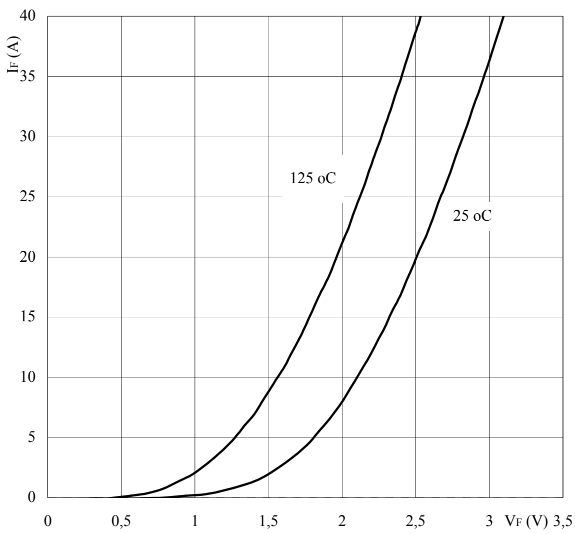
parameter: tp = 250 µs Tj = 125 °C
VGE parameter: from: 7 V to 17 V
in 1 V steps

Figure 3. Typical transfer characteristics
Output inverter IGBT
Ic= f(VGE)



parameter: tp = 250 µs VCE = 13 V

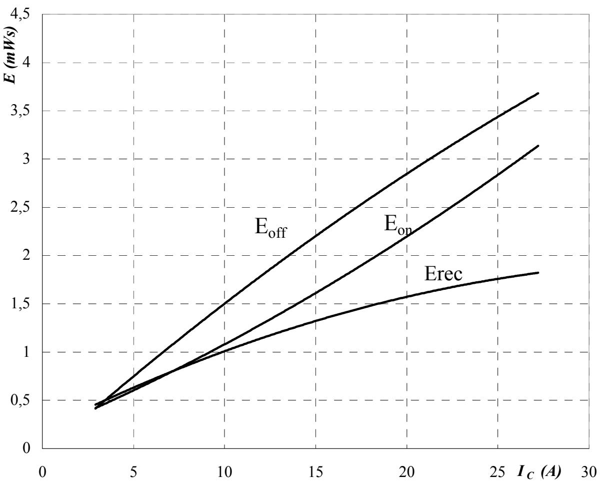
Figure 4. Typical diode forward current as a function of forward voltage
Output inverter FRED IF=f(VF)



parameter: tp = 250 µs

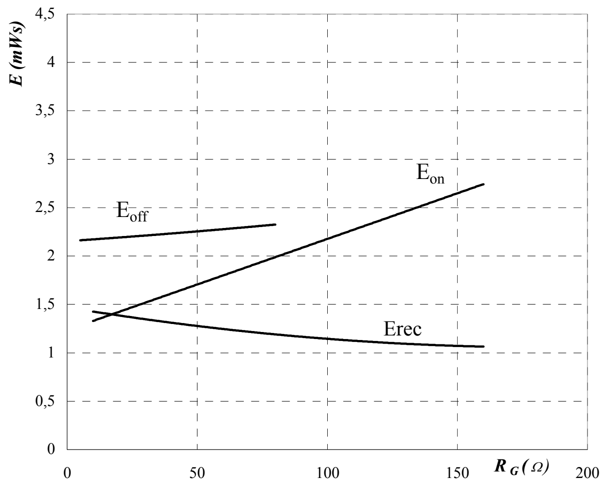
Output inverter

Figure 5. Typical switching energy losses as a function of collector current
Output inverter IGBT
E = f (Ic)



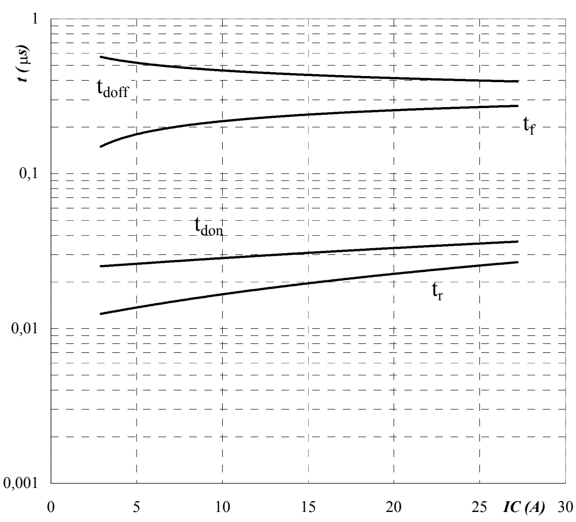
inductive load, Tj = 125 °C
VCE = 600 V
VGE= 15 V
RGon = 2*RGoff= 40 Ω

Figure 6. Typical switching energy losses as a function of gate resistor
Output inverter IGBT
E = f (RG)



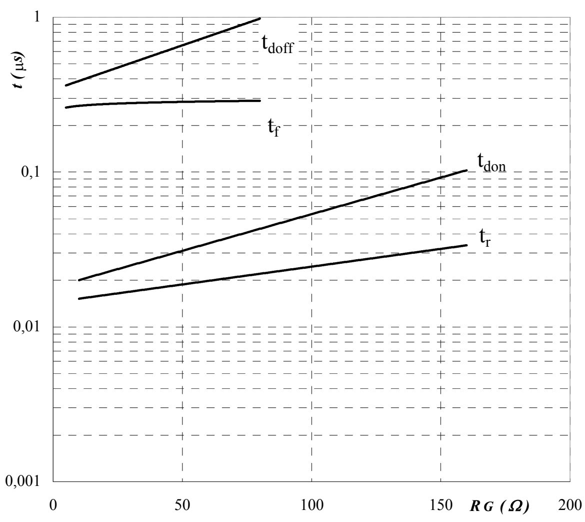
inductive load, Tj = 125 °C
VCE = 600 V
VGE= 15 V
Ic = 15 A

Figure 7. Typical switching times as a function of collector current
Output inverter IGBT
t = f (Ic)



inductive load, Tj = 125 °C
VCE = 600 V
VGE= 15 V
RGon = 2*RGoff= 40 Ω

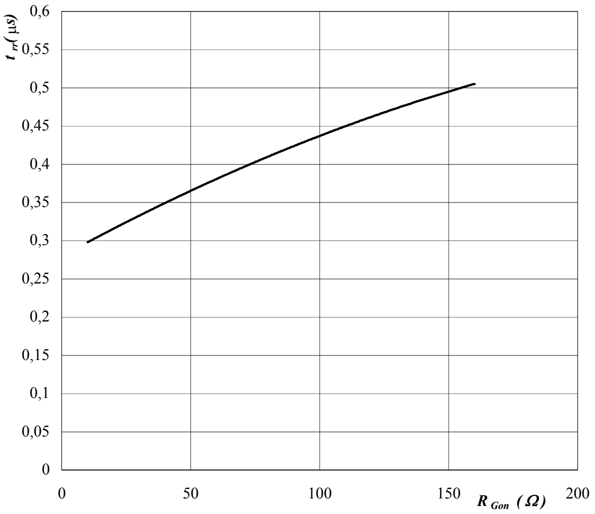
Figure 8. Typical switching times as a function of gate resistor
Output inverter IGBT
t = f (RG)



inductive load, Tj = 125 °C
VCE = 600 V
VGE= 15 V
Ic = 15 A

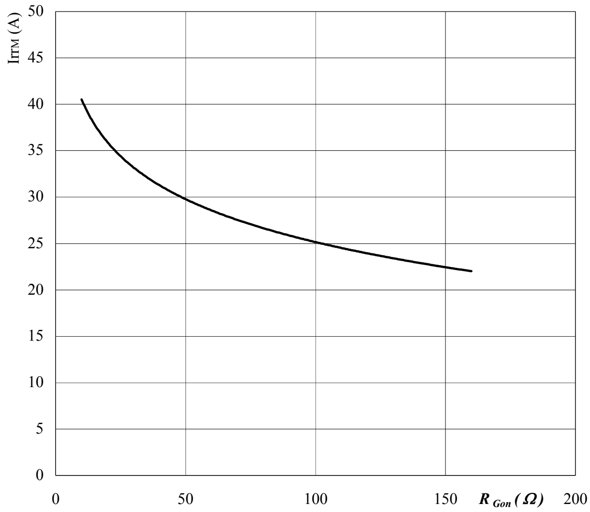
Output inverter

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



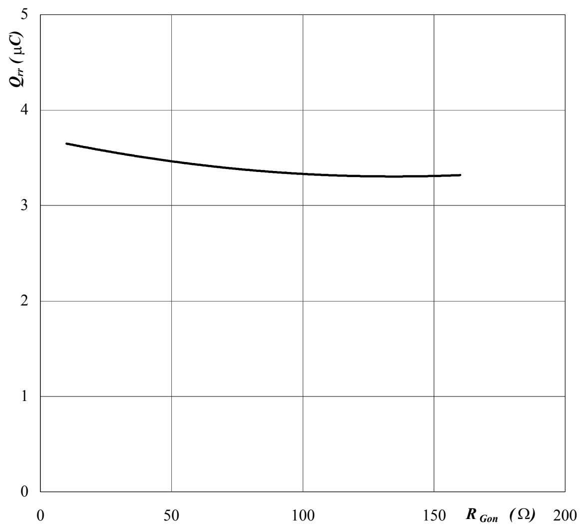
Tj = 125 °C
V_R = 600 V
I_F = 15 A

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



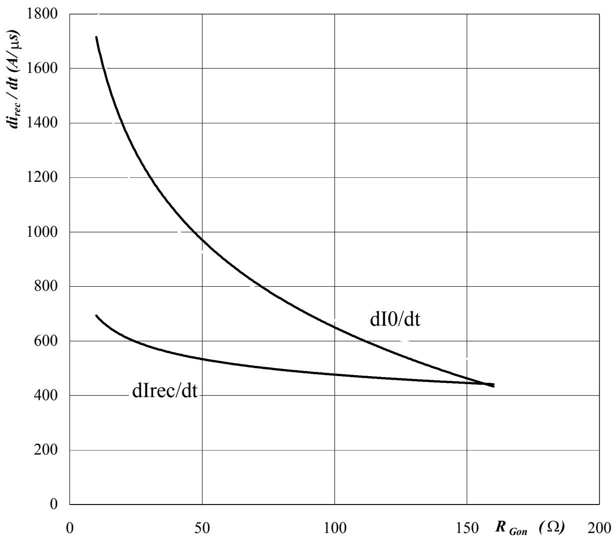
Tj = 125 °C
V_R = 600 V
I_F = 15 A

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



Tj = 125 °C
V_R = 600 V
I_F = 15 A

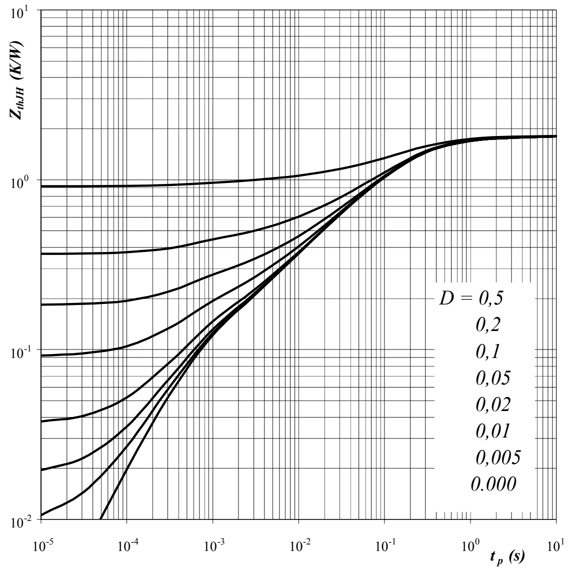
Figure 12. Typical rate of fall of forward and reverse recovery current as a function of IGBT turn on gate resistor
Output inverter FRED diode
dI0/dt,dIrec/dt= f (Rgon)



Tj = 125 °C
V_R = 600 V
I_F = 15 A

Output inverter

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

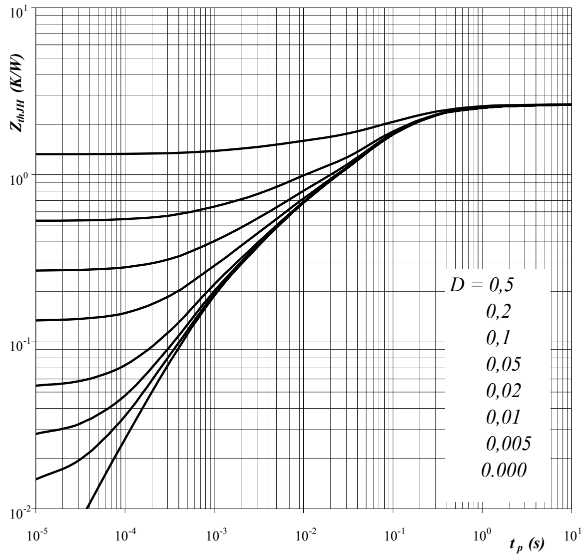


Parameter: D = tp / T   RthJH 1,81 K/W

IGBT thermal model values

R (C/W)	Tau (s)
0,03	5,5E+01
0,09	2,7E+00
0,32	4,6E-01
0,82	1,4E-01
0,34	2,8E-02
0,12	5,5E-03
0,10	6,2E-04
0,00	0,0E+00

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



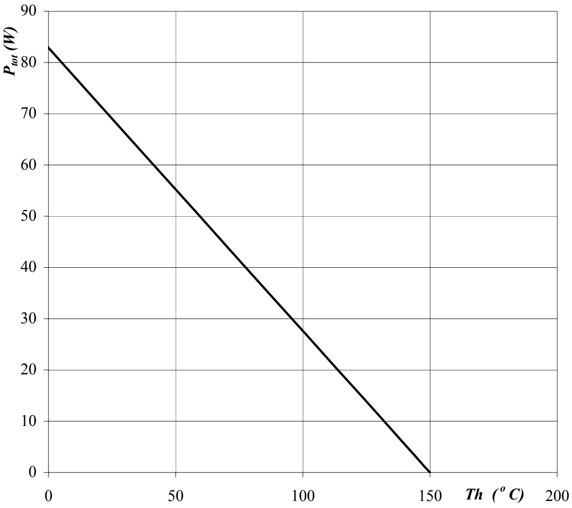
Parameter: D = tp / T   RthJH 2,64 K/W

FRED thermal model values

R (C/W)	Tau (s)
0,04	5,2E+01
0,16	1,8E+00
0,74	2,4E-01
1,17	6,3E-02
0,41	5,8E-03
0,14	7,8E-04
0,34	2,8E-04

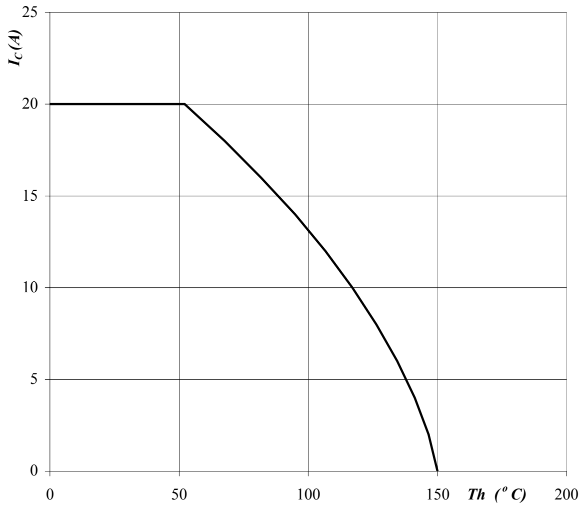
Output inverter

Figure 15. Power dissipation as a function of heatsink temperature
Output inverter IGBT
P_{tot} = f (Th)



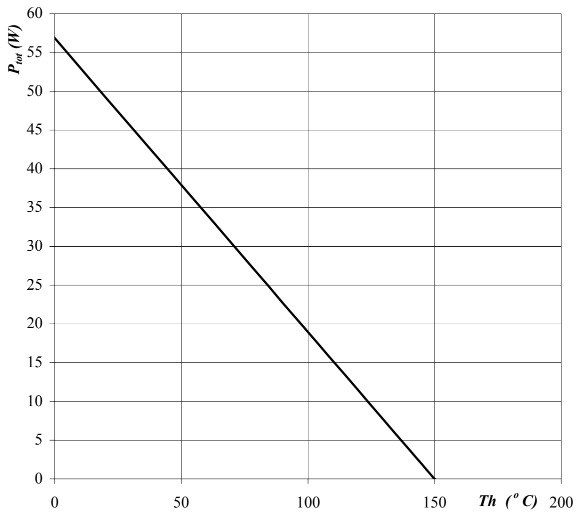
parameter: Tj = 150°C

Figure 16. Collector current as a function of heatsink temperature
Output inverter IGBT
I_c = f (Th)



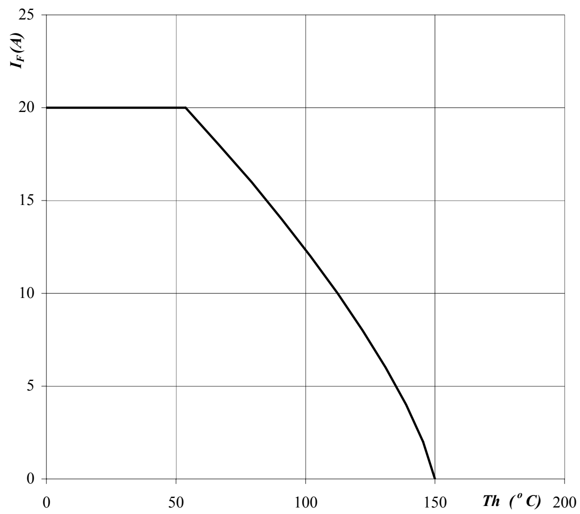
parameter: Tj = 150°C
V_{GE}= 15 V

Figure 17. Power dissipation as a function of heatsink temperature
Output inverter FRED
P_{tot} = f (Th)



parameter: Tj = 150°C

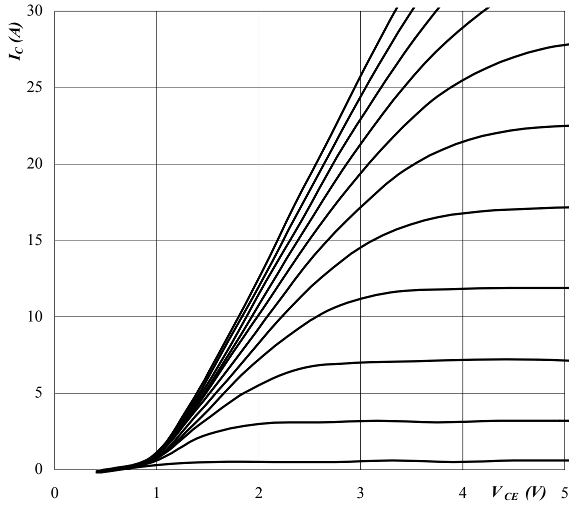
Figure 18. Forward current as a function of heatsink temperature
Output inverter FRED
I_F = f (Th)



parameter: Tj = 150°C

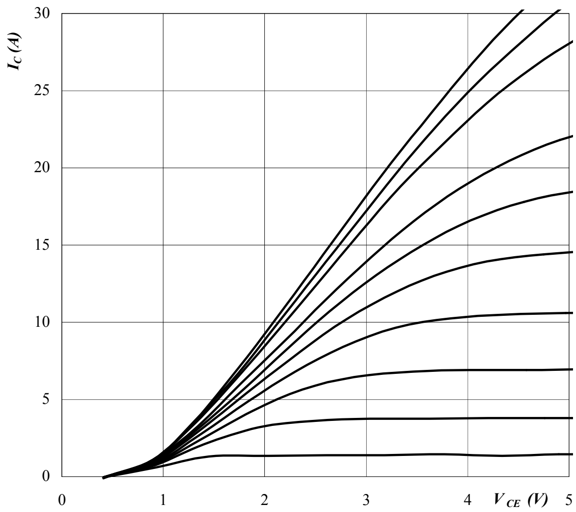
Brake

Figure 19. Typical output characteristics
Brake IGBT
Ic= f(VCE)



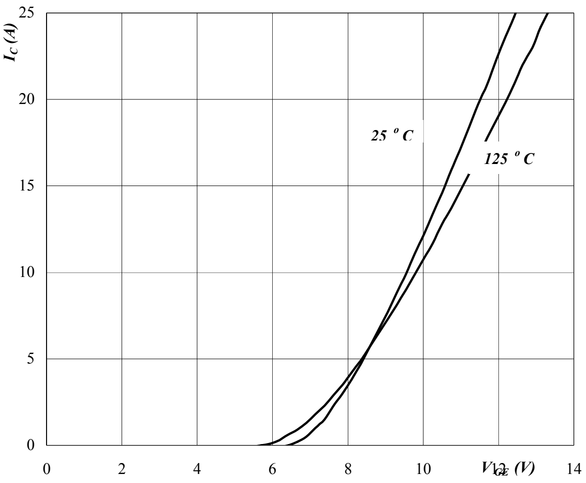
parameter: tp = 250 µs   Tj = 25 °C
VGE parameter: from: 7 V to 17 V
in 1 V steps

Figure 20. Typical output characteristics
Brake IGBT
Ic= f(VCE)



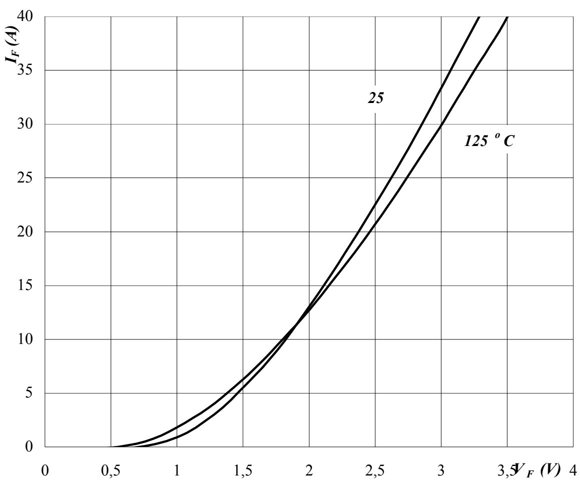
parameter: tp = 250 µs   Tj = 125 °C
VGE parameter: from: 7 V to 17 V
in 1 V steps

Figure 21. Typical transfer characteristics
Brake IGBT
Ic= f(VGE)



parameter: tp = 250 µs   VCE = 10 V

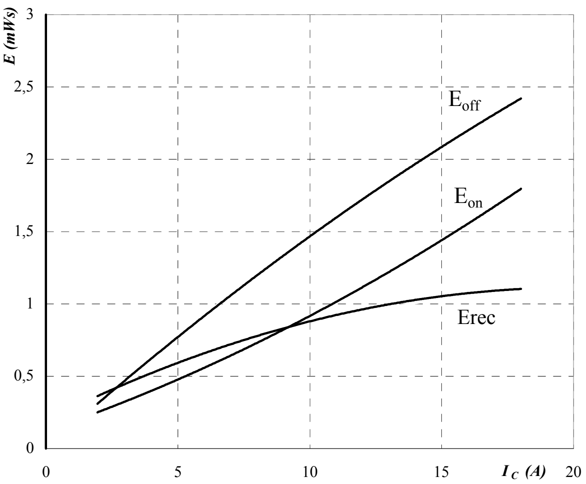
Figure 22. Typical diode forward current as a function of forward voltage
Brake FRED   IF=f(VF)



parameter: tp = 250 µs

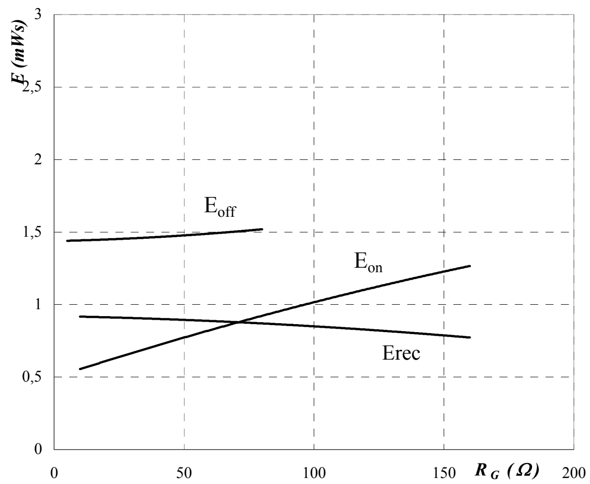
Brake

Figure 23. Typical switching energy losses as a function of collector current
Brake IGBT
E = f (Ic)



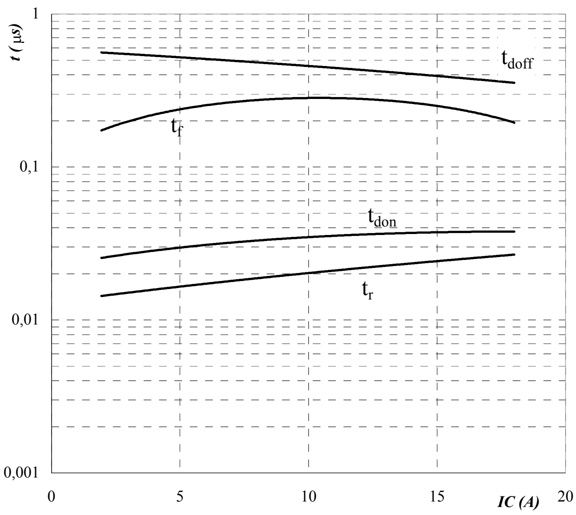
inductive load, Tj = 125 °C
VCE = 600 V
VGE= 15 V
RGon = 2*RGoff= 80 Ω

Figure 24. Typical switching energy losses as a function of gate resistor
Brake IGBT
E = f (RG)



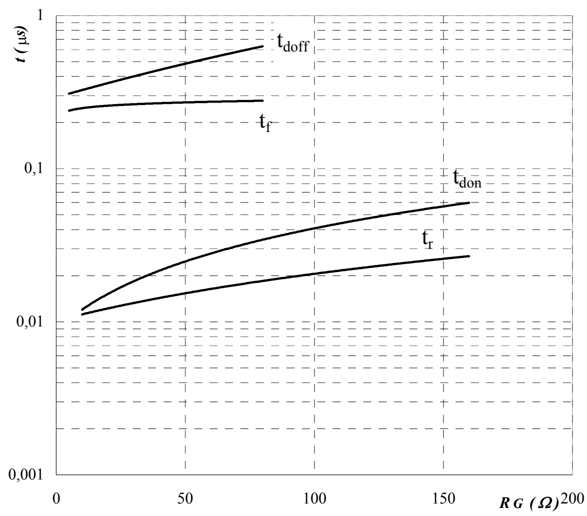
inductive load, Tj = 125 °C
VCE = 600 V
VGE= 15 V
Ic = 10 A

Figure 25. Typical switching times as a function of collector current
Brake IGBT
t = f (Ic)



inductive load, Tj = 125 °C
VCE = 600 V
VGE= 15 V
RGon = 2*RGoff= 80 Ω

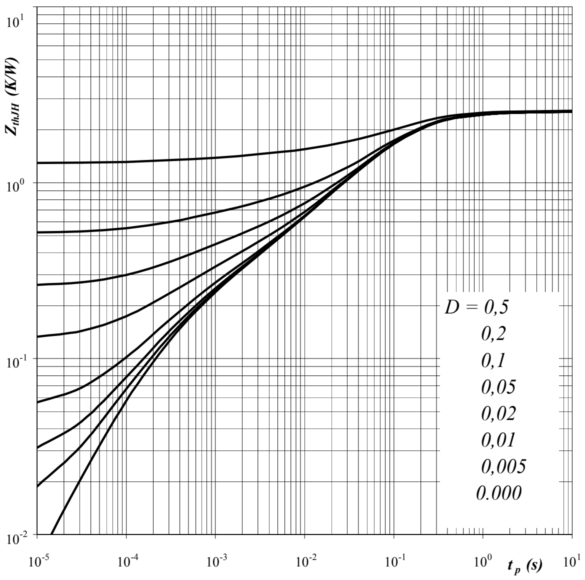
Figure 26. Typical switching times as a function of gate resistor
Brake IGBT
t = f (RG)



inductive load, Tj = 125 °C
VCE = 600 V
VGE= 15 V
Ic = 10 A

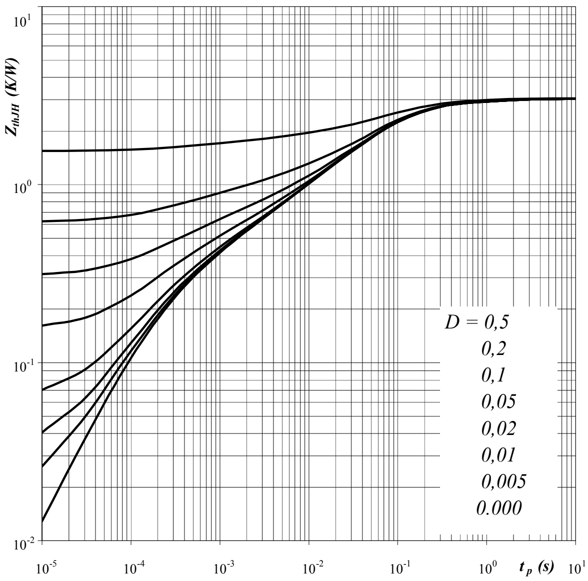
Brake

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



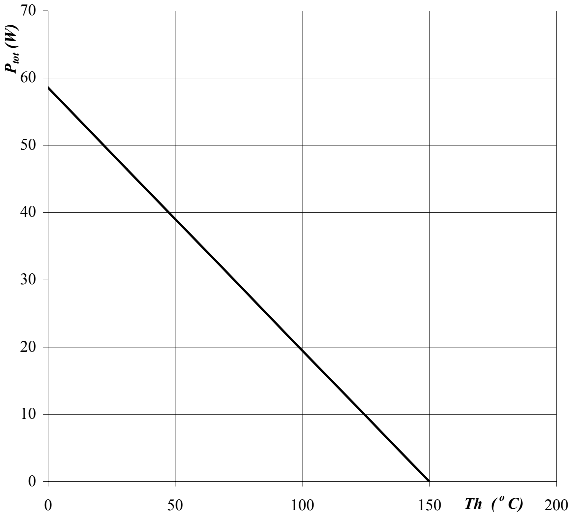
Parameter: D = tp / T   RthJH 2,56 K/W

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



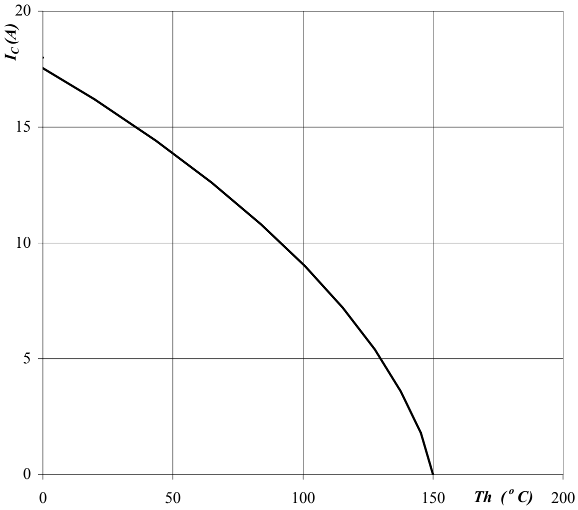
Parameter: D = tp / T   RthJH 3,05 K/W

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



parameter: Tj = 150°C

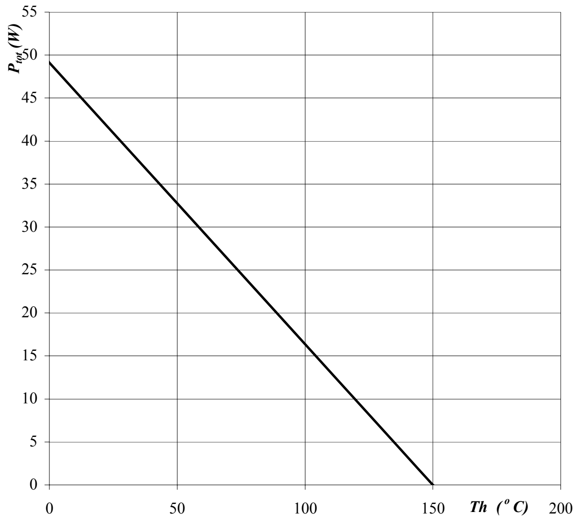
Figure 30. Collector current as a function of heatsink temperature
Brake IGBT
$I_c = f(T_h)$



parameter: Tj = 150°C
V_{GE}= 15 V

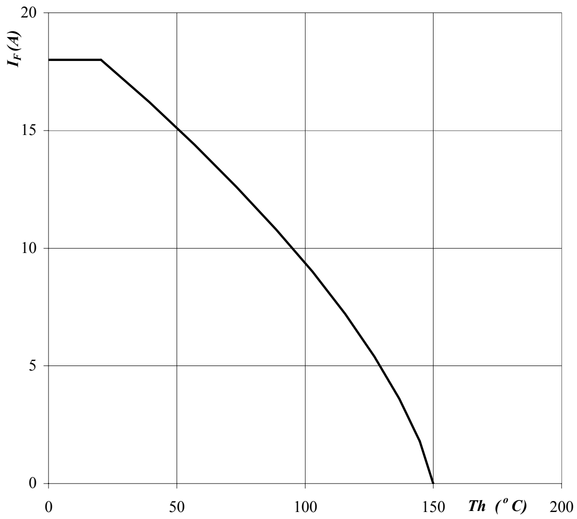
Brake

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



parameter: Tj = 150°C

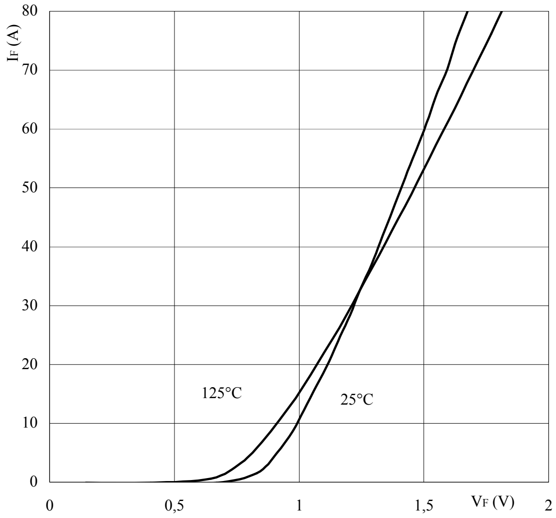
Figure 32. Forward current as a function of heatsink temperature
Brake FRED
$I_F = f\,(Th)$



parameter: Tj = 150°C

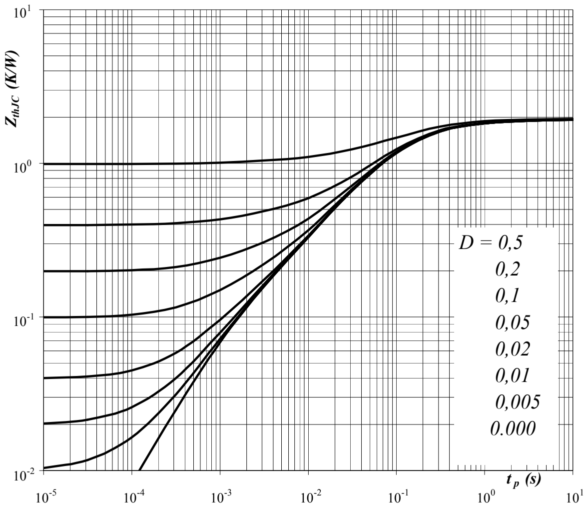
Input rectifier bridge

Figure 33. Typical diode forward current as a function of forward voltage
Rectifier diode $I_F=f(V_F)$



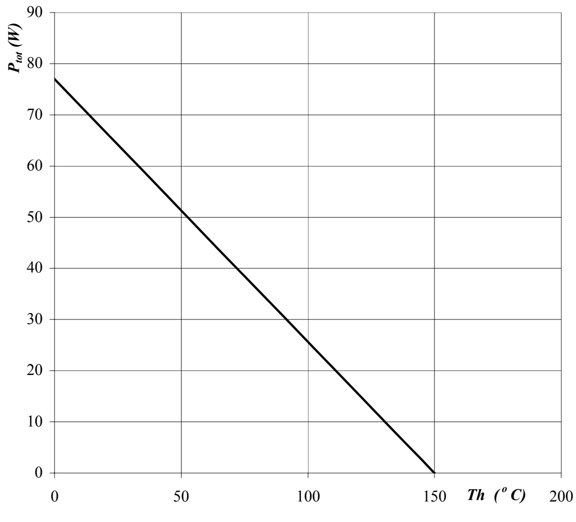
parameter: tp = 250 µs

Figure 34. Diode transient thermal impedance as a function of pulse width
$Z_{th}JH = f(tp)$



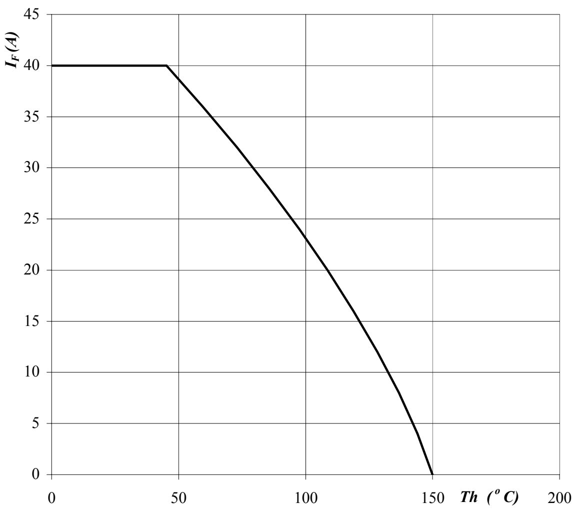
Parameter: D = tp / T RthJH 1,95 K/W

Figure 35. Power dissipation as a function of heatsink temperature
Rectifier diode
P_{tot} = f (Th)



parameter: Tj = 150°C

Figure 36. Forward current as a function of heatsink temperature
Rectifier diode
I_F = f (Th)

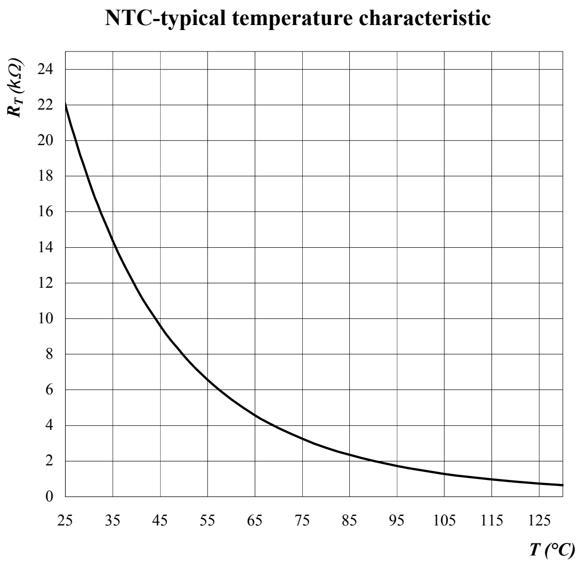


parameter: Tj = 150°C

Thermistor

Figure 37. Typical NTC characteristic as a function of temperature

$R_T = f(T)$

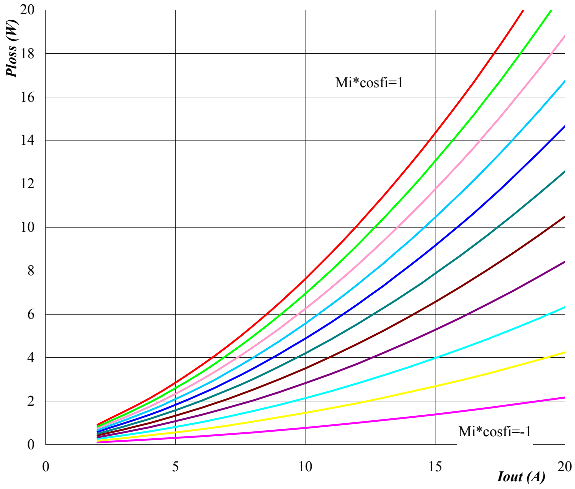


flow PIM® 0, 1200V

Output inverter application

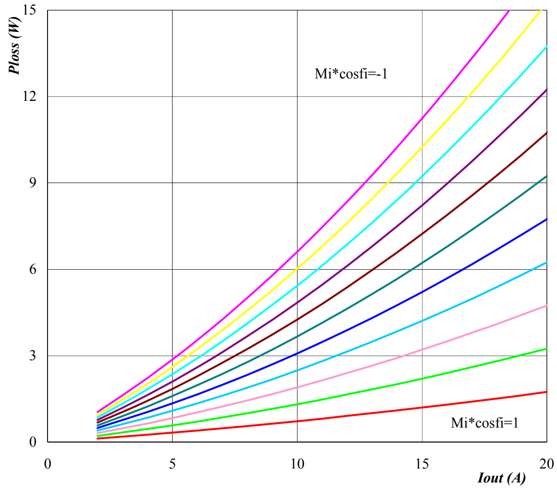
General conditions: 3 phase SPWM, Vgeon= 15 V Vgeoff=0V Rgon= 40 ohms Rgoff= 20 ohms

Figure 1. Typical avarage static loss as a function of output current
IGBT Ploss=f(Iout)



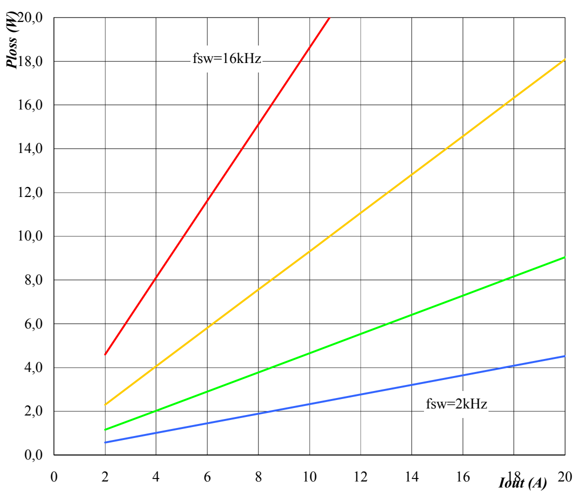
Conditions: Tj=125°C
Modulation index * cosfi
parameter Mi*cosfi from -1,00 to 1,00
in 0,20 steps

Figure 2. Typical avarage static loss as a function of output current
FRED Ploss=f(Iout)



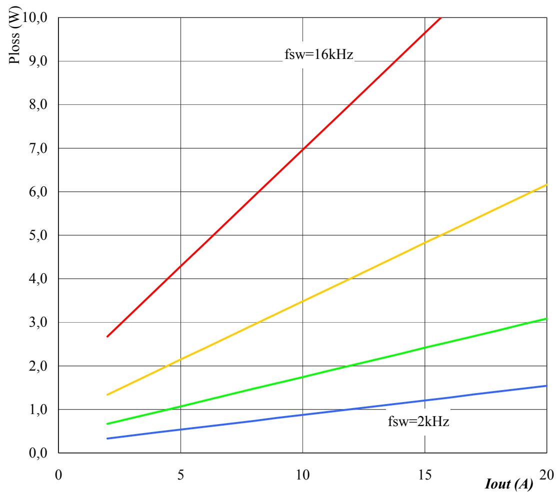
Conditions: Tj=125°C
Modulation index * cosfi
parameter Mi*cosfi from -1,00 to 1,00
in 0,20 steps

Figure 3. Typical avarage switching loss as a function of output current
IGBT Ploss=f(Iout)



Conditions: Tj=125C
DC link= 600 V
Switching freq. fsw from 2 kHz to 16 kHz
parameter in * 2 steps

Figure 4. Typical avarage switching loss as a function of output current
FRED Ploss=f(Iout)



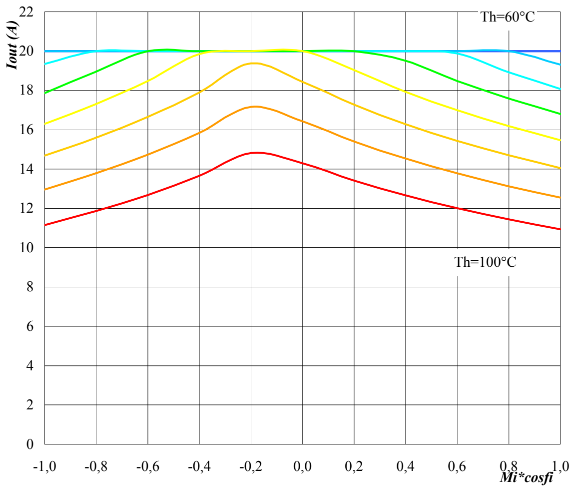
Conditions: Tj=125C
DC link= 600 V
Switching freq. fsw from 2 kHz to 16 kHz
parameter in * 2 steps

Output inverter application

General conditions: 3 phase SPWM, Vgeon= 15 V Vgeoff=0V Rgon= 40 ohms Rgoff= 20 ohms

Figure 5. Typical available 50Hz output current as a function of Mi*cosfi

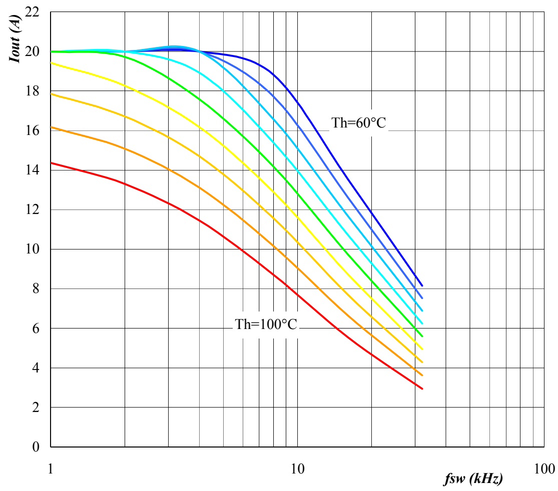
Phase Iout=f(Mi*cosfi)



Conditions:	Tj=125C			
	DC link=	600 V		
	fsw=	4 kHz		
Heatsink temp.	Th from	60 °C to	100 °C	
parameter	in	5 °C	steps	

Figure 6. Typical available 50Hz output current as a function of switching frequency

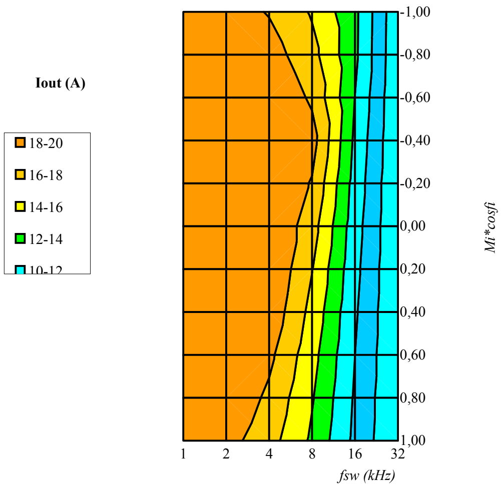
Phase Iout=f(fsw)



Conditions:	Tj=125C			
	DC link=	600 V		
	Mi*cosfi=	0,8		
Heatsink temp.	Th from	60 °C to	100 °C	
parameter	in	5 °C	steps	

Figure 7. Typical available 50Hz output current as a function of Mi*cosfi and fsw

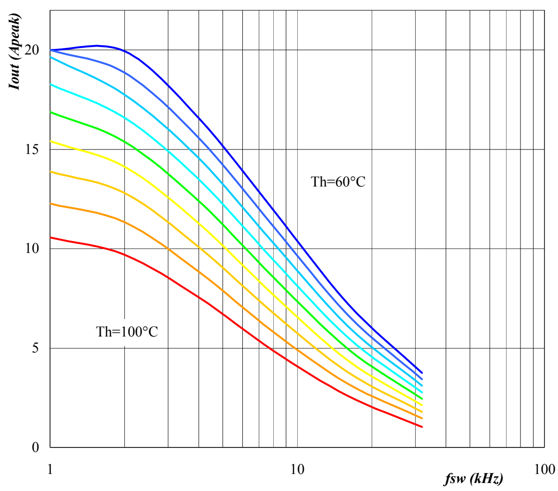
Phase Iout=f(fsw,Mi*cosfi)



Conditions:	Tj=125C	
	DC link=	600 V
	Th=	80 °C

Figure 8. Typical available 0Hz output current as a function of switching frequency

Phase Ioutpeak=f(fsw)



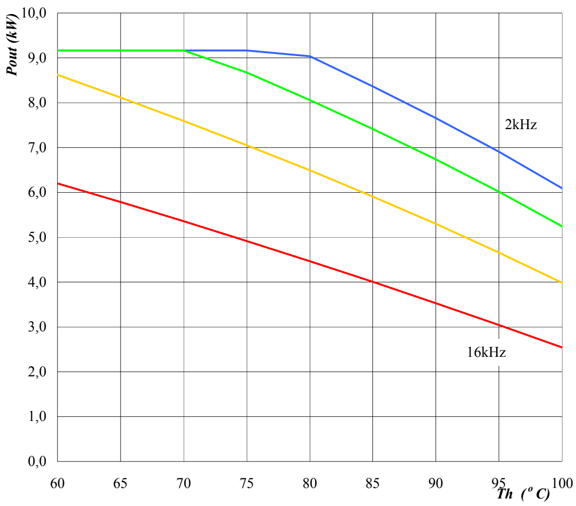
Conditions:	Tj=125C			
	DC link=	600 V		
Heatsink temp.	Th from	60 °C to	100 °C	
parameter	in	5 °C	steps	

Output inverter application

General conditions: 3 phase SPWM, Vgeon= 15 V Vgeoff=0V Rgon= 40 ohms Rgoff= 20 ohms

Figure 9. Typical available electric peak output power as a function of heatsink temperature

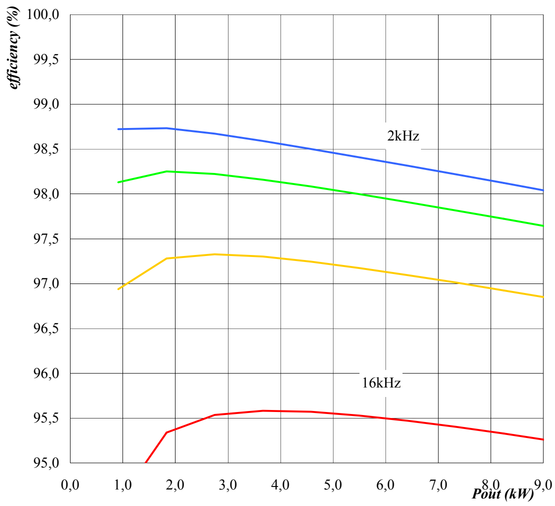
Inverter Pout=f(Th)



Conditions: Tj=125C
DC link= 600 V
Modulation index Mi= 1
cosfi= 0,80
Switching freq. parameter fsw from 2 kHz to 16 kHz in * 2 steps

Figure 10. Typical efficiency as a function of output power

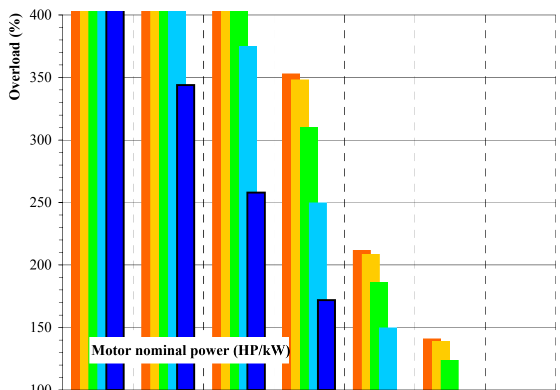
Inverter efficiency=f(Pout)



Conditions: Tj=125C
DC link= 600 V
Modulation index Mi= 1
cosfi= 0,80
Switching freq. parameter fsw from 2 kHz to 16 kHz in * 2 steps

Figure 11. Typical available overload factor as a function of motor power and switching frequency

Inverter Ppeak/Pnom=f(Pnom,fsw)



Switching frequency (kHz)	1,00 / 0,74	1,50 / 1,10	2,00 / 1,47	3,00 / 2,21	5,00 / 3,68	7,50 / 5,52	10,00 / 7,36
1	1059	706	530	353	212	141	0
2	1044	696	522	348	209	139	0
4	931	621	466	310	186	124	0
8	750	500	375	250	150	0	0
16	516	344	258	172	0	0	0

Conditions: Tj=125C
DC link= 600 V
Modulation index Mi= 1
cosfi= 0,8
Switching freq. parameter fsw from 1 kHz to 16 kHz in * 2 steps
Heatsink temperature= 80 °C
Motor efficiency= 0,85