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	13 16	A
Repetitive peak collector current Periodischer Kollektorspitzenstrom	t_p=1ms	T_h=80°C	I_{cpuls}	25	A
Power dissipation per IGBT Verlustleistung pro IGBT	T_j=150°C	T_h=80°C T_c=80°C	P_{tot}	34 52	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	10 14	A
Repetitive peak forward current Periodischer Spitzenstrom	t_p=1ms	T_h=80°C	I_{FRM}	21	A
Power dissipation per Diode Verlustleistung pro Diode	T_j=150°C	T_h=80°C T_c=80°C	P_{tot}	21 32	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	9-limited by wires 9-limited by wires	A
Repetitive peak collector current Periodischer Kollektorspitzenstrom	t_p=1ms	T_h=80°C	I_{cpuls}	21	A
Power dissipation per IGBT Verlustleistung pro IGBT	T_j=150°C	T_h=80°C T_c=80°C	P_{tot}	23 35	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	9 9-limited by wires	A
Repetitive peak forward current Periodischer Spitzenstrom	t_p=1ms	T_h=80°C	I_{FRM}	18	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

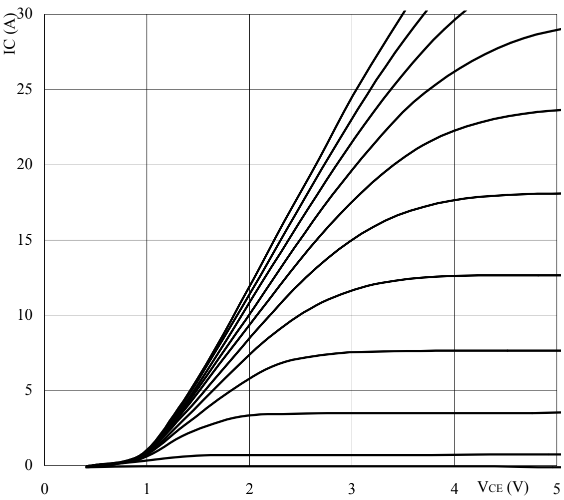
Description	Symbol	Conditions T(C°)	Other conditions (Rgon-Rgoff)	VGE(V) VGS(V)	VR(V) VCE(V) VDS(V)	IC(A) IF(A) Id(A)	Datasheet values Min	Typ	Max	Unit
Input Rectifier Bridge										
Gleichrichter										
Forward voltage	V_F	Tj=25°C				30		1,22	1,45	V
Durchlaßpannung		Tj=125°C						1,21		
Threshold voltage (for power loss calc. only)	V_{to}	Tj=25°C				30		0,92		V
Schleusenspannung		Tj=125°C						0,81		
Slope resistance (for power loss calc. only)	r_t	Tj=25°C						0,01		Ohm
Ersatzwiderstand		Tj=125°C				30		0,013		
Reverse current	I_r	Tj=25°C			1500				0,01	mA
Sperrstrom		Tj=150°C							3	
Thermal resistance chip to heatsink per chip	R_{thJH}		Thermal grease thickness≤50um					1,92		K/W
Wärmewiderstand Chip-Kühlkörper pro Chip			Warmeleitpaste Dicke≤50um λ = 0,61 W/mK					1,27		
Transistor Inverter, inductive load										
Transistor Wechselrichter										
Gate emitter threshold voltage	$V_{GE(th)}$	Tj=25°C	VCE=VGE			0,0003	5	5,8	6,5	V
Gate-Schwellenspannung		Tj=125°C								
Collector-emitter saturation voltage	$V_{CE(sat)}$	Tj=25°C		15		10		1,87	2,7	V
Kollektor-Emitter Sättigungsspannung		Tj=125°C						2,21		
Collector-emitter cut-off	I_{CES}	Tj=25°C		0	1200				0,06	mA
Kollektor-Emitter Reststrom		Tj=125°C							2	
Gate-emitter leakage current	I_{GES}	Tj=25°C		20	0				200	nA
Gate-Emitter Reststrom		Tj=125°C								
Integrated Gate resistor	R_{gint}									Ohm
Integrirter Gate Widerstand										
Turn-on delay time	$t_{d(on)}$	Tj=25°C	Rgon=80Ohm	15	600	10				ns
Einschaltverzögerungszeit		Tj=125°C	Rgoff=40Ohm					33		
Rise time	t_r	Tj=25°C	Rgon=80Ohm	15	600	10				ns
Anstiegszeit		Tj=125°C	Rgoff=40Ohm					22		
Turn-off delay time	$t_{d(off)}$	Tj=25°C	Rgon=80Ohm	15	600	10				ns
Abschaltverzögerungszeit		Tj=125°C	Rgoff=40Ohm					454		
Fall time	t_f	Tj=25°C	Rgon=80Ohm	15	600	10				ns
Fallzeit		Tj=125°C	Rgoff=40Ohm					252		
Turn-on energy loss per pulse	E_{on}	Tj=25°C	Rgon=80Ohm	15	600	10				mWs
Einschaltverlustenergie pro Puls		Tj=125°C	Rgoff=40Ohm					0,97		
Turn-off energy loss per pulse	E_{off}	Tj=25°C	Rgon=80Ohm	15	600	10				mWs
Abschaltverlustenergie pro Puls		Tj=125°C	Rgoff=40Ohm					1,48		
Input capacitance	C_{ies}	Tj=25°C	f=1MHz	0	25			0,6		nF
Eingangskapazität		Tj=125°C								
Output capacitance	C_{oss}	Tj=25°C	f=1MHz	0	25			0,037		nF
Ausgangskapazität		Tj=125°C								
Reverse transfer capacitance	C_{rss}	Tj=25°C	f=1MHz	0	25			0,029		nF
Rückwirkungskapazität		Tj=125°C								
Gate charge	Q_{Gate}	Tj=25°C		15	960	8		53		nC
Gate Ladung		Tj=125°C								
Thermal resistance chip to heatsink per chip Wärmewiderstand Chip-Kühlkörper pro Chip	R_{thJH}		Thermal grease thickness≤50um					2,04		K/W
Thermal resistance chip to case per chip Wärmewiderstand Chip-Gehause pro Chip			Warmeleitpaste Dicke≤50um λ = 0,61 W/mK					1,35		
Diode Inverter										
Diode Wechselrichter										
Diode forward voltage	V_F	Tj=25°C				10		2,59	3,15	V
Durchlaßspannung		Tj=125°C						2,1		
Peak reverse recovery current	I_{RRM}	Tj=25°C	Rgon=80Ohm	15	600	10				A
Rückstromspitze		Tj=125°C						19,6		
Reverse recovery time	t_{rr}	Tj=25°C	Rgon=80Ohm	15	600	10				ns
Sperreverzögerungszeit		Tj=125°C						326		
Reverse recovered charge	Q_{rr}	Tj=25°C	Rgon=80Ohm	15	600	10				uC
Sperrverzögerungsladung		Tj=125°C						1,93		
Reverse recovered energy	Erec	Tj=25°C	Rgon=80Ohm	15	600	10				mWs
Sperrverzögerungsenergie		Tj=125°C						0,73		
Thermal resistance chip to heatsink per chip Wärmewiderstand Chip-Kühlkörper pro Chip	R_{thJH}		Thermal grease thickness≤50um					3,30		K/W
Thermal resistance chip to case per chip Wärmewiderstand Chip-Gehause pro Chip			Warmeleitpaste Dicke≤50um λ = 0,61 W/mK					2,18		

Characteristic values

Description	Symbol	Conditions T(C°)	Other conditions (Rgon-Rgoff)	VGE(V) VGS(V)	VR(V) VCE(V) VDS(V)	IC(A) IF(A) Id(A)	Datasheet values Min	Typ	Max	Unit
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		1,99 2,38	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		 33		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		 419		ns
Fall time Fallzeit	t_f	Tj=25°C Tj=125°C	Rgon=80Ohm Rgoff=40Ohm	15	600	10		 244		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		 0,67		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		 1,38		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	8		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					2,53 1,6698		K/W
Diode BRC **Diode BRC**										
Diode forward voltage Durchlaßspannung	V_F	Tj=25°C Tj=125°C				10		2,57 2,64	3	V
Reverse current Sperrstrom	I_r	Tj=25°C Tj=150°C			1200				250 350	uA
Reverse recovery time Sperreverzögerungszeit	t_{rr}	Tj=25°C Tj=125°C	Rgon=80Ohm	15	600	10		 395		ns
Reverse recovered charge Sperrverzögerungsladung	Q_{rr}	Tj=25°C Tj=125°C	Rgon=80Ohm	15	600	10		 1,33		uC
Reverse recovery energy Sperrverzögerungsenergie	E_{rec}	Tj=25°C Tj=125°C	Rgon=80Ohm	15	600	10		 0,59		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					3,97 2,6202		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

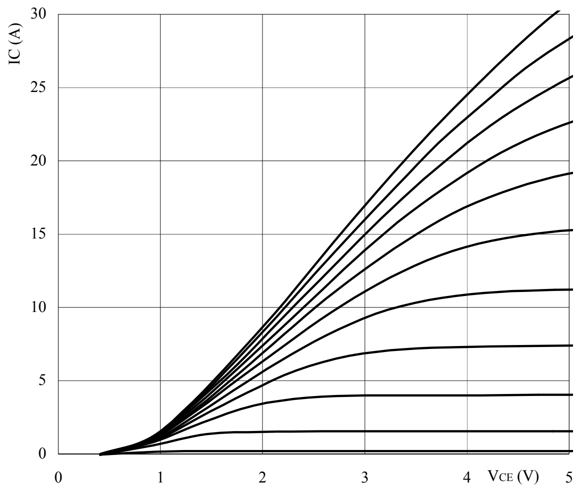
Output inverter

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



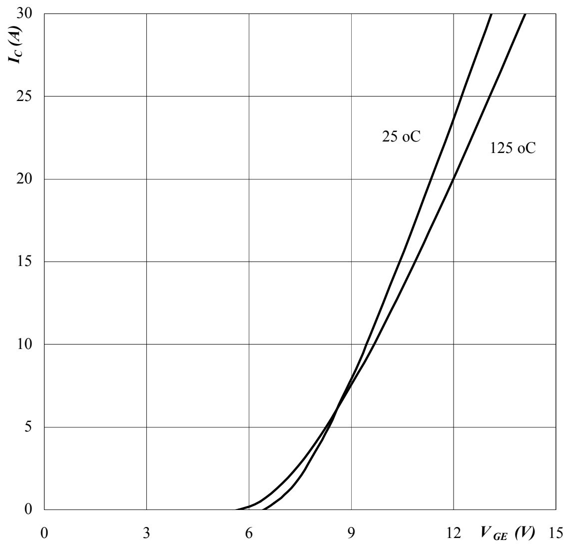
parameter: tp = 250 µs Tj = 25 °C
VGE parameter: from: 6 V to 16 V
in 1 V steps

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



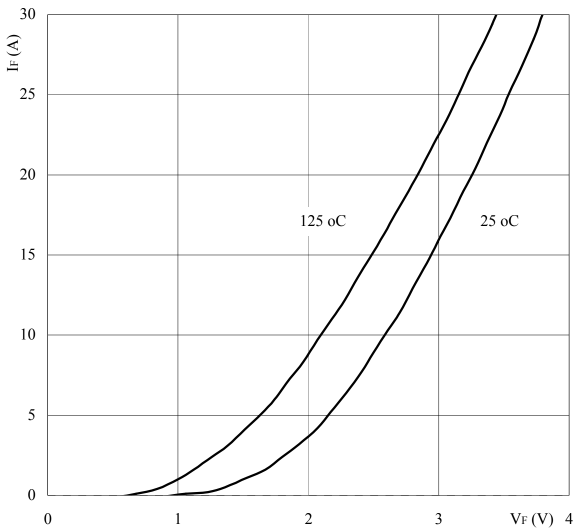
parameter: tp = 250 µs Tj = 125 °C
VGE parameter: from: 6 V to 16 V
in 1 V steps

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



parameter: tp = 250 µs VCE = 12 V

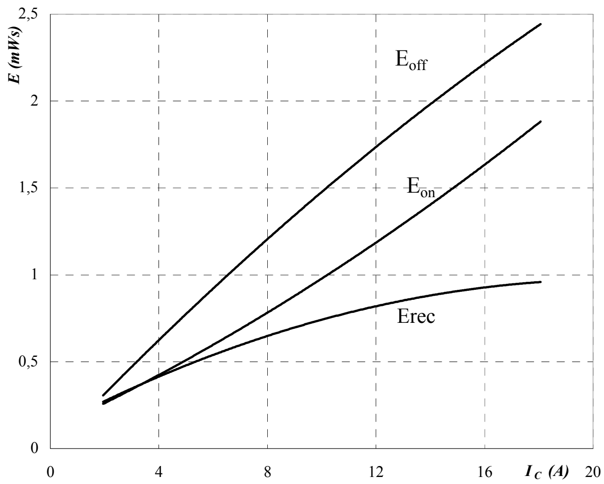
Figure 4. Typical diode forward current as a function of forward voltage
Output inverter FRED IF=f(VF)



parameter: tp = 250 µs

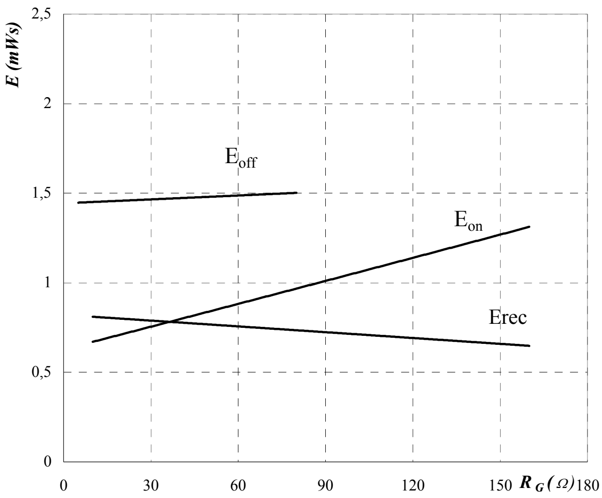
Output inverter

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



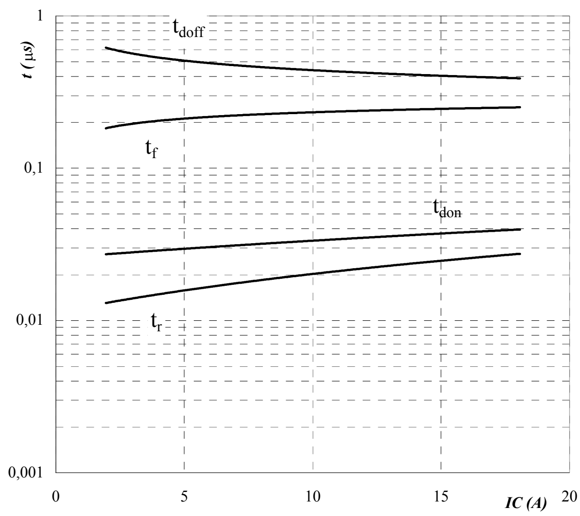
inductive load, Tj = 125 °C
VCE = 600 V
VGE= 15 V
RGon = 2*RGoff = 80 Ω

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



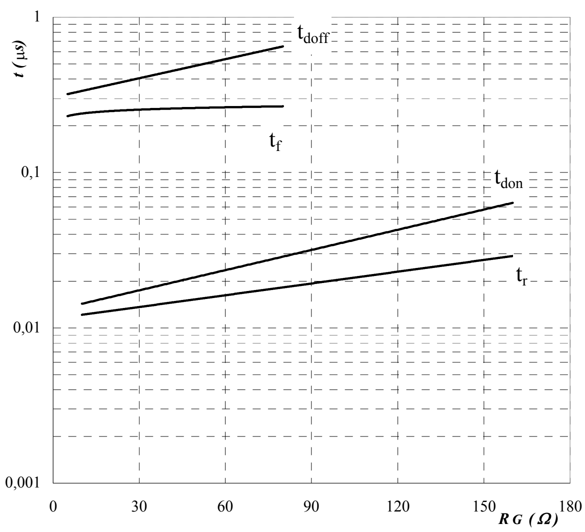
inductive load, Tj = 125 °C
VCE = 600 V
VGE= 15 V
Ic = 10 A

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 = 80 Ω

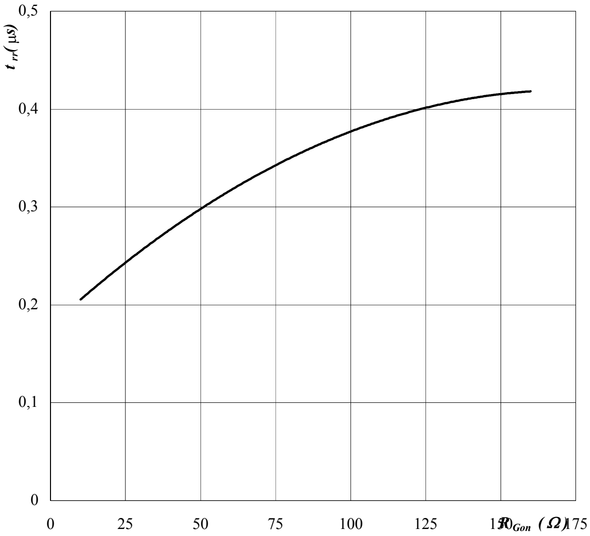
Figure 8. Typical switching times as a function of gate resistor
Output inverter IGBT
t = f (RG)



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

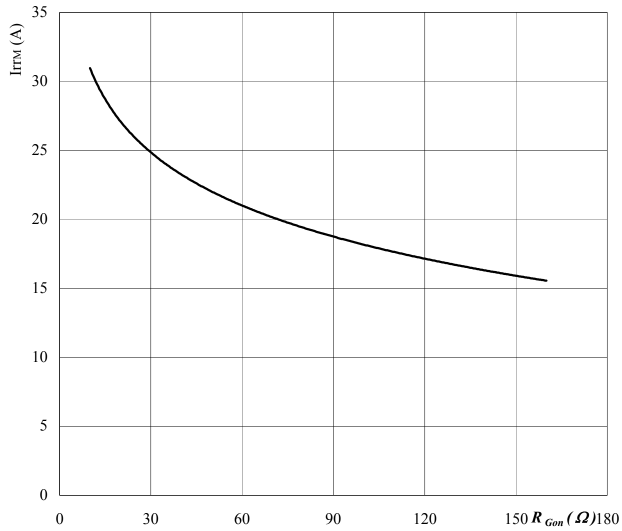
Output inverter

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



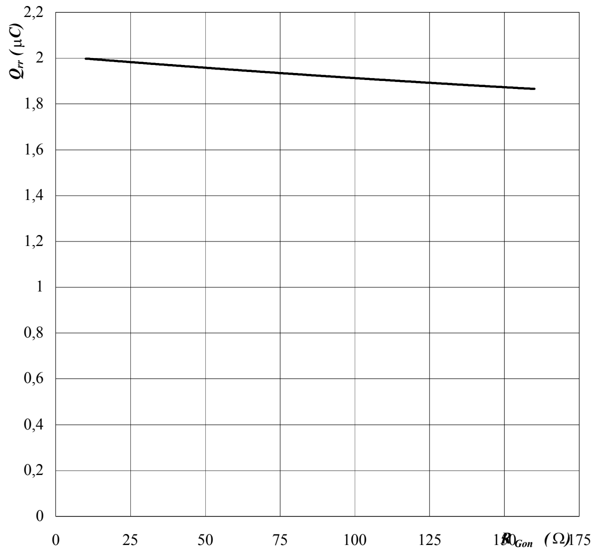
$T_j =$ 125 °C
$V_R =$ 600 V
$I_F =$ 10 A

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



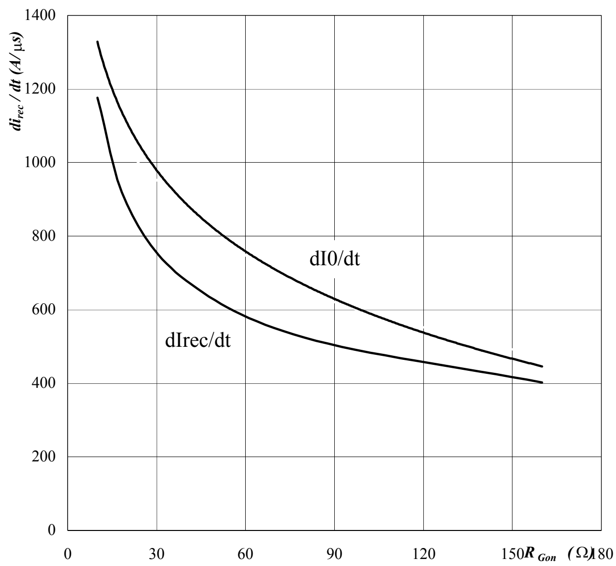
$T_j =$ 125 °C
$V_R =$ 600 V
$I_F =$ 10 A

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



$T_j =$ 125 °C
$V_R =$ 600 V
$I_F =$ 10 A

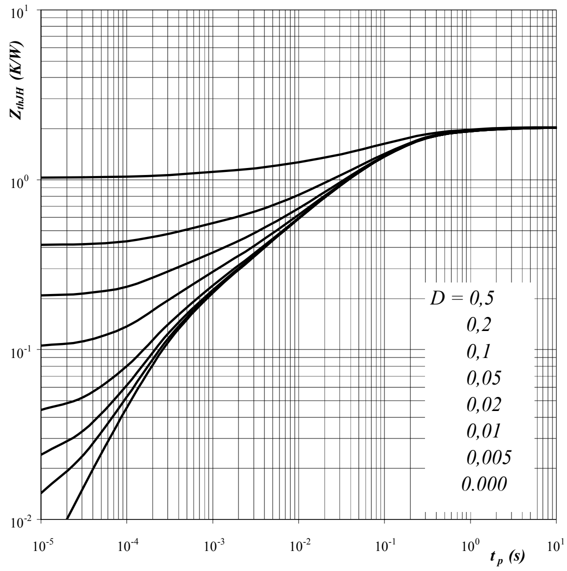
Figure 12. Typical rate of fall of forward and reverse recovery current as a function of IGBT turn on gate resistor
Output inverter FRED diode
dI0/dt,dIrec/dt= f (Rgon)



$T_j =$ 125 °C
$V_R =$ 600 V
$I_F =$ 10 A

Output inverter

Figure 13. IGBT transient thermal impedance as a function of pulse width
ZthJH = f(tp)

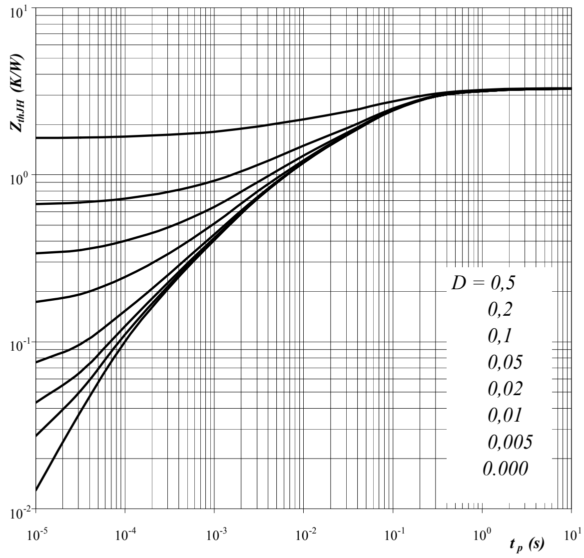


Parameter: D = tp / T RthJH 2,04 K/W

IGBT thermal model values

R (C/W)	Tau (s)
0,06	2,0E+01
0,21	8,6E-01
0,90	1,4E-01
0,53	2,4E-02
0,22	3,2E-03

Figure 14. FRED transient thermal impedance as a function of pulse width
ZthJH = f(tp)



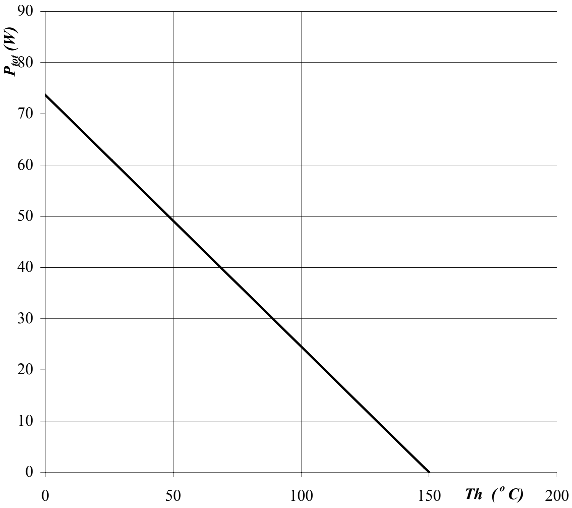
Parameter: D = tp / T RthJH 3,30 K/W

FRED thermal model values

R (C/W)	Tau (s)
0,04	6,0E+01
0,23	1,4E+00
1,03	1,5E-01
0,99	4,1E-02
0,63	6,0E-03
0,29	1,1E-03

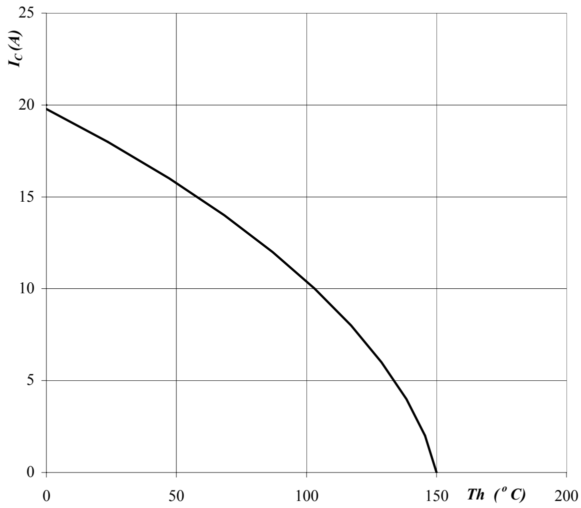
Output inverter

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



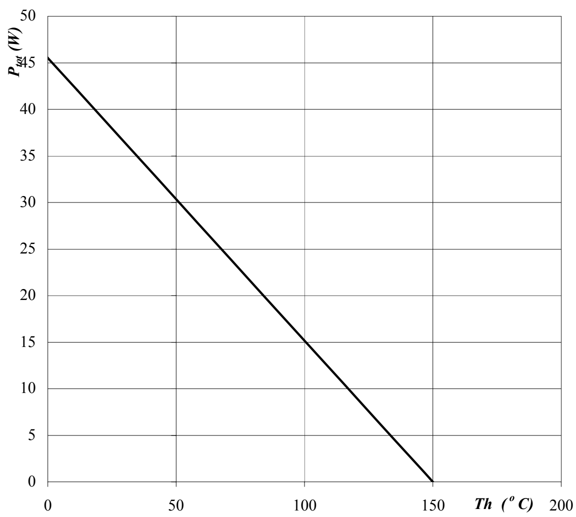
parameter: Tj = 150°C

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



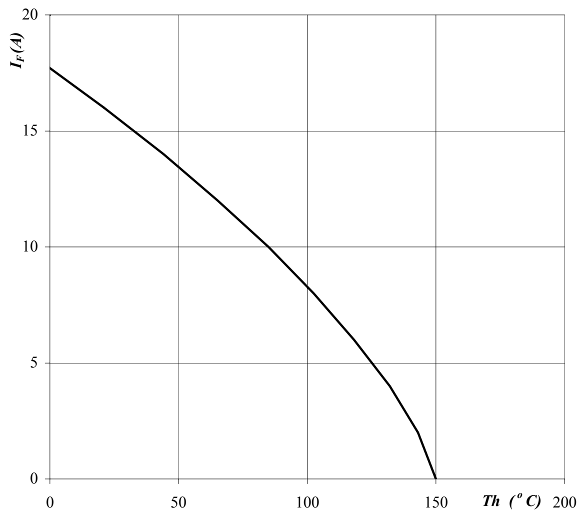
parameter: Tj = 150°C
V_{GE}= 15 V

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



parameter: Tj = 150°C

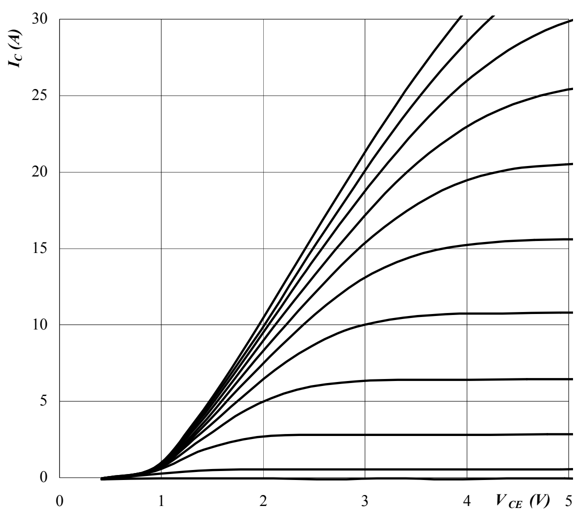
Figure 18. Forward current as a function of heatsink temperature
Output inverter FRED
$I_F = f(Th)$



parameter: Tj = 150°C

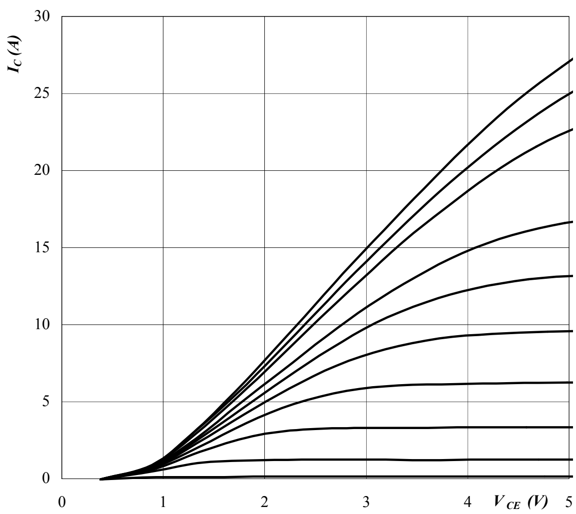
Brake

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



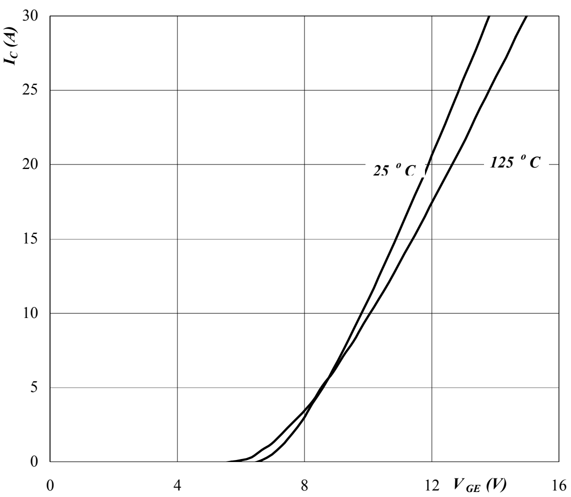
parameter: tp = 250 µs Tj = 25 °C
VGE parameter: from: 6 V to 16 V
in 1 V steps

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



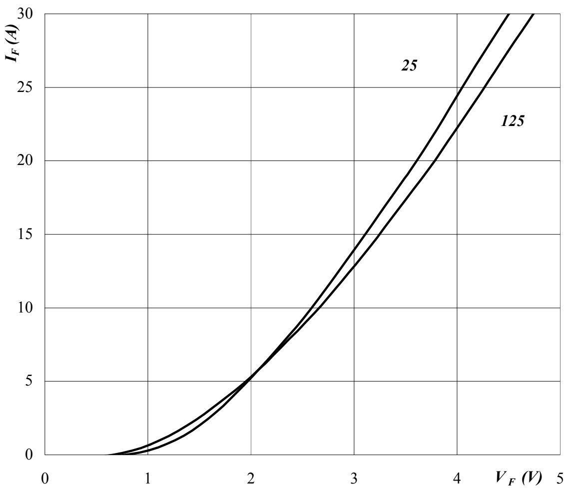
parameter: tp = 250 µs Tj = 125 °C
VGE parameter: from: 6 V to 16 V
in 1 V steps

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



parameter: tp = 250 µs VCE = 10 V

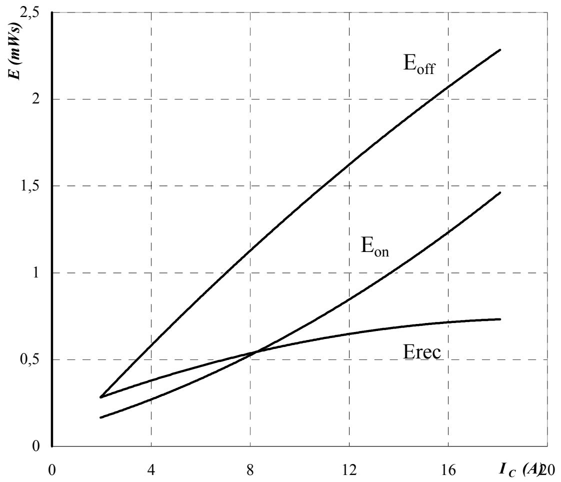
Figure 22. Typical diode forward current as a function of forward voltage
Brake FRED IF=f(VF)



parameter: tp = 250 µs

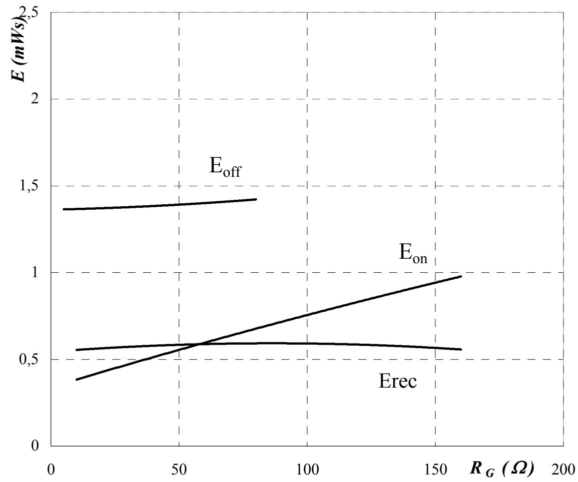
Brake

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



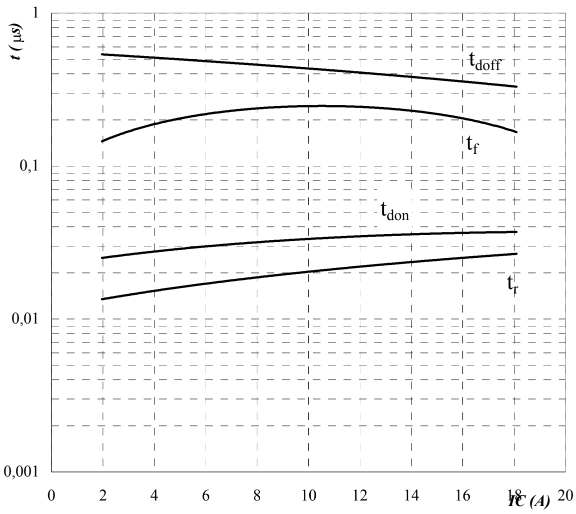
inductive load, Tj = 125 °C
VCE = 600 V
VGE= 15 V
RGon = 2*RGoff= 80 Ω

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



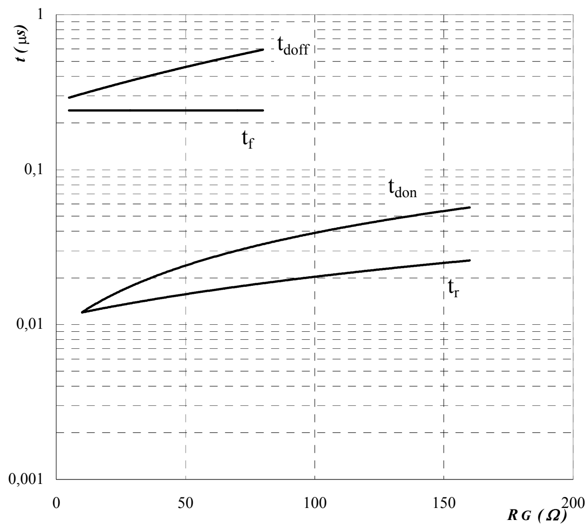
inductive load, Tj = 125 °C
VCE = 600 V
VGE= 15 V
Ic = 10 A

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

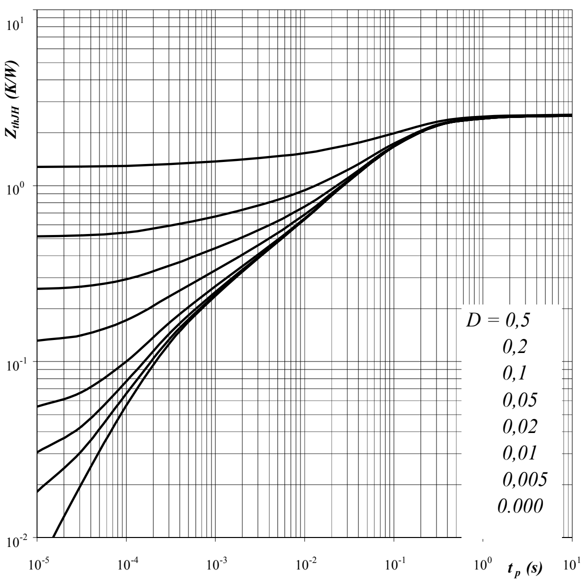
Figure 26. Typical switching times as a function of gate resistor
Brake IGBT
t = f (RG)



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

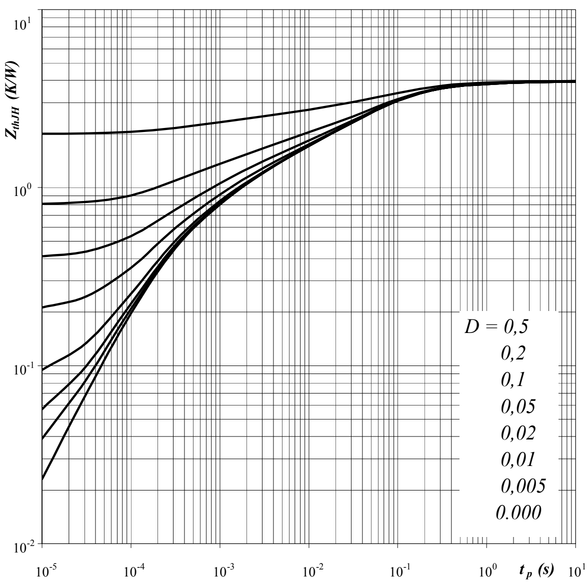
Brake

Figure 27. IGBT transient thermal impedance as a function of pulse width
ZthJH = f(tp)



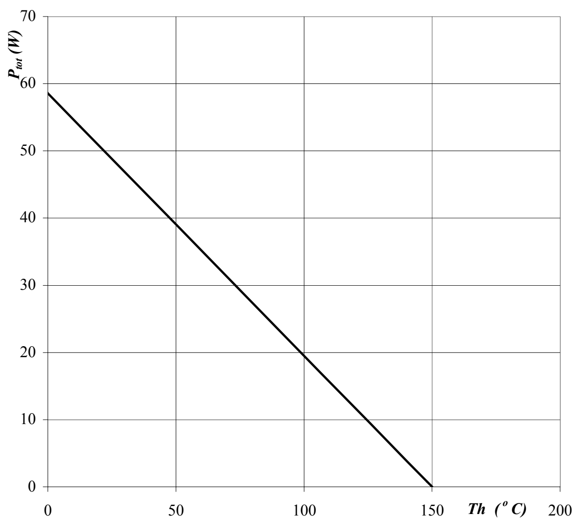
Parameter: D = tp / T RthJH 2,53 K/W

Figure 28. FRED transient thermal impedance as a function of pulse width
ZthJH = f(tp)



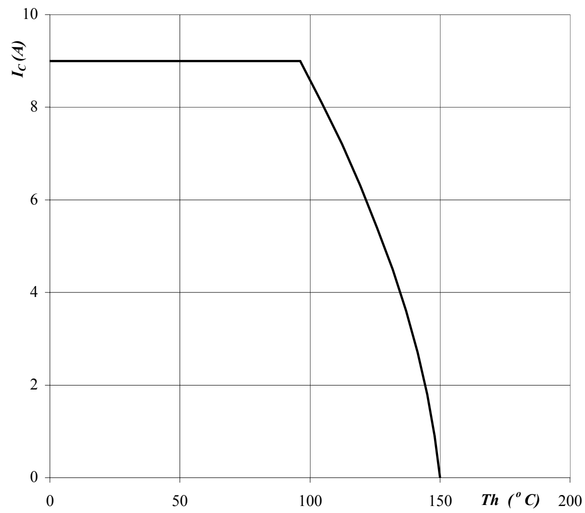
Parameter: D = tp / T RthJH 3,97 K/W

Figure 29. Power dissipation as a function of heatsink temperature
Brake IGBT
Ptot = f (Th)



parameter: Tj = 150°C

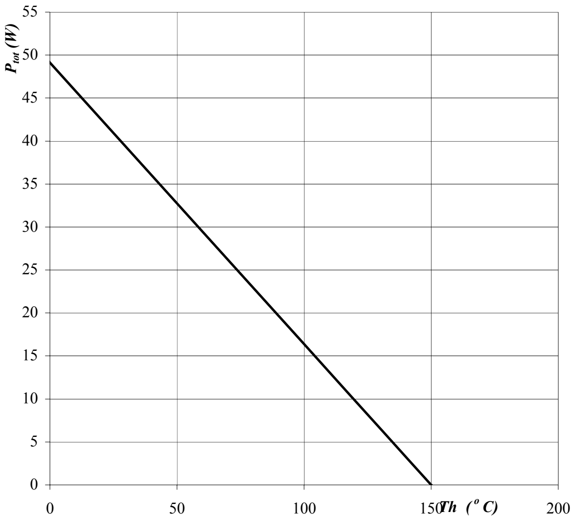
Figure 30. Collector current as a function of heatsink temperature
Brake IGBT
Ic = f (Th)



parameter: Tj = 150°C
VGE= 15 V

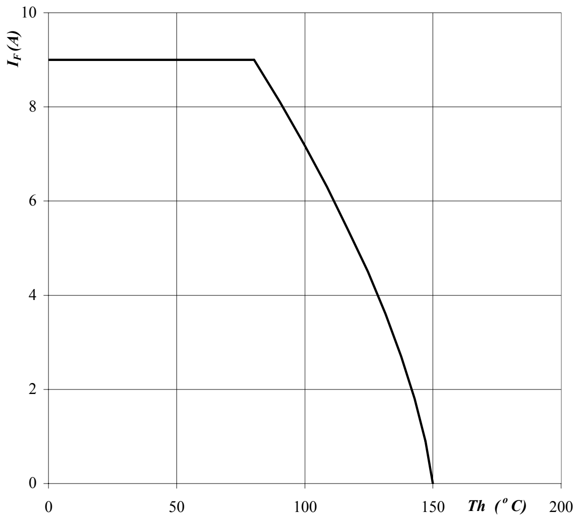
Brake

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



parameter: Tj = 150°C

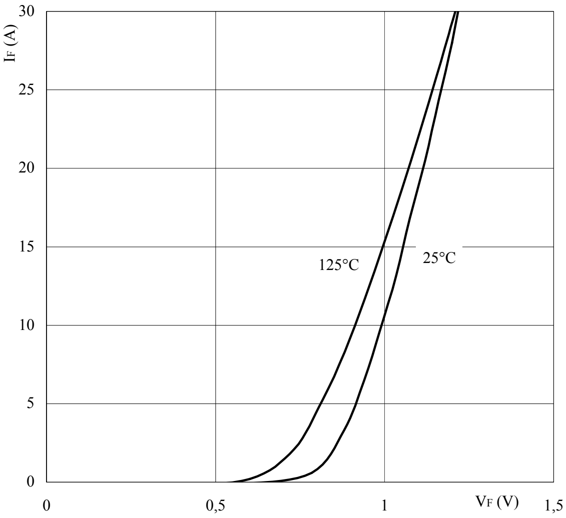
Figure 32. Forward current as a function of heatsink temperature
Brake FRED
$I_F = f(Th)$



parameter: Tj = 150°C

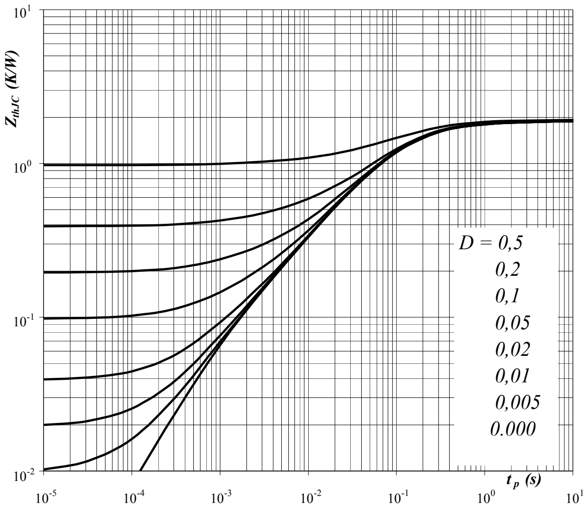
Input rectifier bridge

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



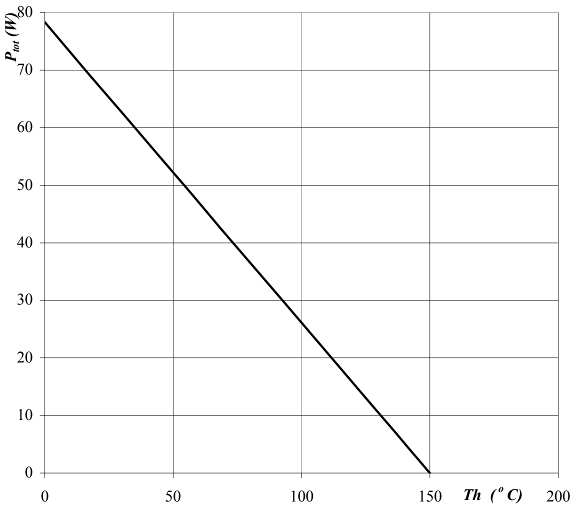
parameter: tp = 250 µs

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



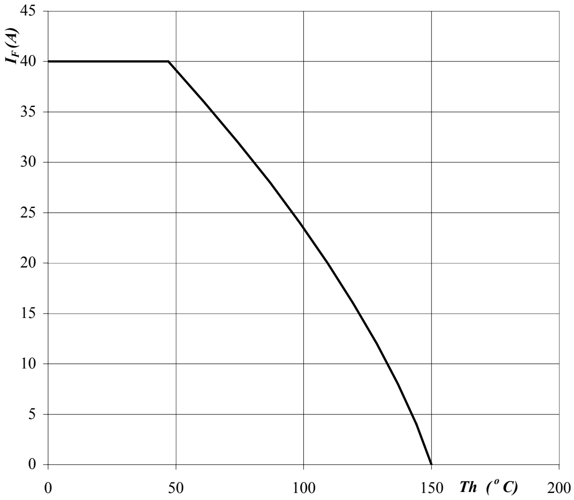
Parameter: D = tp / T RthJH 1,92 K/W

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
$I_F = f(Th)$

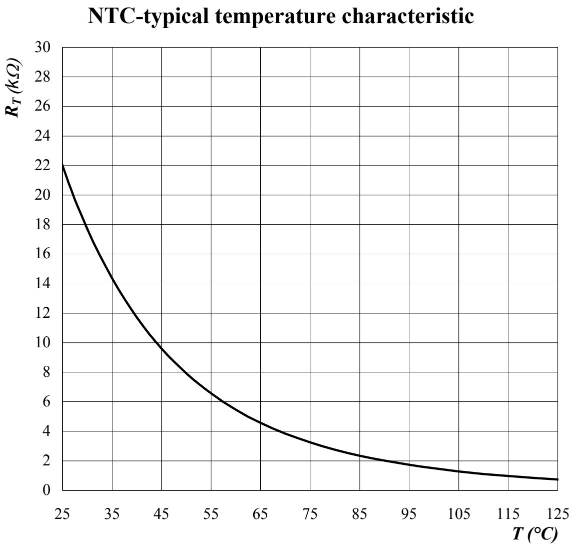


parameter: Tj = 150°C

Thermistor

Figure 37. Typical NTC characteristic as a function of temperature

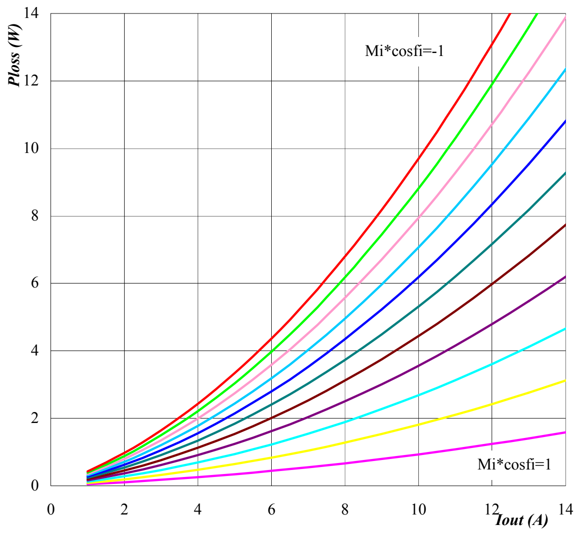
$R_T = f(T)$



Output inverter application

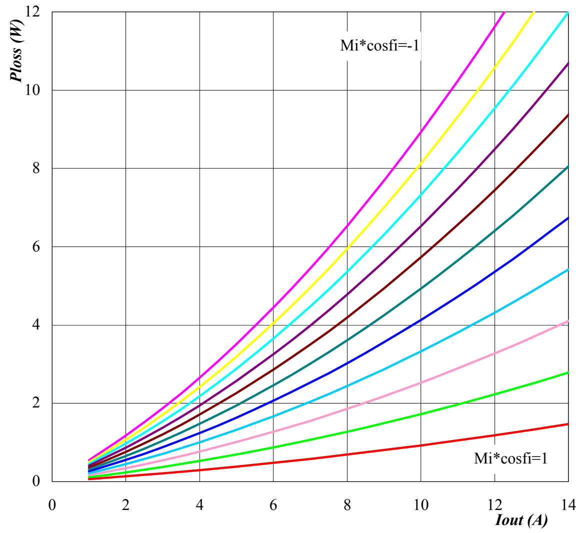
General conditions: 3 phase SPWM, Vgeon= 15 V Vgeoff=0V Rgon= 80 ohms Rgoff= 40 ohms

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



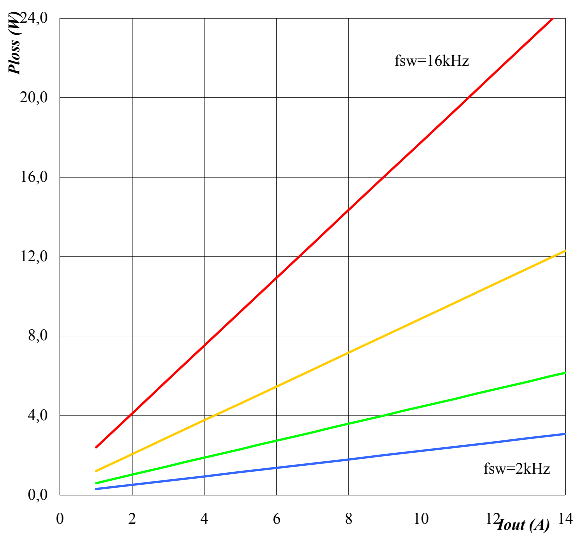
Conditions: Tj=125°C
Modulation index * cosfi
parameter Mi*cosfi from -1,00 to 1,00
in 0,20 steps

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



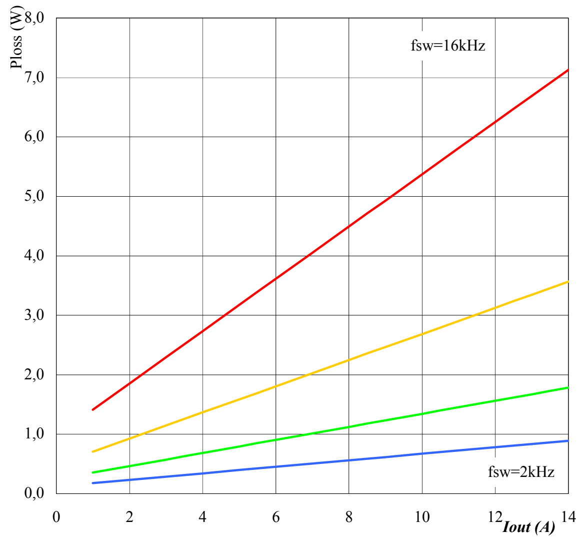
Conditions: Tj=125°C
Modulation index * cosfi
parameter Mi*cosfi from -1,00 to 1,00
in 0,20 steps

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)

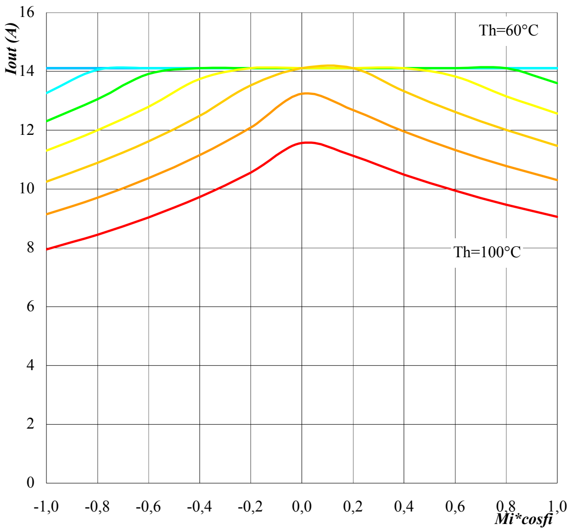


Conditions: Tj=125C
DC link= 600 V
Switching freq. fsw from 2 kHz to 16 kHz
parameter in * 2 steps

Output inverter application

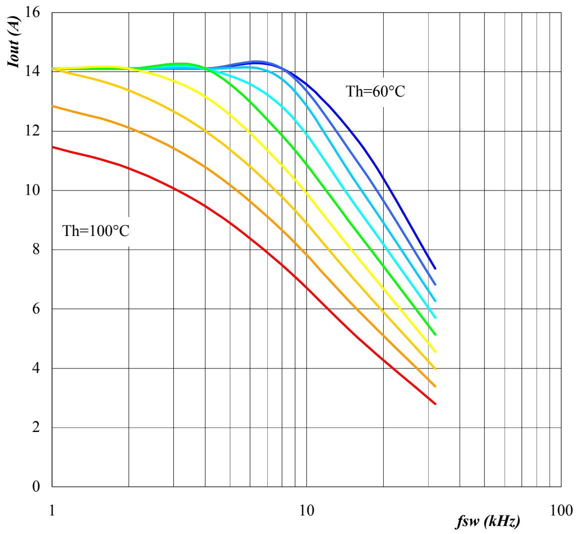
General conditions: 3 phase SPWM, Vgeon= 15 V Vgeoff=0V Rgon= 80 ohms Rgoff= 40 ohms

Figure 5. Typical available 50Hz output current as a function of Mi*cosfi
Phase Iout=f(Mi*cosfi)



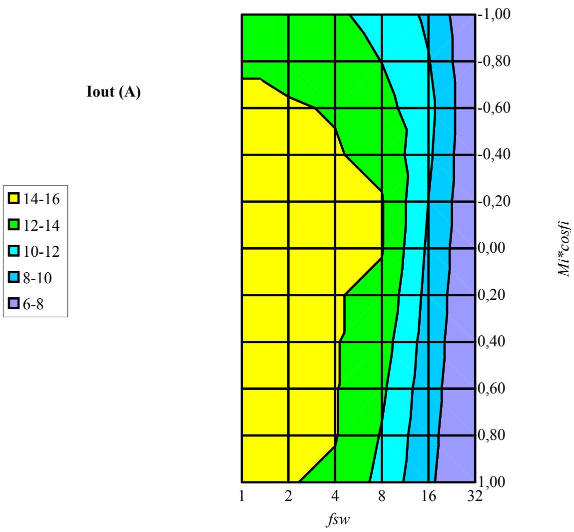
Conditions: Tj=125C
DC link= 600 V
fsw= 4 kHz
Heatsink temp. parameter: Th from 60 °C to 100 °C in 5 °C steps

Figure 6. Typical available 50Hz output current as a function of switching frequency
Phase Iout=f(fsw)



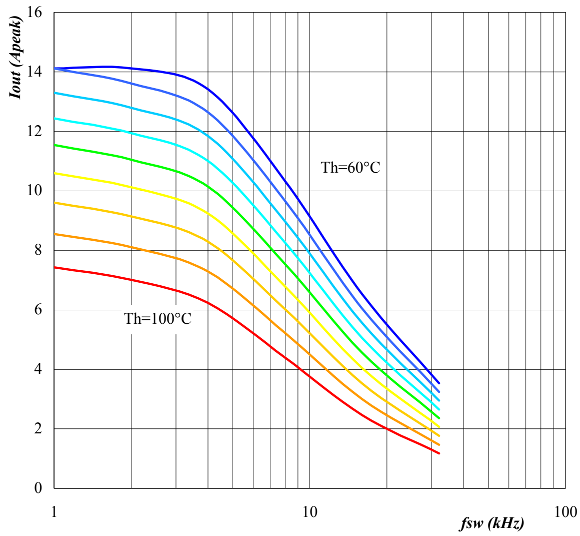
Conditions: Tj=125C
DC link= 600 V
Mi*cosfi= 0,8
Heatsink temp. parameter: Th from 60 °C to 100 °C in 5 °C steps

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)



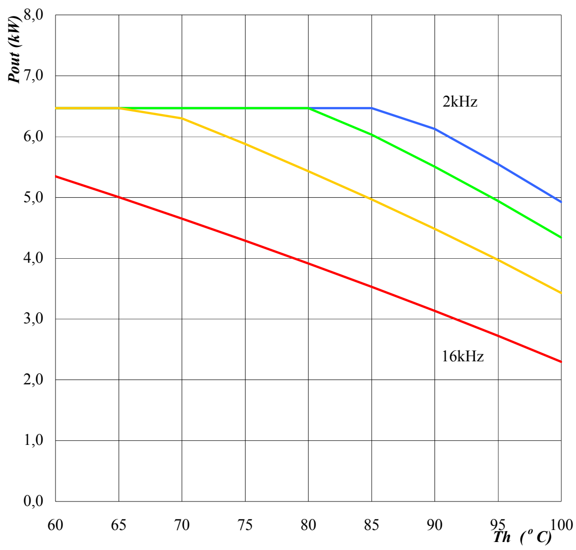
Conditions: Tj=125C
DC link= 600 V
Heatsink temp. parameter: Th from 60 °C to 100 °C in 5 °C steps

Output inverter application

General conditions: 3 phase SPWM, Vgeon= 15 V Vgeoff=0V Rgon= 80 ohms Rgoff= 40 ohms

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

Inverter Pout=f(Th)

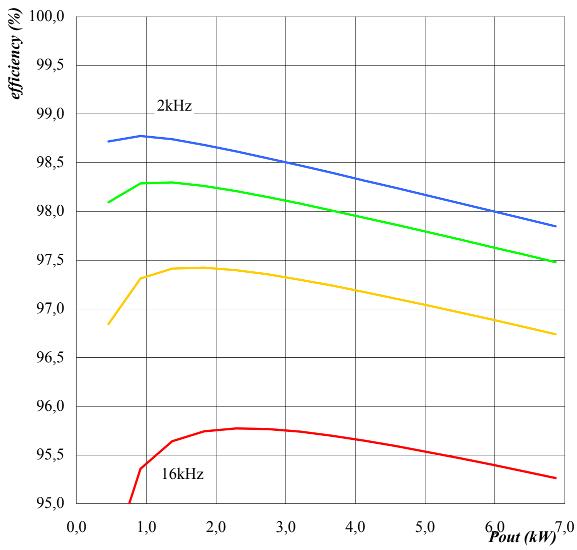


Conditions: Tj=125C
DC link= 600 V
Modulation index Mi= 1
cosfi= 0,80
Switching freq. parameter fsw from 2 kHz to 16 kHz in * 2 steps

Figure 10. Typical efficiency as a function of output power

T

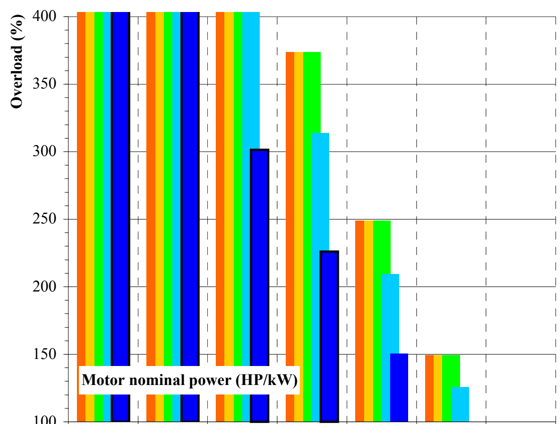
Inverter efficiency=f(Pout)



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)	0,75 / 0,55	1,00 / 0,74	1,50 / 1,10	2,00 / 1,47	3,00 / 2,21	5,00 / 3,68	7,50 / 5,52
1	997	747	498	374	249	149	0
2	997	747	498	374	249	149	0
4	997	747	498	374	249	149	0
8	837	628	418	314	209	126	0
16	603	452	301	226	151	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