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}	36 40,limited by nr.of wires	A
Surge forward current Stoßstrom Grenzwert	t_p=10ms	T_j=25°C	I_{FSM}	250	A
I^2t-value Grenzlastintegral	t_p=10ms	T_j=25°C	I^2t	310	A^2s
Power dissipation per Diode Verlustleistung pro Diode	T_j=150°C	T_h=80°C Tc=80°C	P_{tot}	42,5 64	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 Tc=80°C	I_C	23 24,limited by nr. of wires	A
Repetitive peak collector current Periodischer Kollektorspitzenstrom	t_p=1ms	T_h=80°C	I_{cpuls}	46	A
Power dissipation per IGBT Verlustleistung pro IGBT	T_j=150°C	T_h=80°C Tc=80°C	P_{tot}	50,3 76	W
Gate-emitter peak voltage Gate-Emitter-Spitzenspannung			V_{GE}	±20	V
SC withstand time	Tj≤150°C	V_{GE}=15V	t_{SC}	10	us
Diode Inverter Diode Wechselrichter					
DC forward current Dauergleichstrom	T_j=150°C	T_h=80°C Tc=80°C	I_F	21,7 24,limited by nr. of wires	A
Repetitive peak forward current Periodischer Spitzenstrom	t_p=1ms	T_h=80°C	I_{FRM}	43,4	A
Power dissipation per Diode Verlustleistung pro Diode	T_j=150°C	T_h=80°C Tc=80°C	P_{tot}	36,4 56,0	W
Transistor BRC Transistor BRC					
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 Tc=80°C	I_C	16 16,limited by bond 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 Tc=80°C	P_{tot}	42 63,5	W
Gate-emitter peak voltage Gate-Emitter-Spitzenspannung			V_{GE}	±20	V
SC withstand time Kurzschlußverhalten	Tj≤150°C VCE=1200 V	VGE=15V	t_{SC}	10	us

Maximum Ratings / Höchstzulässige Werte

Parameter	Condition		Symbol	Datasheet values	Unit
				max.	
Diode BRC **Diode BRC**					
DC forward current Dauergleichstrom	T_j=150°C	T_h=80°C Tc=80°C	I_F	16,limited by nr. of wires 16,limited by nr. of wires	A
Repetitive peak forward current Periodischer Spitzenstrom	t_p=1ms	T_h=80°C	I_{FRM}	33	A
Power dissipation per Diode Verlustleistung pro Diode	T_j=150°C	T_h=80°C Tc=80°C	P_{tot}	30 46	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)	V_R(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				30	0,8	1,16 1,12	1,35	V
Threshold voltage (for power loss calc. only) Schleusenspannung	V_{to}	Tj=25°C				30		0,91		V
Slope resistance (for power loss calc. only) Ersatzwiderstand	r_t	Tj=25°C				30		9		mOhm
Reverse current Sperrstrom	I_r	Tj=25°C			1500				0,02	mA
Thermal resistance chip to heatsink per chip Wärmewiderstand Chip-Kühlkörper pro Chip	R_{thJH}		Thermal grease thikness≤50um Warmeleitpaste Dicke≤50um λ = 0,61 W/mK					1,7		K/W
Thermal resistance chip to case per chip Wärmewiderstand Chip-Gehause pro Chip	R_{thJC}							1,1		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			0,001	5	5,8	6,5	V
Collector-emitter saturation voltage Kollektor-Emitter Sättigungsspannung	$V_{CE(sat)}$	Tj=25°C Tj=125°C		15		25	1,3	1,80 2,20	2,25	V
Collector-emitter cut-off incl.FRED Kollektor-Emitter Reststrom inkl.FRED	I_{CES}	Tj=25°C Tj=125°C		0	1200				0,25	mA
Gate-emitter leakage current Gate-Emitter Reststrom	I_{GES}	Tj=25°C Tj=150°C		25	0				680	nA
Integrated Gate resistor Integrirter Gate Widerstand	R_{gint}							8		Ohm
Turn-on delay time Einschaltverzögerungszeit	$t_{d(on)}$	Tj=25°C Tj=125°C	 Rgon=40 Ohm	15	600	25		63		ns
Rise time Anstiegszeit	t_r	Tj=25°C Tj=125°C	 Rgon=40 Ohm	15	600	25		28		ns
Turn-off delay time Abschaltverzögerungszeit	$t_{d(off)}$	Tj=25°C Tj=125°C	 Rgoff=20 Ohm	15	600	25		722		ns
Fall time Fallzeit	t_f	Tj=25°C Tj=125°C	 Rgoff=20 Ohm	15	600	25		258		ns
Turn-on energy loss per pulse Einschaltverlustenergie pro Puls	E_{on}	Tj=25°C Tj=125°C	 Rgon=40 Ohm	15	600	25		2,94		mWs
Turn-off energy loss per pulse Abschaltverlustenergie pro Puls	E_{off}	Tj=25°C Tj=125°C	 Rgoff=20 Ohm	15	600	25		3,5		mWs
Input capacitance Eingangskapazität	C_{ies}	Tj=25°C Tj=125°C	f=1MHz	0	25			1,86		nF
Output capacitance Ausgangskapazität	C_{oss}	Tj=25°C Tj=125°C	f=1MHz	0	25			0,096		nF
Reverse transfer capacitance Rückwirkungskapazität	C_{rss}	Tj=25°C Tj=125°C	f=1MHz	0	25			0,082		nF
Gate charge Gate Ladung	Q_{Gate}	Tj=25°C Tj=125°C		15	960	25		155		nC
Thermal resistance chip to heatsink per chip Wärmewiderstand Chip-Kühlkörper pro Chip	R_{thJH}		Thermal grease thikness≤50um Warmeleitpaste Dicke≤50um λ = 0,61 W/mK					1,4		K/W
Thermal resistance chip to case per chip Wärmewiderstand Chip-Gehause pro Chip	R_{thJC}							0,9		K/W

Characteristic values

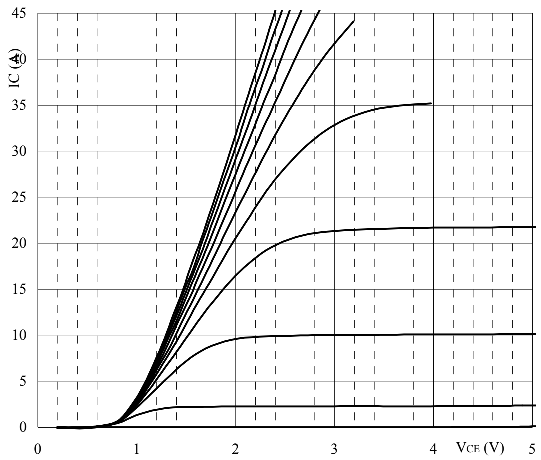
Description	Symbol	Conditions					Datasheet values			Unit
		T(C°)	Other conditions (Rgon-Rgoff)	V_{GE}(V) V_{GS}(V)	V_R(V) V_{CE}(V) V_{DS}(V)	I_C(A) I_F(A) I_d(A)	Min	Typ	Max	
Diode Inverter										
Diode Wechselrichter										
Diode forward voltage	V_F	Tj=25°C				25	1	1,8	2,25	V
Durchlaßspannung		Tj=125°C						1,78		
Peak reverse recovery current	I_{RRM}	Tj=25°C		15	600	25				A
Rückstromspitze		Tj=125°C	Rgon=40 Ohm					35		
Reverse recovery time	t_{rr}	Tj=25°C		15	600	25				ns
Sperreverzögerungszeit		Tj=125°C	Rgon=40 Ohm					448		
Reverse recovered charge	Q_{rr}	Tj=25°C		15	600	25				uC
Sperrverzögerungsladung		Tj=125°C	Rgon=40 Ohm					5,2		
Reverse recovered energy	E_{rec}	Tj=25°C		15	600	25				mWs
Sperrverzögerungsenergie		Tj=125°C	Rgon=40 Ohm					2,04		
Thermal resistance chip to heatsink per chip Wärmewiderstand Chip-Kühlkörper pro Chip	R_{thJH}		Thermal grease thikness≤50um					1,9		K/W
Thermal resistance chip to case per chip Wärmewiderstand Chip-Gehause pro Chip	R_{thJC}		Warmeleitpaste Dicke≤50um λ = 0,61 W/mK					1,3		K/W
Transistor BRC										
Transistor BRC										
Gate emitter threshold voltage	$V_{GE(th)}$	Tj=25°C	VCE=VGE			0,0006	5	5,8	6,5	V
Gate-Schwellenspannung		Tj=125°C								
Collector-emitter saturation voltage	$V_{CE(sat)}$	Tj=25°C		15		15	1,3	1,8	2,15	V
Kollektor-Emitter Sättigungsspannung		Tj=125°C						2,1		
Collector-emitter cut-off	I_{CES}	Tj=25°C		0	600				0,1	mA
Kollektor-Emitter Reststrom		Tj=125°C								
Gate-emitter leakage current	I_{GES}	Tj=25°C		25	0				180	nA
Gate-Emitter Reststrom		Tj=150°C								
Turn-on delay time	$t_{d(on)}$	Tj=25°C		15	600	15				ns
Einschaltverzögerungszeit		Tj=125°C	Rgon=46,7 Ohm					33		
Rise time	t_r	Tj=25°C		15	600	15				ns
Anstiegszeit		Tj=125°C	Rgon=46,7 Ohm					21		
Turn-off delay time	$t_{d(off)}$	Tj=25°C		15	600	15				ns
Abschaltverzögerungszeit		Tj=125°C	Rgoff=23,3 Ohm					403		
Fall time	t_f	Tj=25°C		15	600					ns
Fallzeit		Tj=125°C	Rgoff=23,3 Ohm					241		
Turn-on energy loss per pulse	E_{on}	Tj=25°C		15	600					uWs
Einschaltverlustenergie pro Puls		Tj=125°C	Rgon=46,7 Ohm			15		1,3		
Turn-off energy loss per pulse	E_{off}	Tj=25°C		15	600					uWs
Abschaltverlustenergie pro Puls		Tj=125°C	Rgoff=23,3 Ohm			15		1,96		
Input capacitance	C_{iss}	Tj=25°C	f=1MHz	0	25			1,09		nF
Eingangskapazität		Tj=125°C				15				
Output capacitance	C_{oss}	Tj=25°C	f=1MHz	0	25			0,058		nF
Ausgangskapazität		Tj=125°C								
Reverse transfer capacitance	C_{rss}	Tj=25°C	f=1MHz	0	25			0,048		nF
Rückwirkungskapazität		Tj=125°C								
Gate charge	Q_{Gate}	Tj=25°C		15	960	15		85		nC
Gate Ladung		Tj=125°C								
Thermal resistance chip to heatsink per chip Wärmewiderstand Chip-Kühlkörper pro Chip	R_{thJH}		Thermal grease thikness≤50um					1,7		K/W
Thermal resistance chip to case per chip Wärmewiderstand Chip-Gehause pro Chip	R_{thJC}		Warmeleitpaste Dicke≤50um λ = 0,61 W/mK					1,1		K/W

Characteristic values

Description	Symbol	T(C°)	Other conditions (Rgon-Rgoff)	VGE(V) VGS(V)	VR(V) VCE(V) VDS(V)	IC(A) IF(A) Id(A)	Min	Typ	Max	Unit
Diode BRC										
Diode BRC										
Diode forward voltage Durchlaßspannung	V_F	Tj=25°C Tj=125°C				15	1	1,75 1,75	2,15	V
Reverse current Sperrstrom	I_r	Tj=25°C			1200				250	uA
Peak reverse recovery current Rückstromspitze	I_{RRM}	Tj=25°C Tj=125°C	Rgon=46,7 Ohm	15	600	15		17,5		A
Reverse recovery time Sperreverzögerungszeit	trr	Tj=25°C Tj=125°C	Rgon=46,7 Ohm	15	600	15		400		ns
Reverse recovered charge Sperrverzögerungsladung	Qrr	Tj=25°C Tj=125°C	Rgon=46,7 Ohm	15	600	15		2,5		uC
Reverse recovered energy Sperrverzögerungsenergie	Erec	Tj=25°C Tj=125°C	Rgon=46,7 Ohm	15	600	15		1,0		mWs
Thermal resistance chip to heatsink per chip Wärmewiderstand Chip-Kühlkörper pro Chip	R_{thJH}		Thermal grease thikness≤50um					2,3		K/W
Thermal resistance chip to case per chip Wärmewiderstand Chip-Gehause pro Chip	R_{thJC}		Warmeleitpaste Dicke≤50um λ = 0,61 W/mK					1,5		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

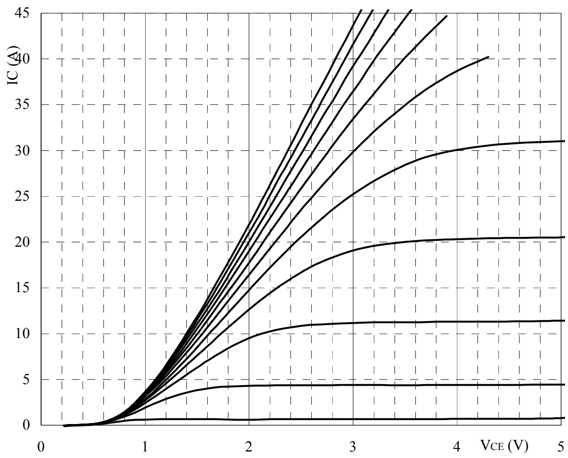
Output inverter

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



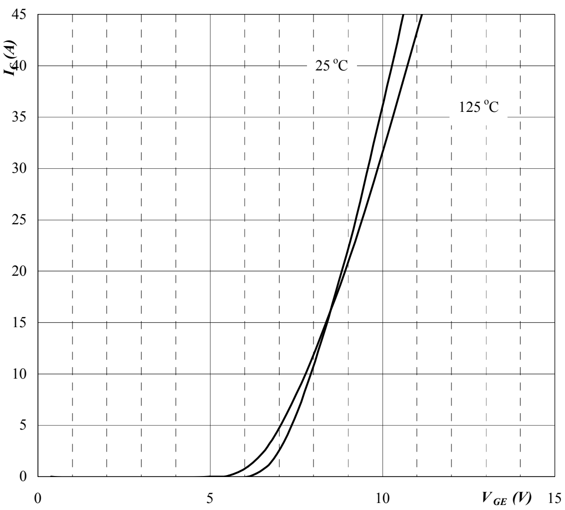
parameter: tp = 250 ms Tj = 25 °C
VGE parameter: from: 6 V to 16 V
in 1 V steps

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



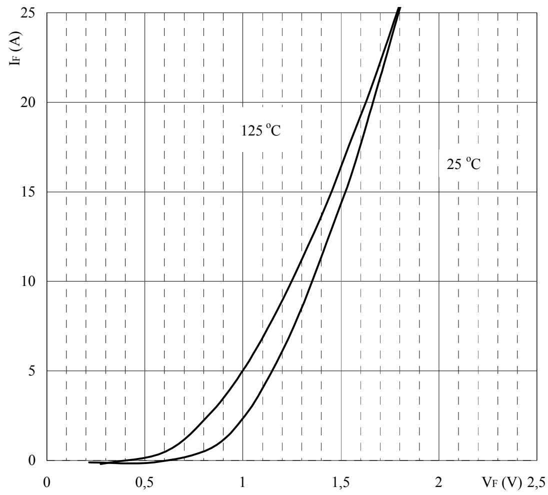
parameter: tp = 250 ms Tj = 125 °C
VGE parameter: from: 6 V to 16 V
in 1 V steps

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



parameter: tp = 250 ms VCE = 7 V

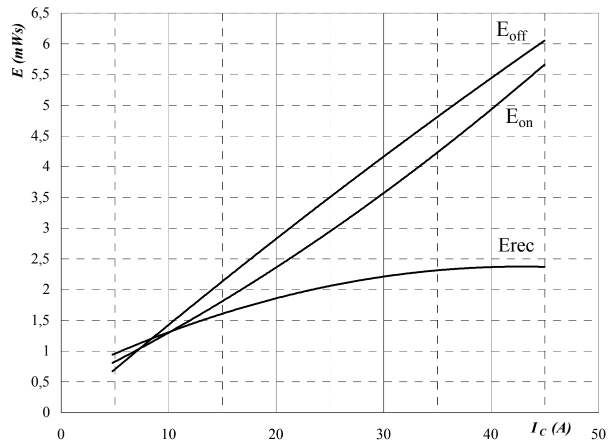
Figure 4. Typical diode forward current as a function of forward voltage
Output inverter FRED IF=f(VF)



parameter: tp = 250 ms

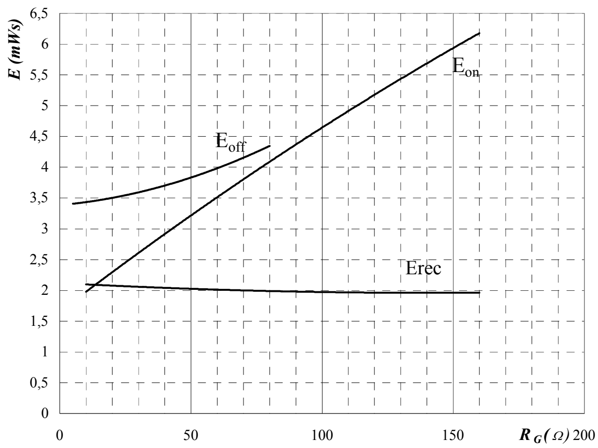
Output inverter

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



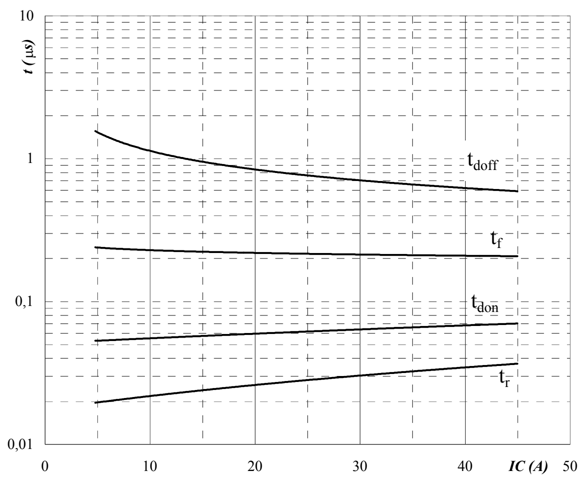
inductive load, Tj = 125 °C
VCE = 600 V
VGE= 15 V
RGon = 2*RGoff = 40 Ohm

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



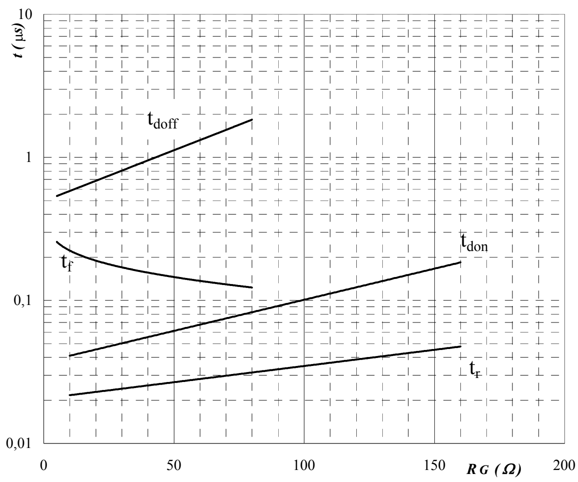
inductive load, Tj = 125 °C
VCE = 600 V
VGE= 15 V
Ic = 25 A

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 Ohm

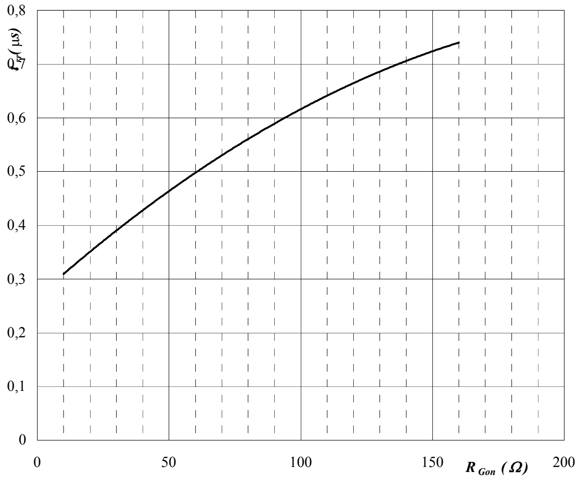
Figure 8. Typical switching times as a function of gate resistor
Output inverter IGBT
t = f (RG)



inductive load, Tj = 125 °C
VCE = 600 V
VGE= 15 V
Ic = 25 A

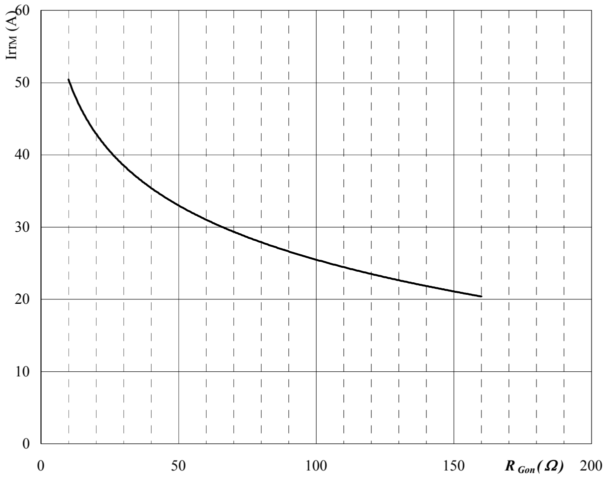
Output inverter

Figure 9. Typical reverse recovery time as a function of IGBT turn on gate resistor
Output inverter FRED diode
trr = f (Rgon)



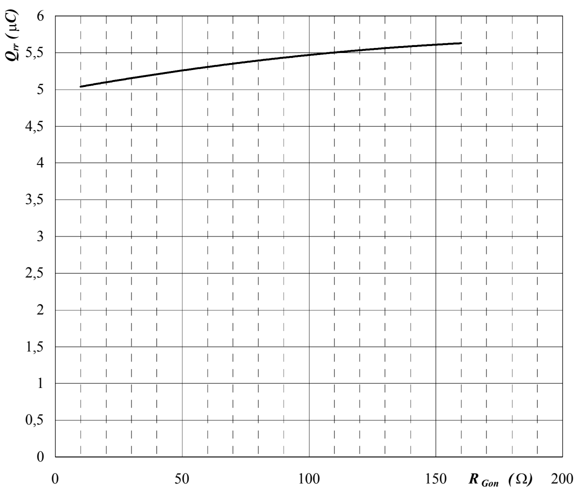
Tj = 125 °C
VR = 600 V
IF= 25 A

Figure 10. Typical reverse recovery current as a function of IGBT turn on gate resistor
Output inverter FRED diode
IRRM = f (Rgon)



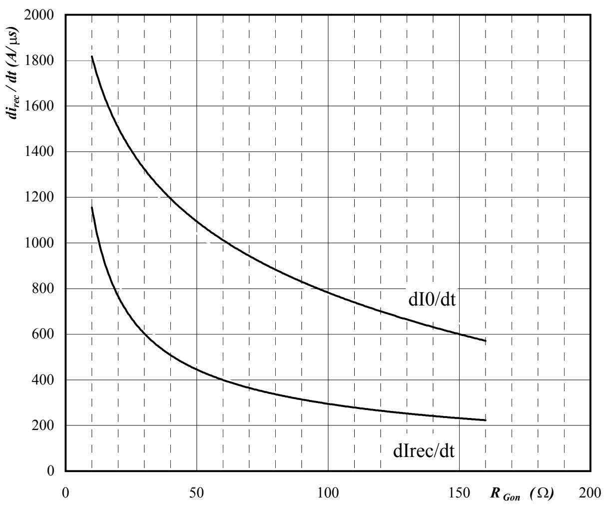
Tj = 125 °C
VR = 600 V
IF= 25 A

Figure 11. Typical reverse recovery charge as a function of IGBT turn on gate resistor
Output inverter FRED diode
Qrr = f (Rgon)



Tj = 125 °C
VR = 600 V
IF= 25 A

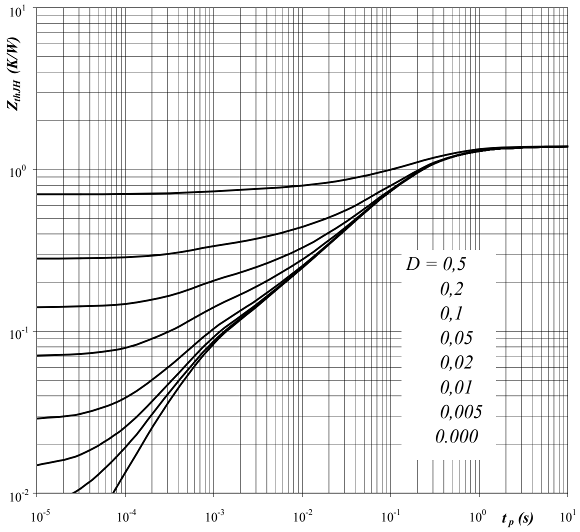
Figure 12. Typical rate of fall of forward and reverse recovery current as a function of IGBT turn on gate resistor
Output inverter FRED diode
dI0/dt,dIrec/dt= f (Rgon)



Tj = 125 °C
VR = 600 V
IF= 25 A

Output inverter

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

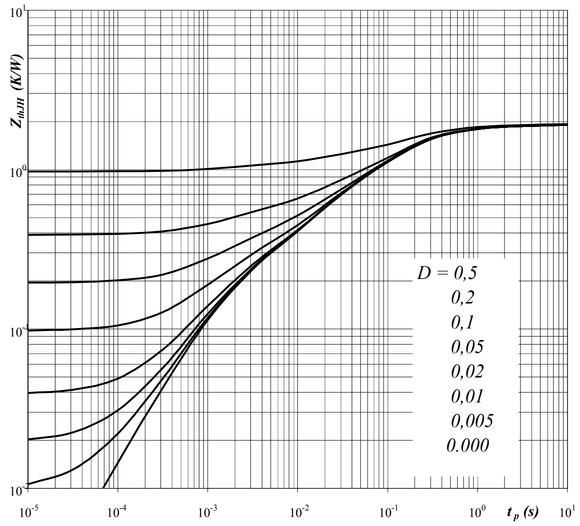


Parameter: D = tp / T RthJH= 1,4 K/W

IGBT thermal model values

R (C/W)	Tau (s)
0,04	1,1E+01
0,15	1,1E+00
0,71	2,1E-01

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



Parameter: D = tp / T RthJH= 1,9 K/W

FRED thermal model values

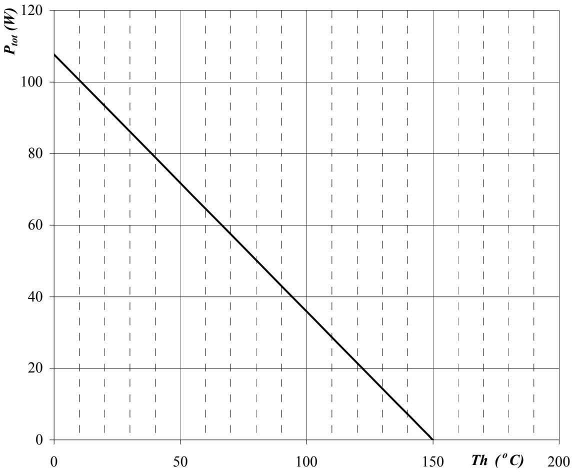
R (C/W)	Tau (s)
0,03	6,2E+01
0,09	3,7E+00
0,41	4,6E-01

Output inverter

Figure 15. Power dissipation as a function of heatsink temperature

Output inverter IGBT

Ptot = f (Th)

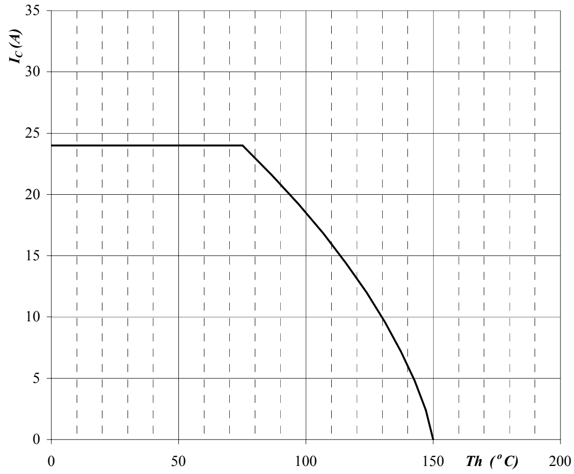


parameter: Tj = 150°C

Figure 16. Collector current as a function of heatsink temperature

Output inverter IGBT

Ic = f (Th)



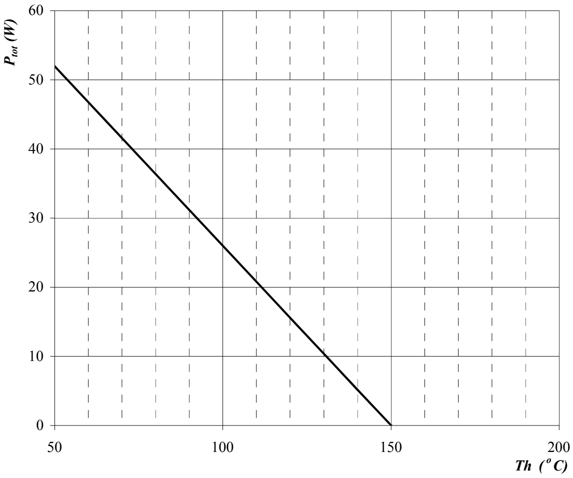
parameter: Tj = 150°C

VGE= 15 V

Figure 17. Power dissipation as a function of heatsink temperature

Output inverter FRED

Ptot = f (Th)

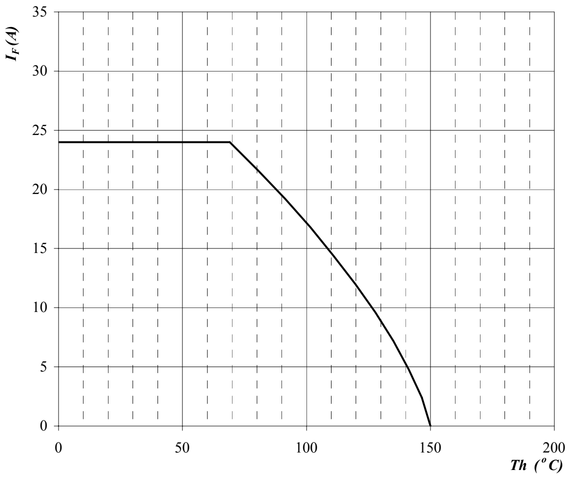


parameter: Tj = 150°C

Figure 18. Forward current as a function of heatsink temperature

Output inverter FRED

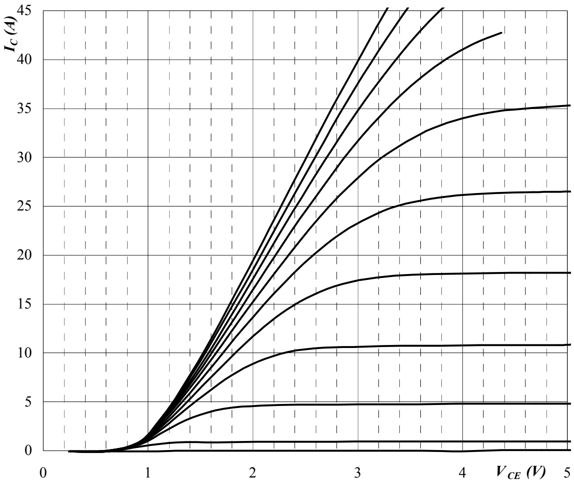
IF = f (Th)



parameter: Tj = 150°C

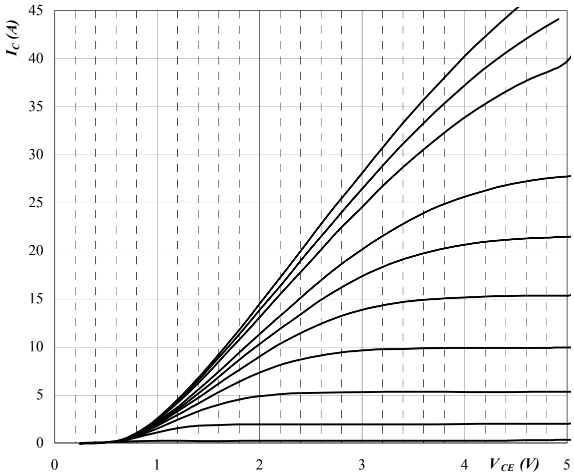
Brake

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



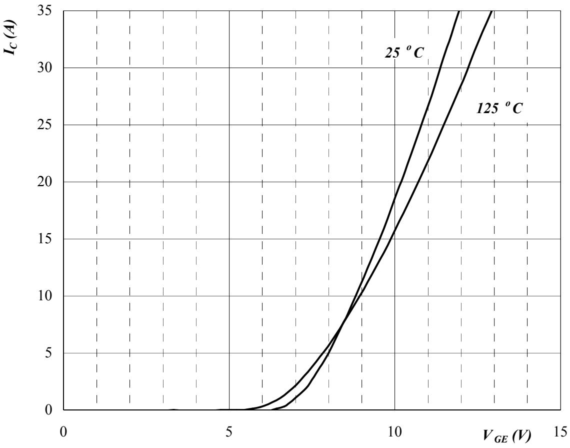
parameter: tp = 250 ms Tj = 25 °C
VGE parameter: from: 6 V to 16 V
in 1 V steps

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



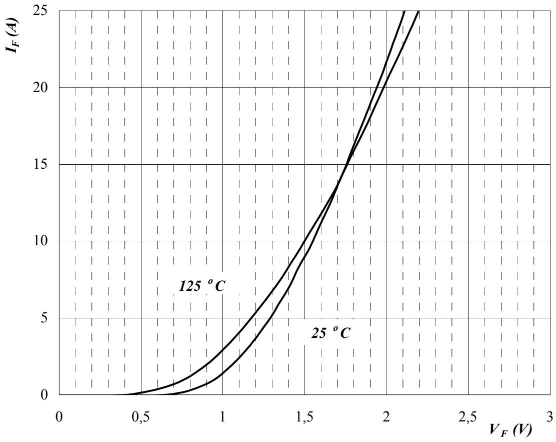
parameter: tp = 250 ms Tj = 125 °C
VGE parameter: from: 6 V to 16 V
in 1 V steps

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



parameter: tp = 250 ms VCE = 10 V

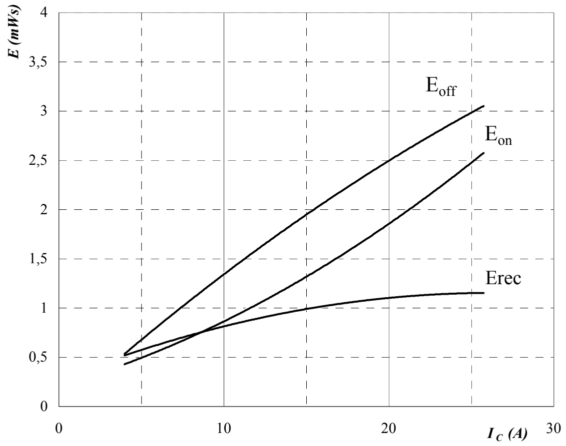
Figure 22. Typical diode forward current as a function of forward voltage
Brake FRED IF=f(VF)



parameter: tp = 250 ms

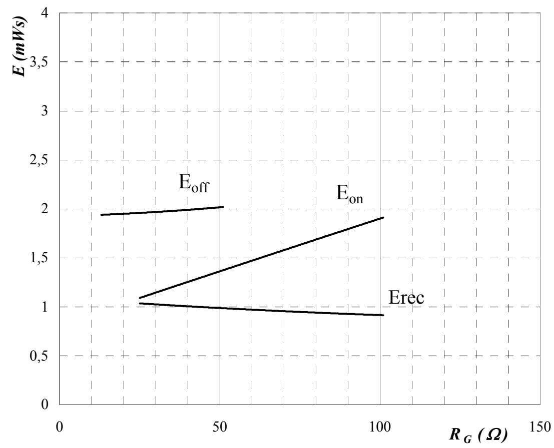
Brake

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



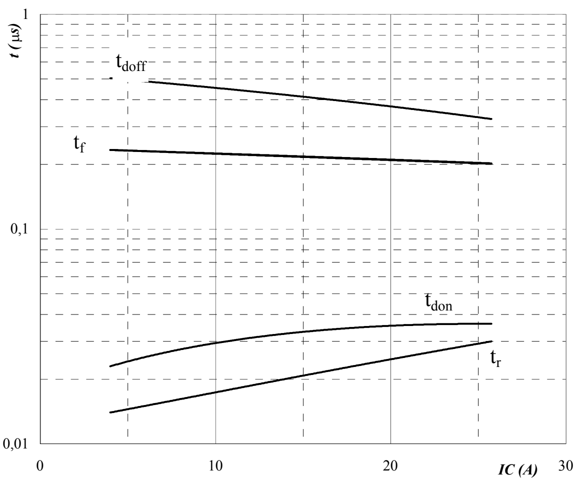
inductive load, Tj = 125 °C
VCE = 600 V
VGE= 15 V
RGon = 2*RGoff = 46,7 Ohm

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



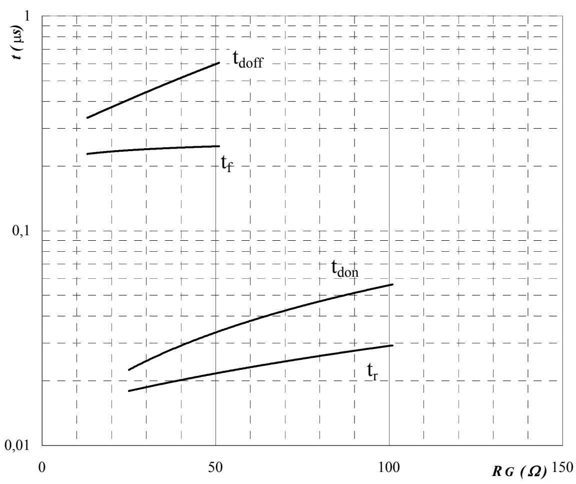
inductive load, Tj = 125 °C
VCE = 600 V
VGE= 15 V
Ic = 15 A

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 = 46,7 Ohm

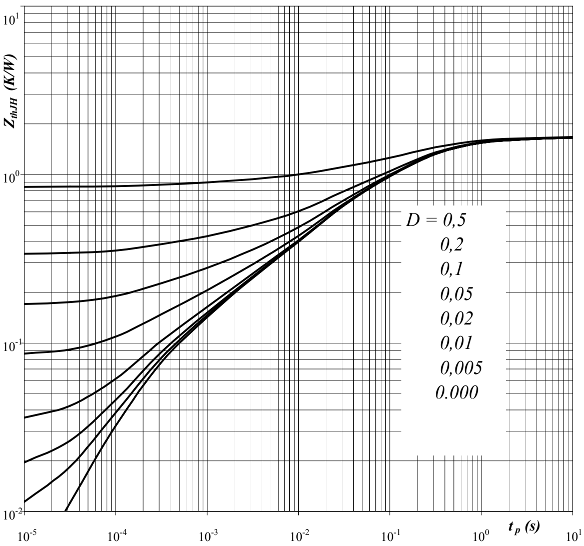
Figure 26. Typical switching times as a function of gate resistor
Brake IGBT
t = f (RG)



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

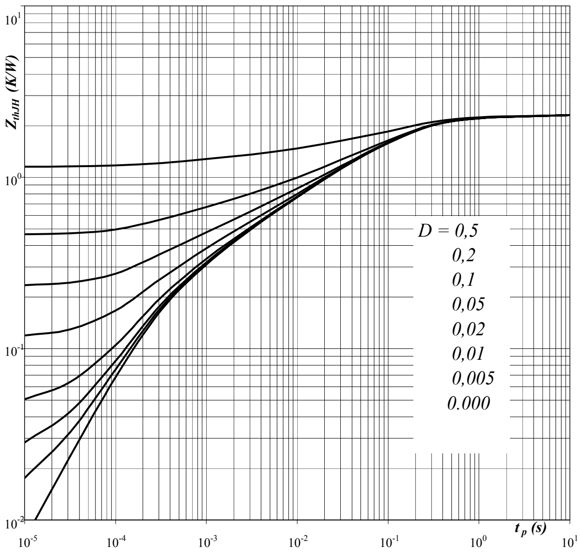
Brake

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



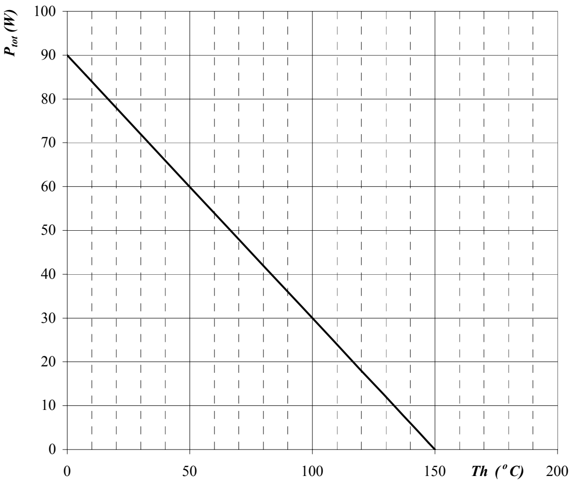
Parameter: D = tp / T RthJH= 1,7 K/W

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



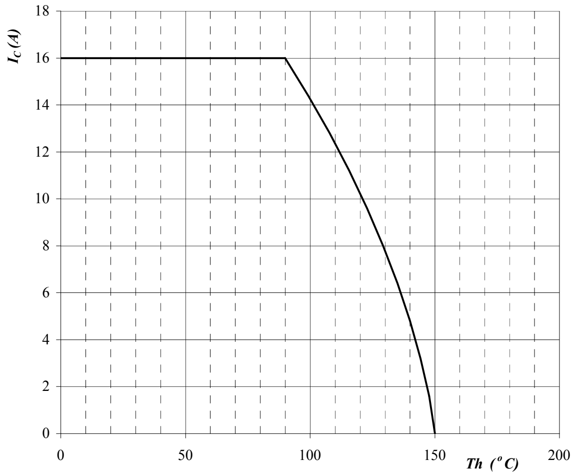
Parameter: D = tp / T RthJH= 2,3 K/W

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



parameter: Tj = 150°C

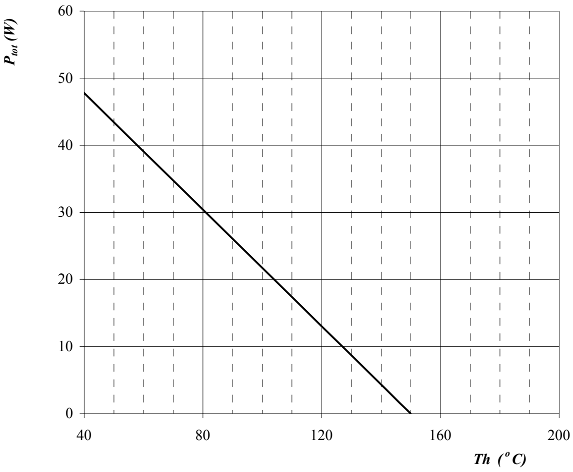
Figure 30. Collector current as a function of heatsink temperature
Brake IGBT
Ic = f (Th)



parameter: Tj = 150°C
V_{GE}= 15 V

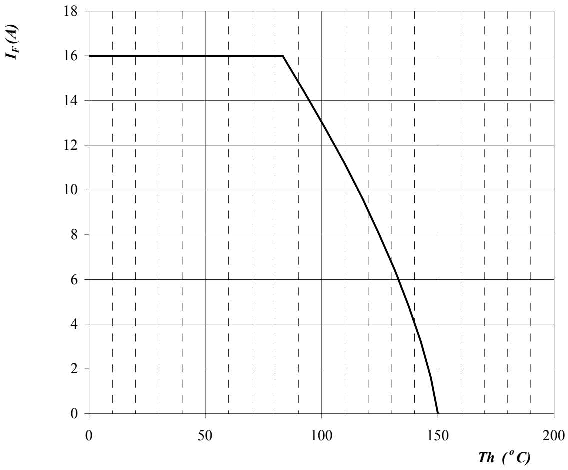
Brake

Figure 31. Power dissipation as a function of heatsink temperature
Brake FRED
Ptot = f (Th)



parameter: Tj = 150°C

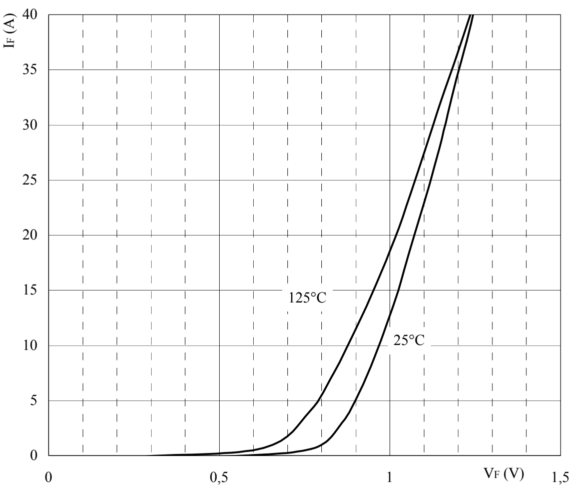
Figure 32. Forward current as a function of heatsink temperature
Brake FRED
IF = f (Th)



parameter: Tj = 150°C

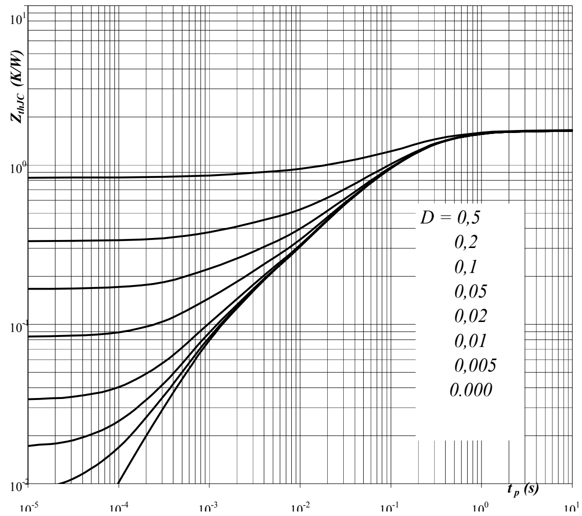
Input rectifier bridge

Figure 33. Typical diode forward current as a function of forward voltage
Rectifier diode IF=f(VF)



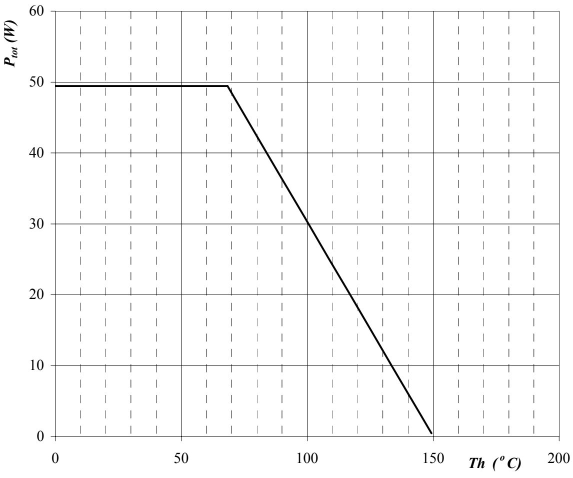
parameter: tp = 250 ms

Figure 34. Diode transient thermal impedance as a function of pulse width
ZthJH = f(tp)



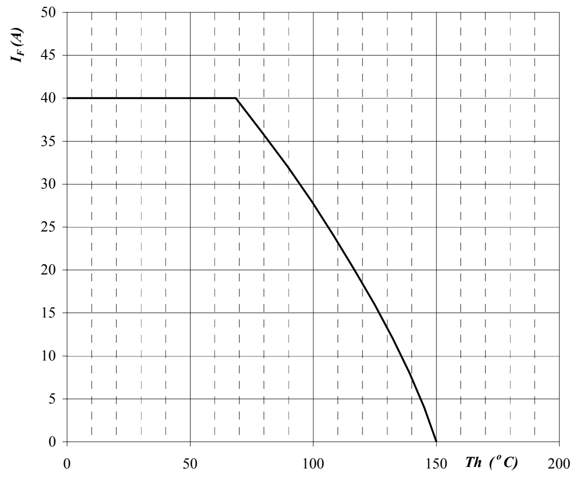
Parameter: D = tp / T RthJH= 1,7 K/W

Figure 35. Power dissipation as a function of heatsink temperature
Rectifier diode
Ptot = f (Th)



parameter: Tj = 150°C

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

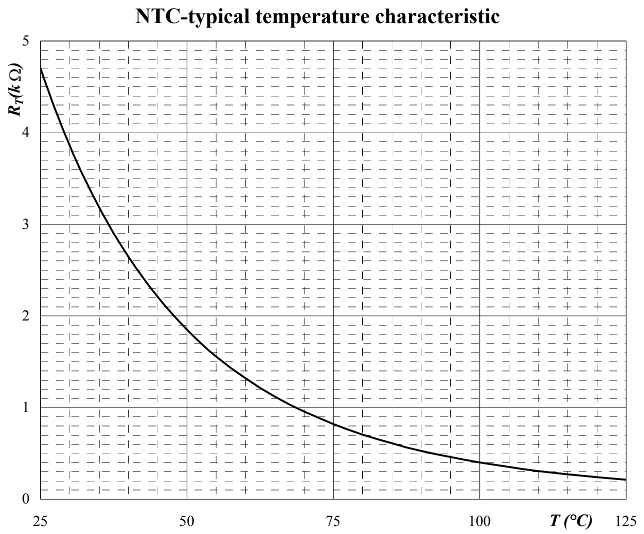


parameter: Tj = 150°C

Thermistor

Figure 37. Typical NTC characteristic as a function of temperature

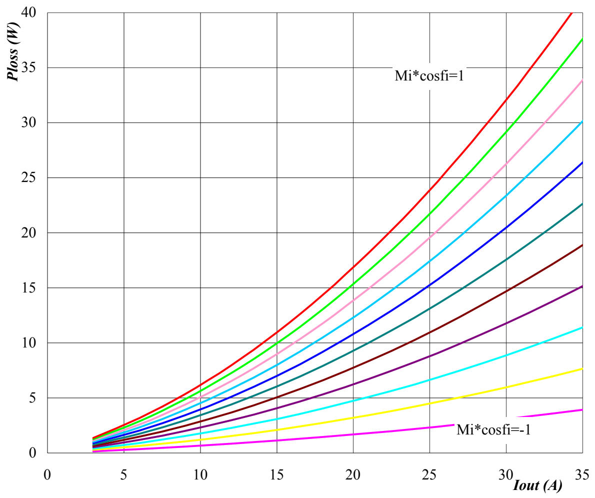
$R_T = f(T)$



Output inverter application

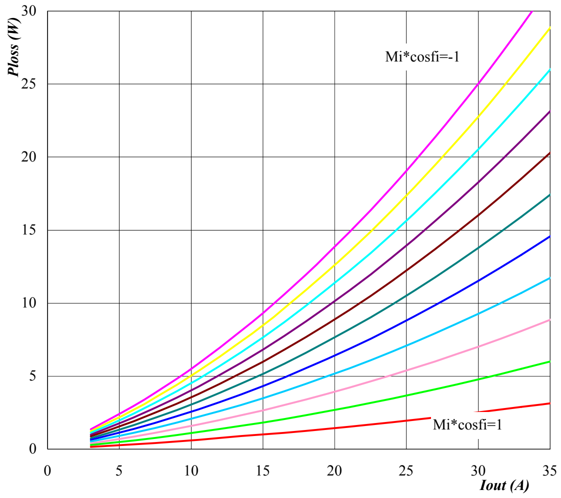
General conditions: 3 phase SPWM, Vgeon= 15 V Vgeoff=0V Rgon= 40 ohms Rgoff= 20 ohms

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



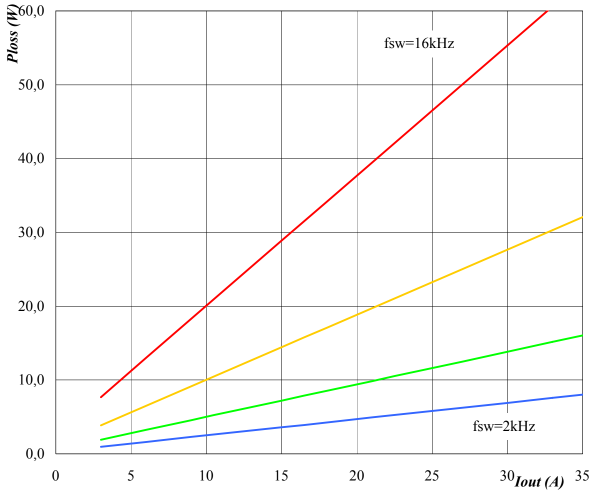
Conditions: Tj=125°C
Modulation index * cosfi
parameter Mi*cosfi from -1,00 to 1,00
in 0,20 steps

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



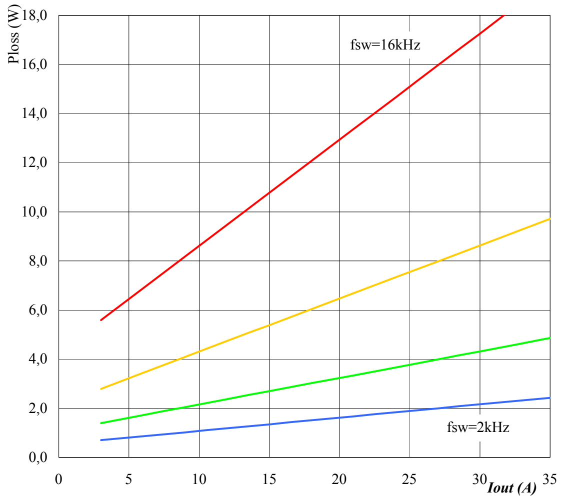
Conditions: Tj=125°C
Modulation index * cosfi
parameter Mi*cosfi from -1,00 to 1,00
in 0,20 steps

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)

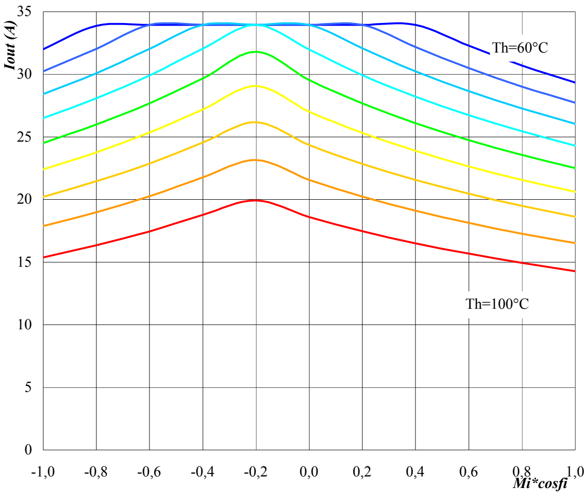


Conditions: Tj=125C
DC link= 600 V
Switching freq. fsw from 2 kHz to 16 kHz
parameter in * 2 steps

Output inverter application

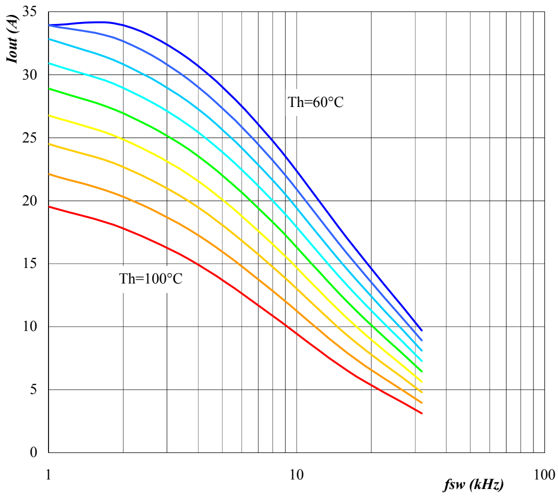
General conditions: 3 phase SPWM, Vgeon= 15 V Vgeoff=0V Rgon= 40 ohms Rgoff= 20 ohms

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



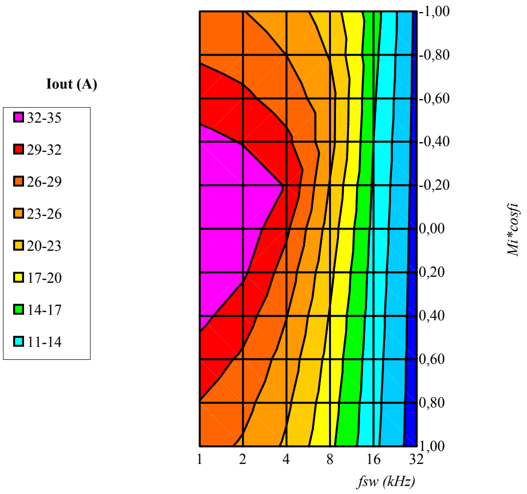
Conditions: Tj=125C
DC link= 600 V
fsw= 4 kHz
Heatsink temp. parameter Th from 60 °C to 100 °C in 5 °C steps

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



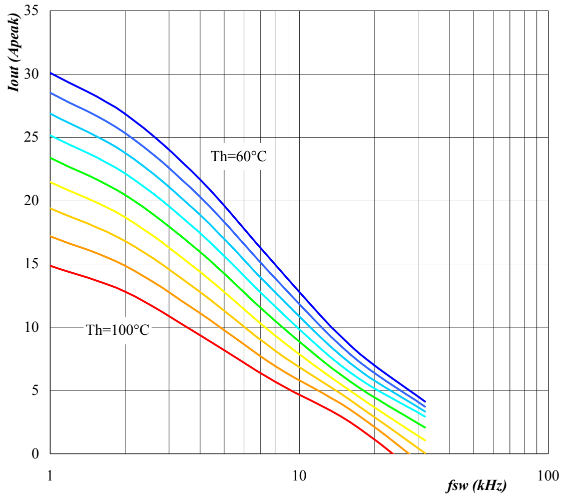
Conditions: Tj=125C
DC link= 600 V
Mi*cosfi= 0,8
Heatsink temp. parameter Th from 60 °C to 100 °C in 5 °C steps

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)



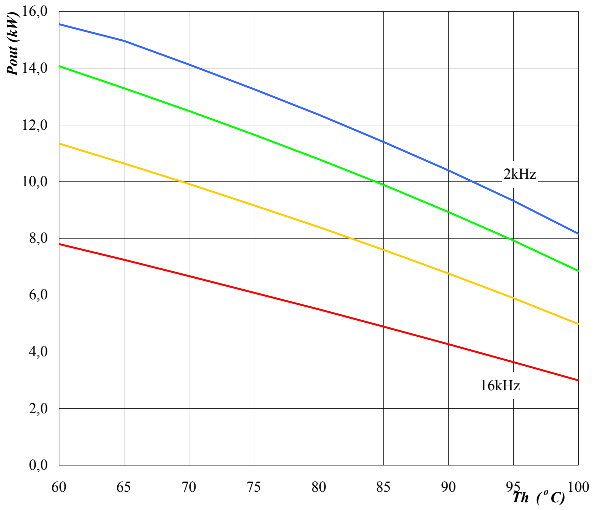
Conditions: Tj=125C
DC link= 600 V
Heatsink temp. parameter Th from 60 °C to 100 °C in 5 °C steps

Output inverter application

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

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

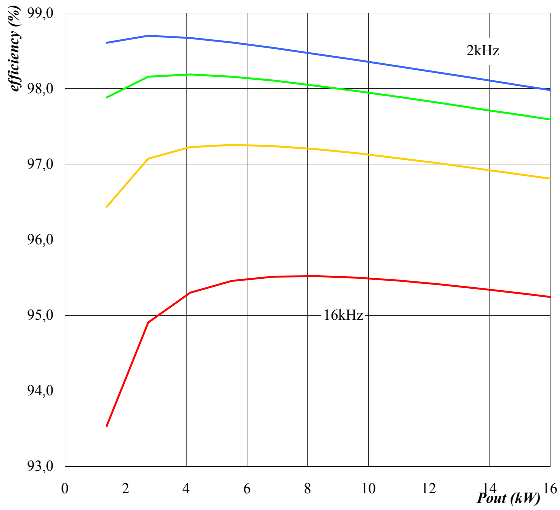
Inverter Pout=f(Th)



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

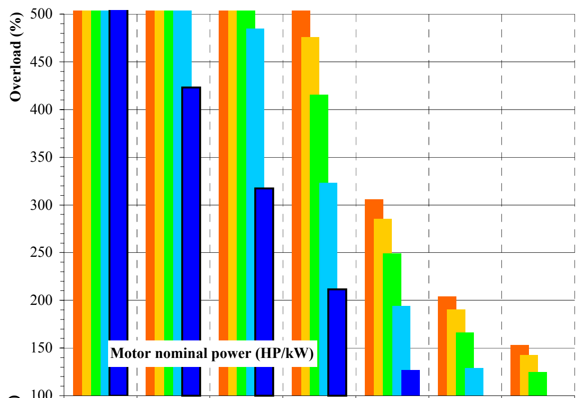
Inverter efficiency=f(Pout)



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	1530	1020	765	510	306	204	153
2	1428	952	714	476	286	190	143
4	1247	832	624	416	249	166	125
8	970	647	485	323	194	129	0
16	635	423	317	212	127	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