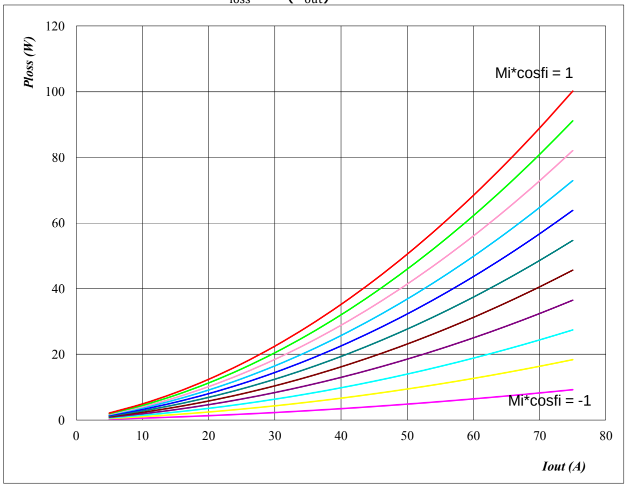
flow 7PACK 2 — Output Inverter Application — 1200 V / 50 A

General conditions

3phase SPWM		
V_{GEon}	=	15 V
V_{GEoff}	=	-15 V
R_{gon}	=	8 Ω
R_{goff}	=	8 Ω

Figure 1 IGBT

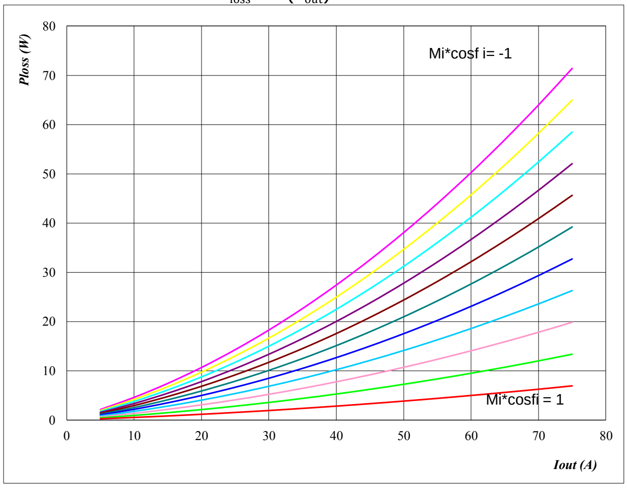
Typical average static loss as a function of output current $P_{loss} = f(I_{out})$



At
T_j = 150 °C
Mi*cosφ from -1 to 1 in steps of 0,2

Figure 2 FWD

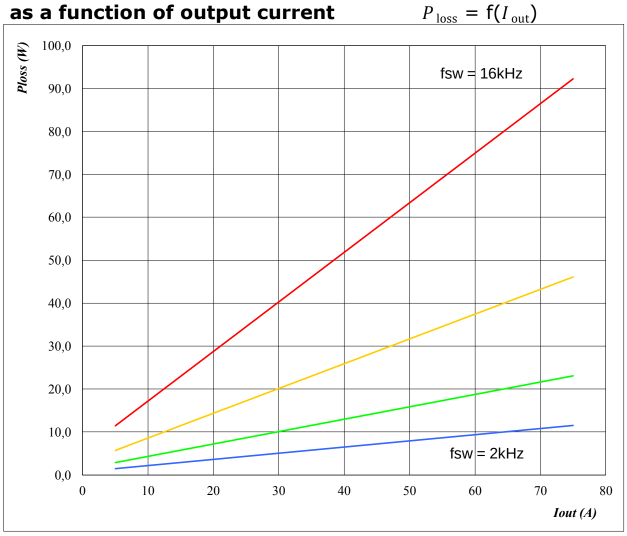
Typical average static loss as a function of output current $P_{loss} = f(I_{out})$



At
T_j = 150 °C
Mi*cosφ from -1 to 1 in steps of 0,2

Figure 3 IGBT

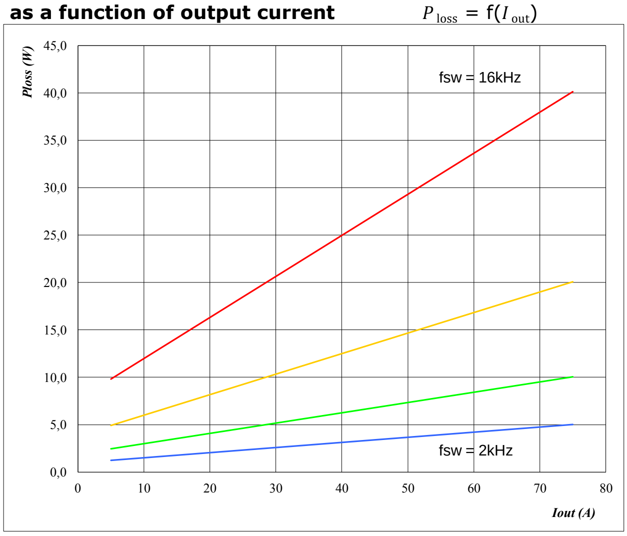
Typical average switching loss as a function of output current $P_{loss} = f(I_{out})$



At
T_j = 150 °C
DC link = 600 V
f_{sw} from 2 kHz to 16 kHz in steps of factor 2

Figure 4 FWD

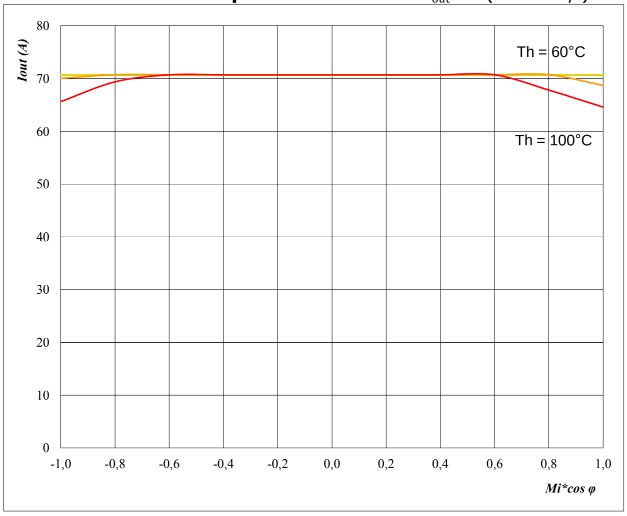
Typical average switching loss as a function of output current $P_{loss} = f(I_{out})$



At
T_j = 150 °C
DC link = 600 V
f_{sw} from 2 kHz to 16 kHz in steps of factor 2

Figure 5 Phase

Typical available 50Hz output current as a function Mi*cosφ I_{out} = f(Mi*cos φ)

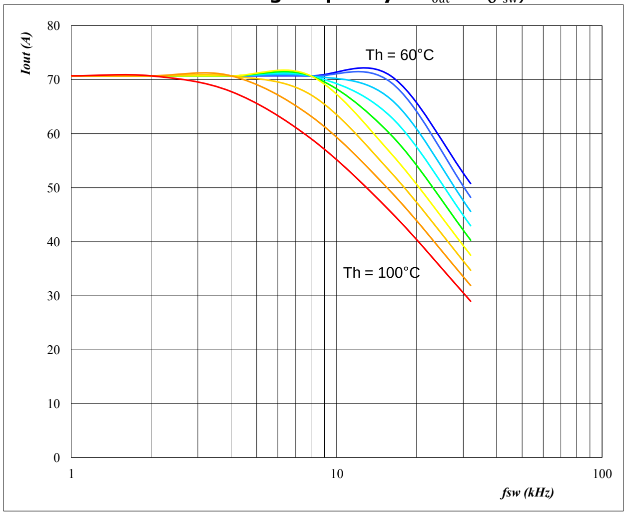


At

T_j = 150 °C
DC link = 600 V
f_{sw} = 4 kHz
T_h from 60 °C to 100 °C in steps of 5 °C

Figure 6 Phase

Typical available 50Hz output current as a function of switching frequency I_{out} = f(f_{sw})

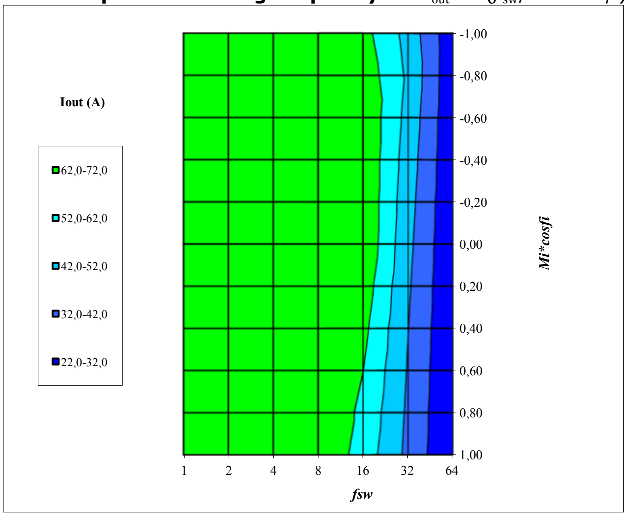


At

T_j = 150 °C
DC link = 600 V
Mi*cos φ = 0,8
T_h from 60 °C to 100 °C in steps of 5 °C

Figure 7 Phase

Typical available 50Hz output current as a function of Mi*cos φ and switching frequency I_{out} = f(f_{sw}, Mi*cos φ)

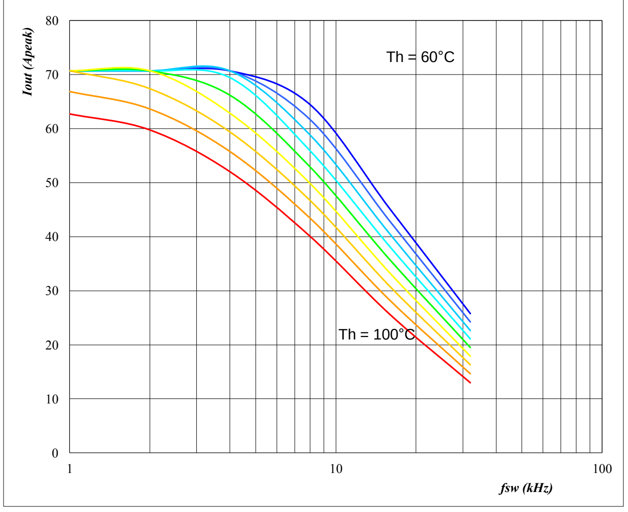


At

T_j = 150 °C
DC link = 600 V
T_h = 80 °C

Figure 8 Phase

Typical available 0Hz output current as a function of switching frequency $I_{outpeak}$ = f(f_{sw})

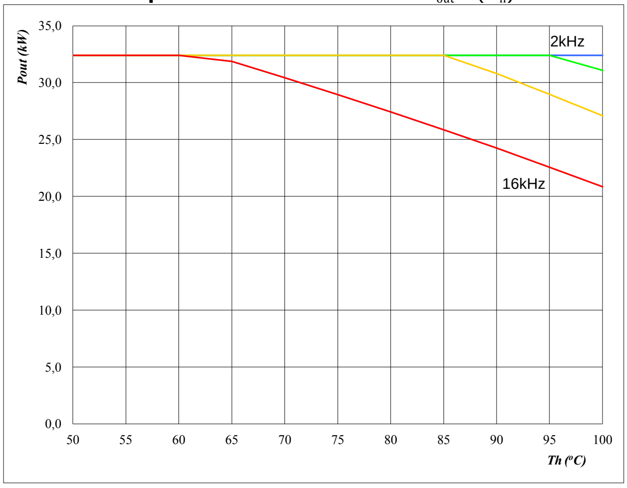


At

T_j = 150 °C
DC link = 600 V
T_h from 60 °C to 100 °C in steps of 5 °C
Mi = 0

Figure 9 Inverter

Typical available peak output power as a function of heatsink temperature $P_{out}=f(T_h)$



At

T_j = 150 °C

DC link = 600 V

Mi = 1

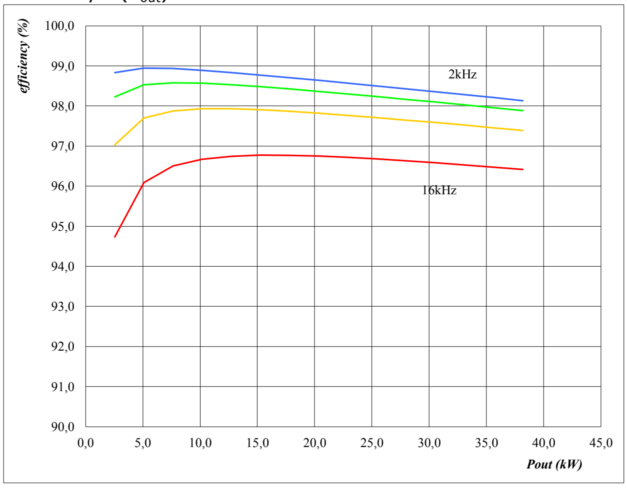
cos φ= 0,80

f_{sw} from 2 kHz to 16 kHz in steps of factor 2

Figure 10 Inverter

Typical efficiency as a function of output power

efficiency=f(P_{out})



At

T_j = 150 °C

DC link = 600 V

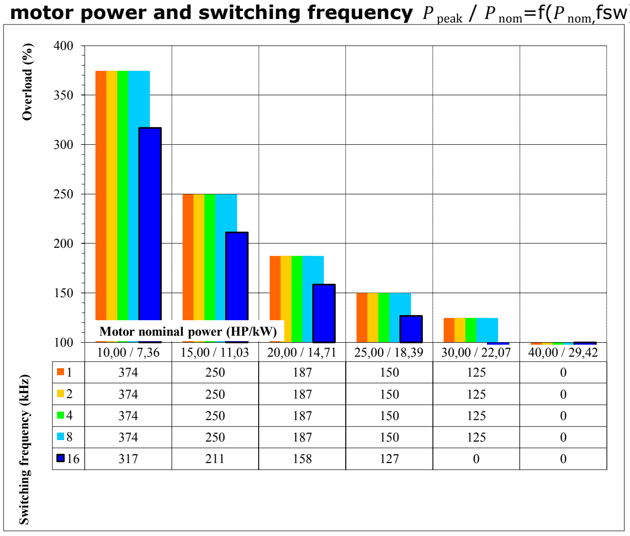
Mi = 1

cos φ= 0,80

f_{sw} from 2 kHz to 16 kHz in steps of factor 2

Figure 11 Inverter

Typical available overload factor as a function of motor power and switching frequency $P_{peak} / P_{nom}=f(P_{nom},fsw)$



Switching frequency (kHz)	10,00 / 7,36	15,00 / 11,03	20,00 / 14,71	25,00 / 18,39	30,00 / 22,07	40,00 / 29,42
1	374	250	187	150	125	0
2	374	250	187	150	125	0
4	374	250	187	150	125	0
8	374	250	187	150	125	0
16	317	211	158	127	0	0

At

T_j = 150 °C

DC link = 600 V

Mi = 1

cos φ= 0,8

f_{sw} from 1 kHz to 16kHz in steps of factor 2

T_h = 80 °C

Motor eff = 0,85