flowPIM 0 — Output Inverter Application — 600V/30A

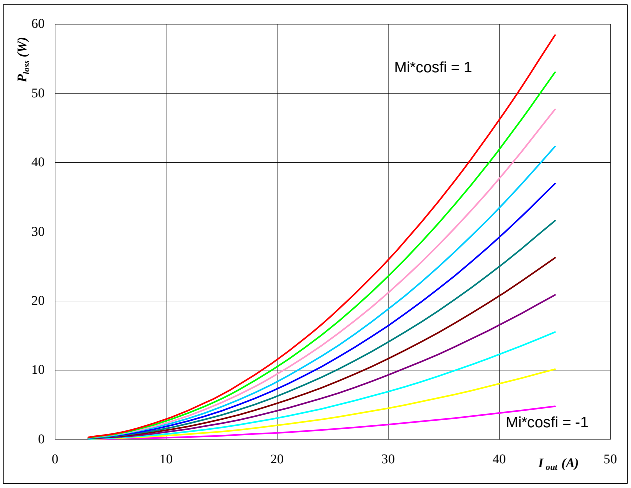
General conditions

3phase SPWM		
V_{GEon}	=	15 V
V_{GEoff}	=	0 V
R_{gon}	=	8 Ω
R_{goff}	=	4 Ω

Figure 1 IGBT

Typical average static loss as a function of output current

$P_{loss} = f(I_{out})$



At

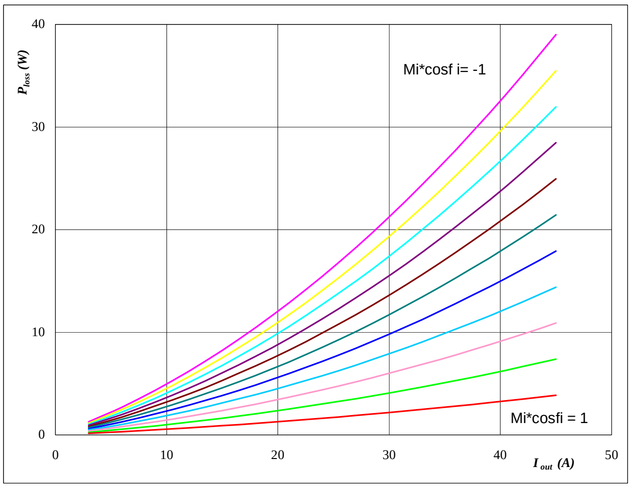
T_j = 125 ℃

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

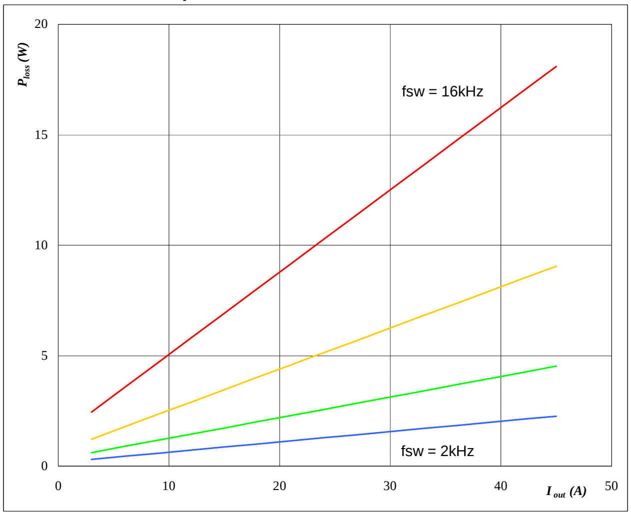
T_j = 125 ℃

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 = 125 ℃

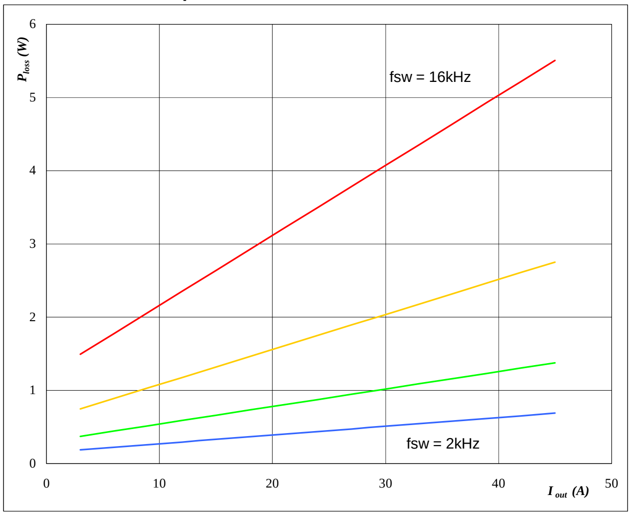
DC link = 320 V

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

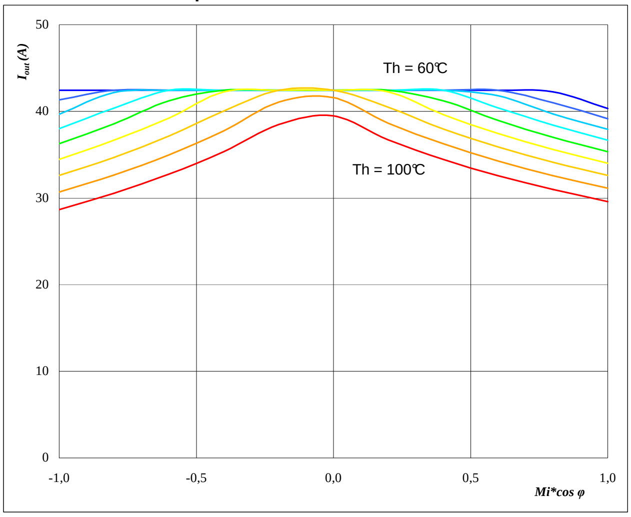
T_j = 125 ℃

DC link = 320 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 $I_{out} = f(Mi*\cos\varphi)$



At

T_j = 125 ℃

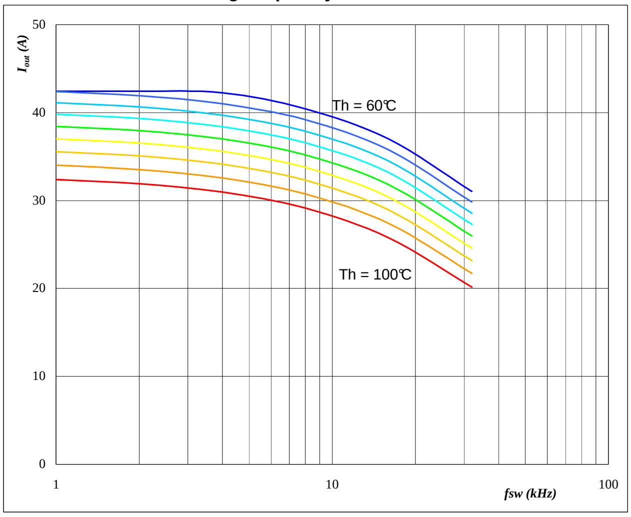
DC link = 320 V

f_{sw} = 4 kHz

T_h from 60 ℃ to 100 ℃ in steps of 5 ℃

Figure 6 Phase

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



At

T_j = 125 ℃

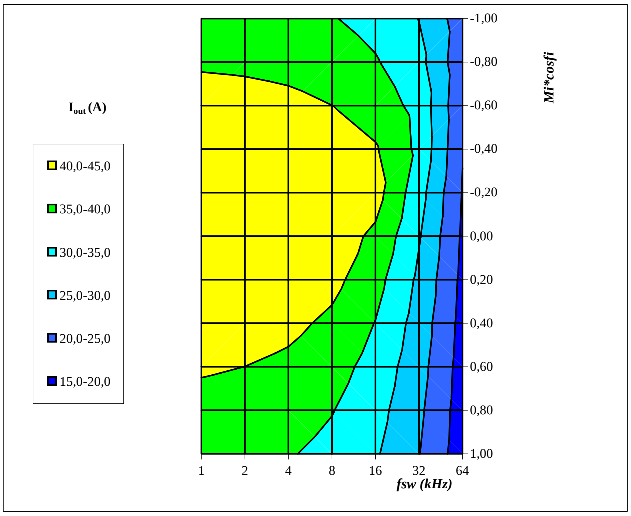
DC link = 320 V

Mi*cos φ = 0,8

T_h from 60 ℃ to 100 ℃ in steps of 5 ℃

Figure 7 Phase

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



At

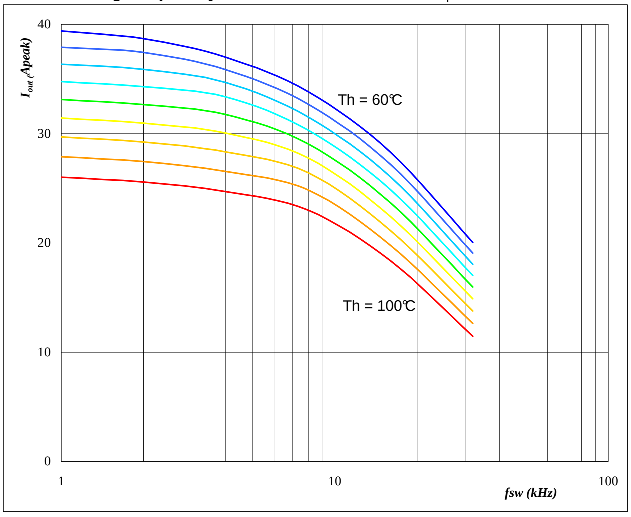
T_j = 125 ℃

DC link = 320 V

T_h = 80 ℃

Figure 8 Phase

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



At

T_j = 125 ℃

DC link = 320 V

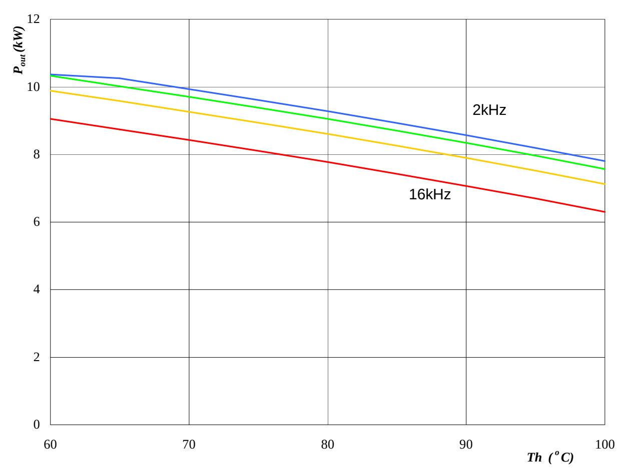
T_h from 60 ℃ to 100 ℃ in steps of 5 ℃

Mi = 0

flowPIM 0 | **Output Inverter Application** | **600V/30A**

Figure 9 Inverter

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



At

T_j = 125 ℃

DC link = 320 V

Mi = 1

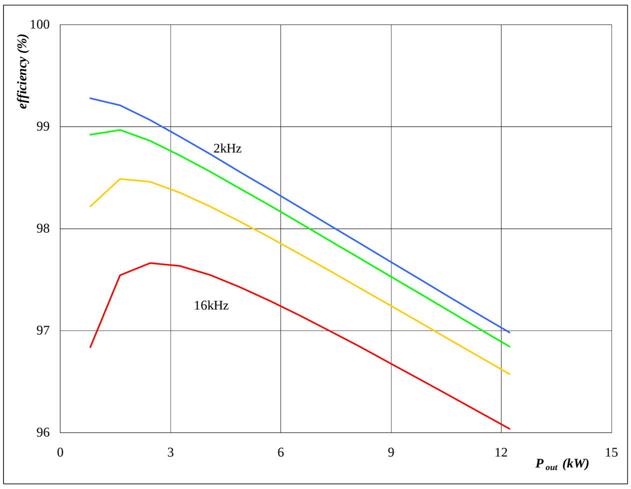
cos φ= 0,80

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 = 125 ℃

DC link = 320 V

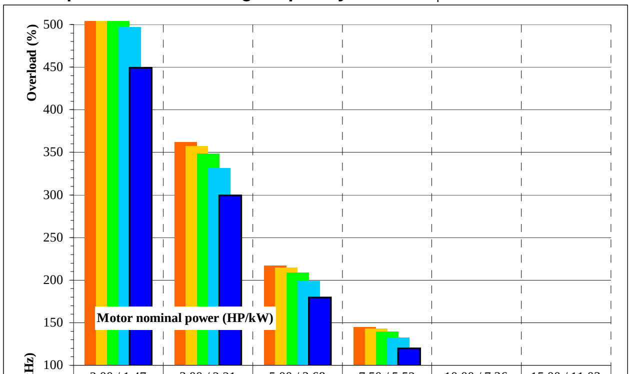
Mi = 1

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 $P_{peak} / P_{nom}=f(P_{nom},f_{sw})$



Switching frequency (kHz)	2,00 / 1,47	3,00 / 2,21	5,00 / 3,68	7,50 / 5,52	10,00 / 7,36	15,00 / 11,03
1	543	362	217	145	0	0
2	536	357	214	143	0	0
4	523	348	209	139	0	0
8	497	331	199	133	0	0
16	449	299	180	120	0	0

At

T_j = 125 ℃

DC link = 320 V

Mi = 1

cos φ= 0,8

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

T_h = 80 ℃

Motor eff = 0,85