flow2 — Output Inverter Application — 1200V/50A

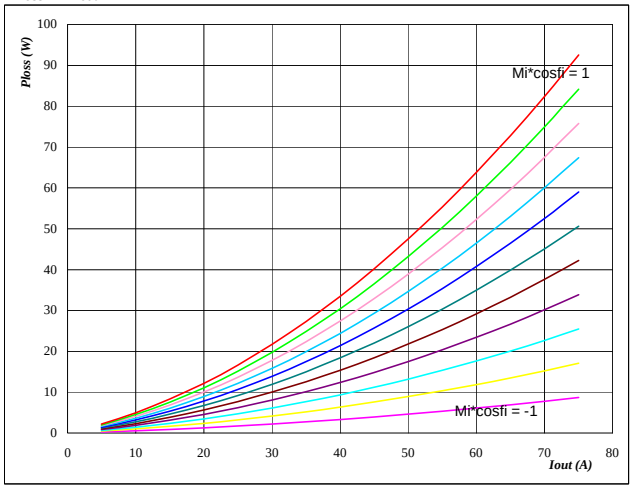
General conditions

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

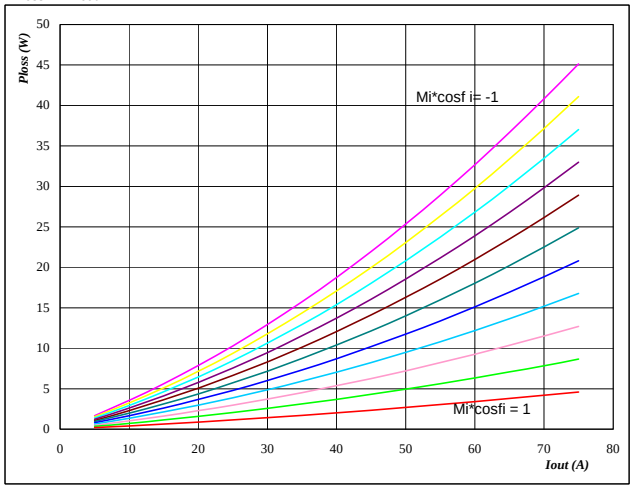
T_j = 150 ℃

Mi*cosφ from -1 to 1 in steps of 0,2

Figure 2 — FWD

Typical average static loss as a function of output current

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



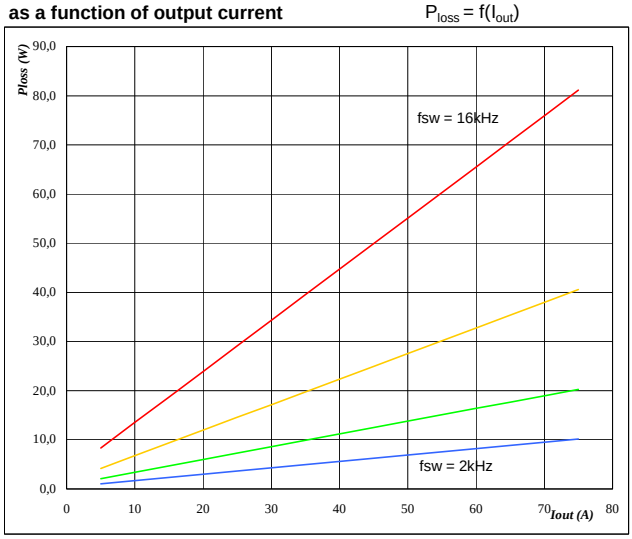
At

T_j = 150 ℃

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

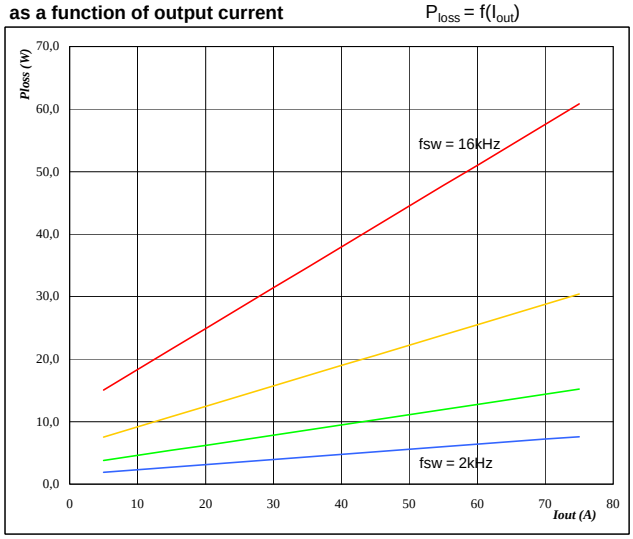
T_j = 150 ℃

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 ℃

DC link = 600 V

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

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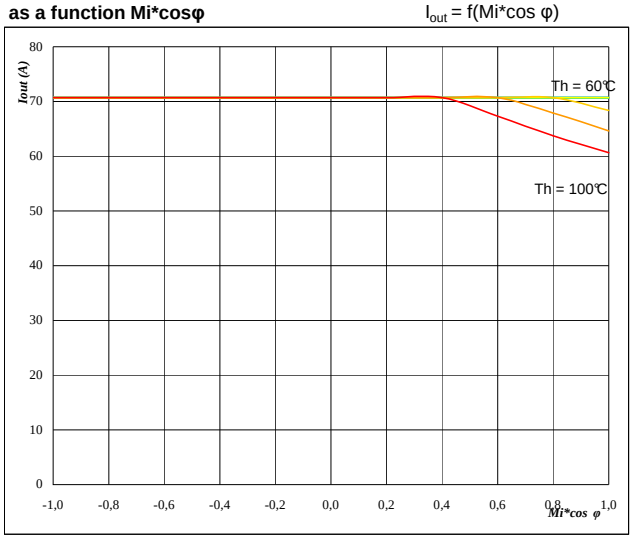
Figure 5 Phase

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

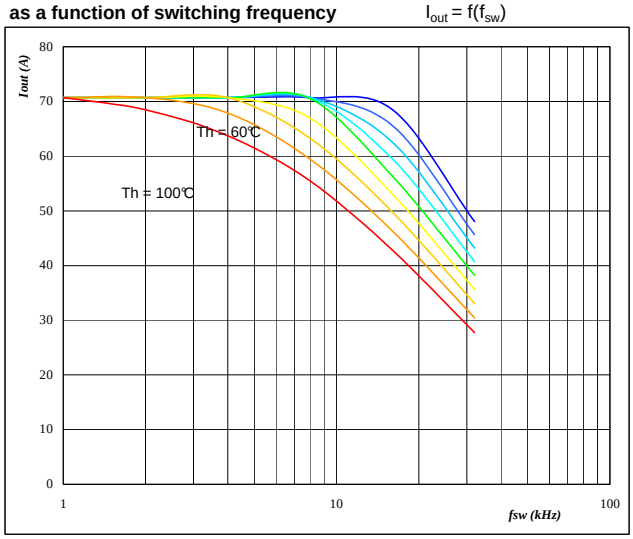


At

T_j = 150 ℃
DC link = 600 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 $I_{out} = f(f_{sw})$

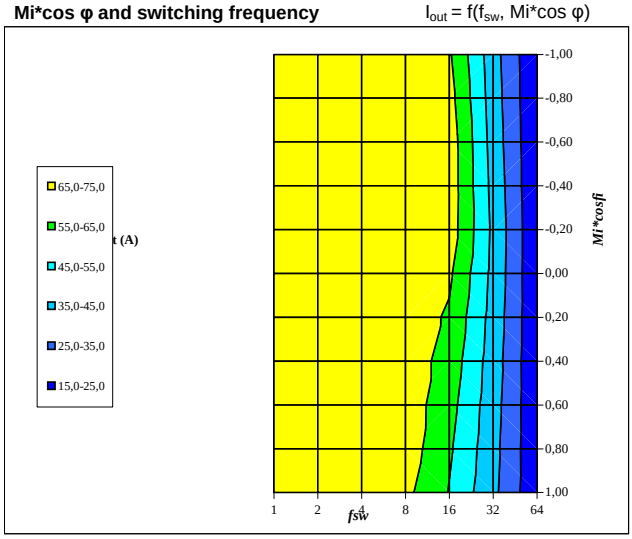


At

T_j = 150 ℃
DC link = 600 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 $I_{out} = f(f_{sw}, Mi*\cos\varphi)$

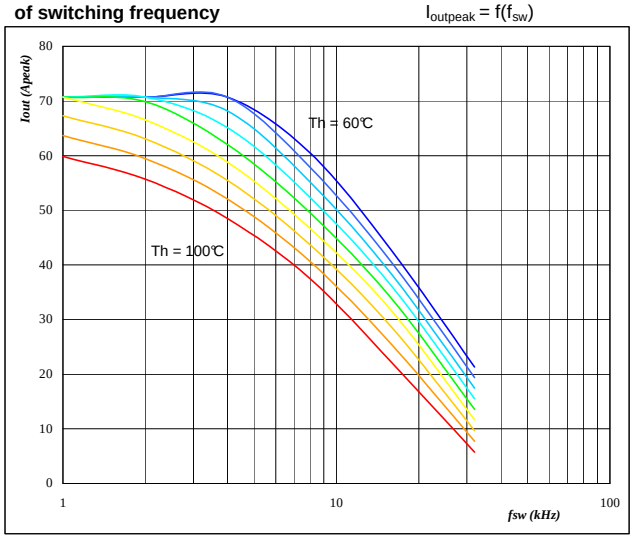


At

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

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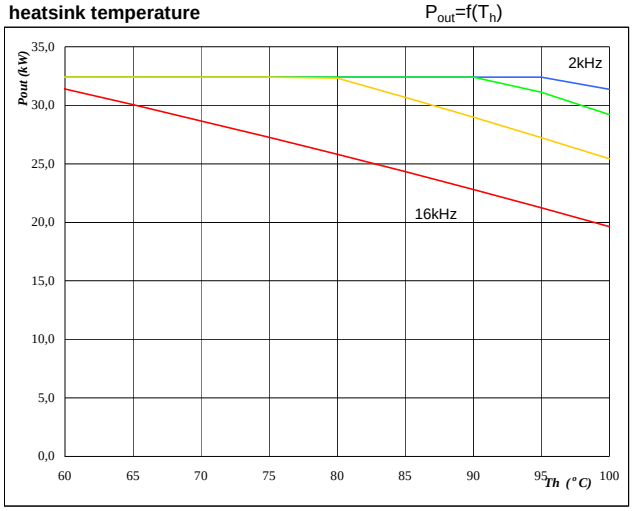
Figure 9 Inverter

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

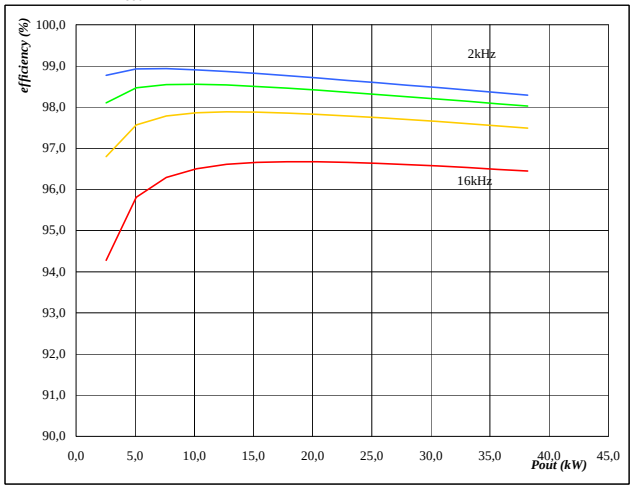


At

T_j =	150	℃
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})

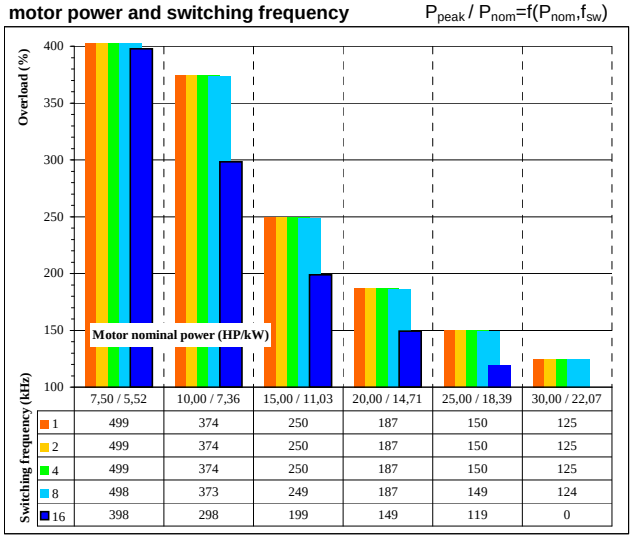


At

T_j =	150	℃
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 $P_{peak} / P_{nom}=f(P_{nom},f_{sw})$



Switching frequency (kHz)	7,50 / 5,52	10,00 / 7,36	15,00 / 11,03	20,00 / 14,71	25,00 / 18,39	30,00 / 22,07
1	499	374	250	187	150	125
2	499	374	250	187	150	125
4	499	374	250	187	150	125
8	498	373	249	187	149	124
16	398	298	199	149	119	0

At

T_j =	150	℃
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	℃
Motor eff =	0,85	