flowPIM 0 — Output Inverter Application — 600V/15A

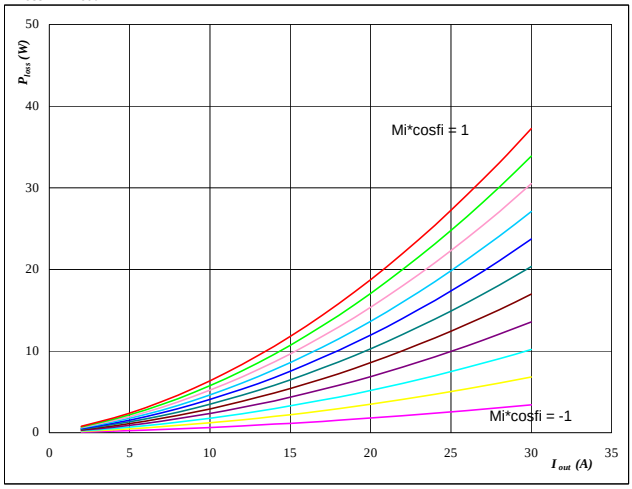
General conditions

3phase SPWM		
V_{GEon}	=	15 V
V_{GEoff}	=	0 V
R_{gon}	=	16 Ω
R_{goff}	=	8 Ω

Figure 1 — IGBT

Typical average static loss as a function of output current

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



At

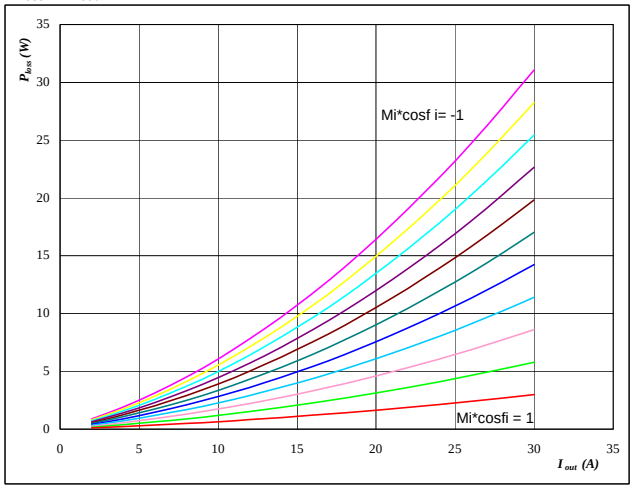
T_j = 125 ℃

Mi*cosφ from -1 to 1 in steps of 0,2

Figure 2 — FWD

Typical average static loss as a function of output current

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



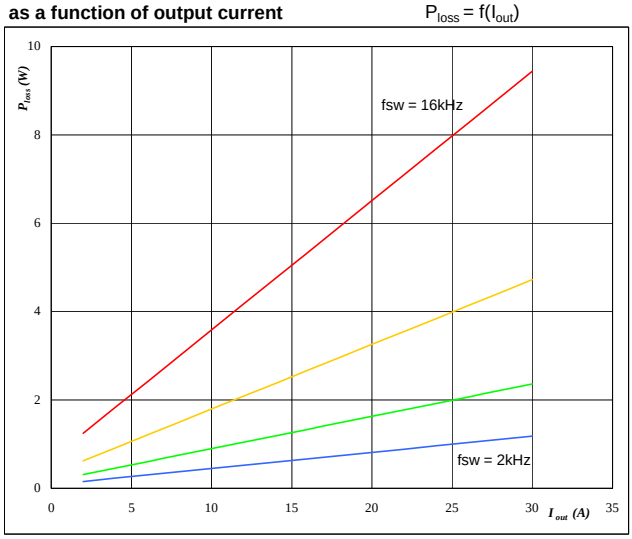
At

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

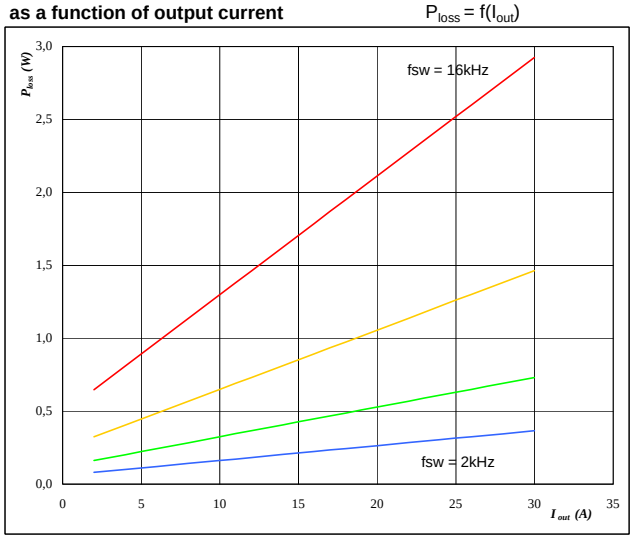
T_j = 125 ℃

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

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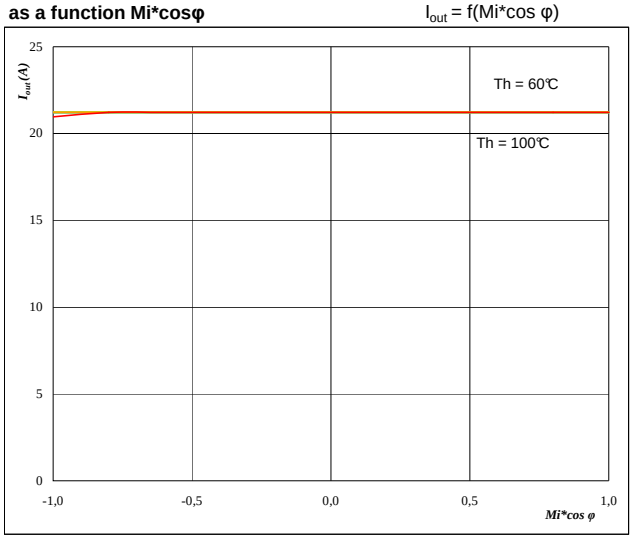
Figure 5 — Phase

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

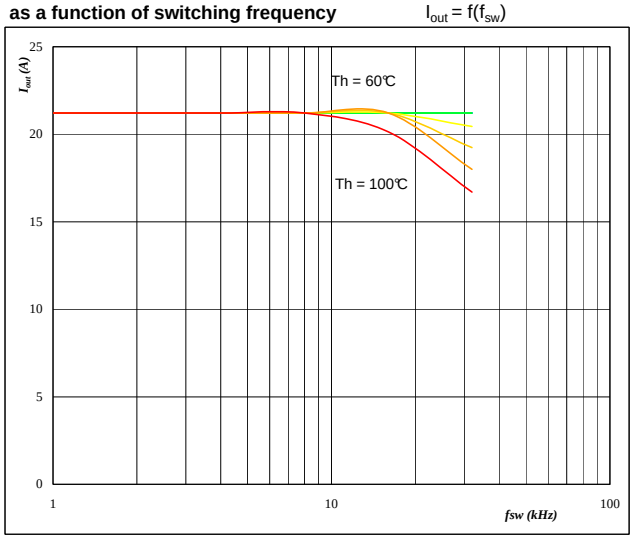


At

T_j =	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 $I_{out} = f(f_{sw})$

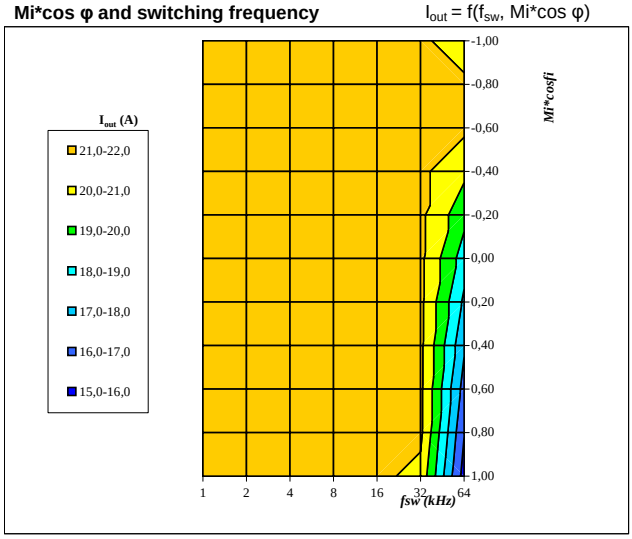


At

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 $I_{out} = f(f_{sw}, Mi*\cos\varphi)$

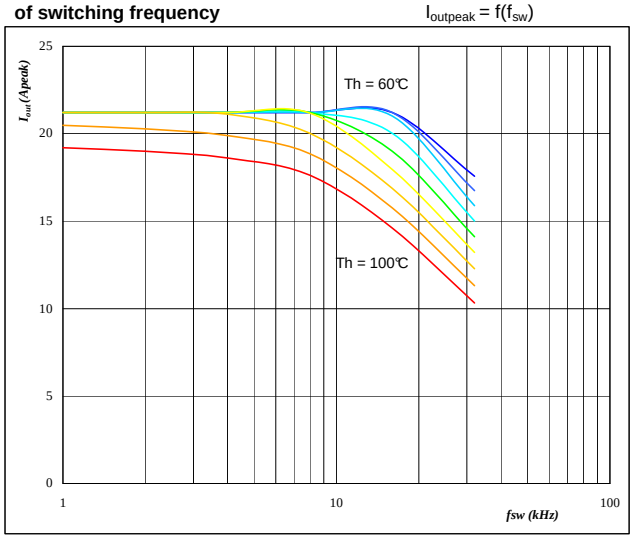


At

T_j =	125	℃
DC link =	320	V
T_h =	80	℃

Figure 8 — Phase

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

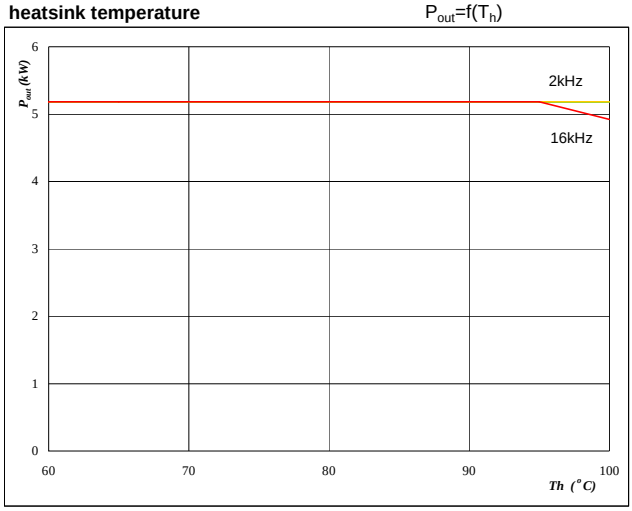


At

T_j =	125	℃
DC link =	320	V
T_h from	60 ℃ to 100 ℃ in steps of 5 ℃	
Mi =	0	

Figure 9 Inverter

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

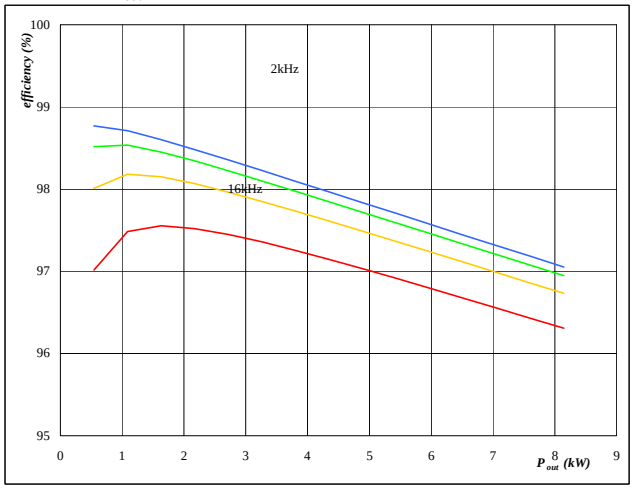


At

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})

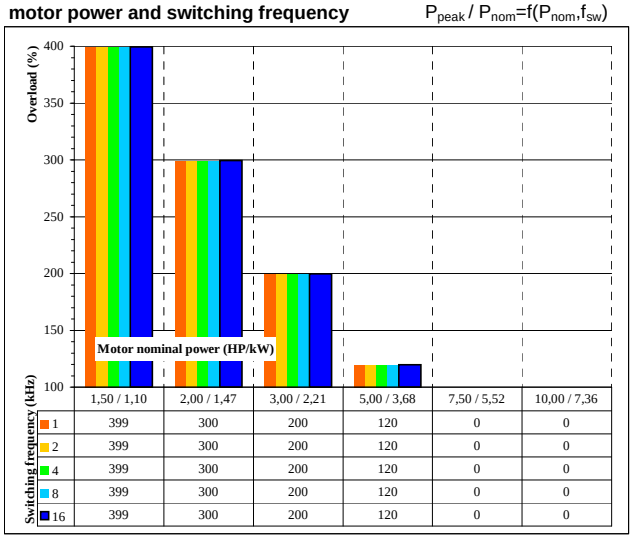


At

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)	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	399	300	200	120	0	0
2	399	300	200	120	0	0
4	399	300	200	120	0	0
8	399	300	200	120	0	0
16	399	300	200	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	