flow PIM 2 3rd — Output Inverter Application — 1200 V / 75 A

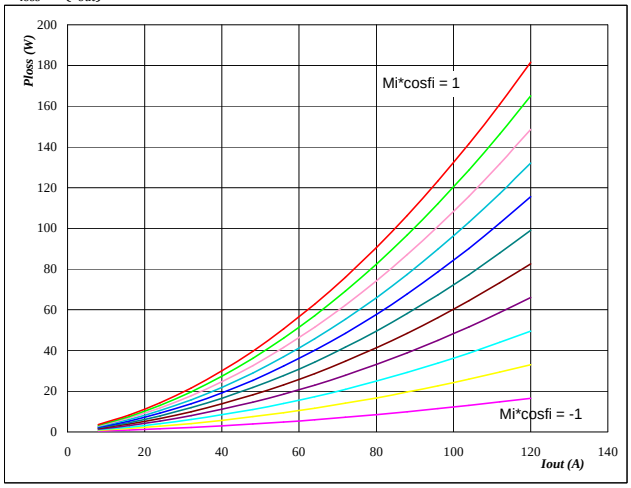
General conditions

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

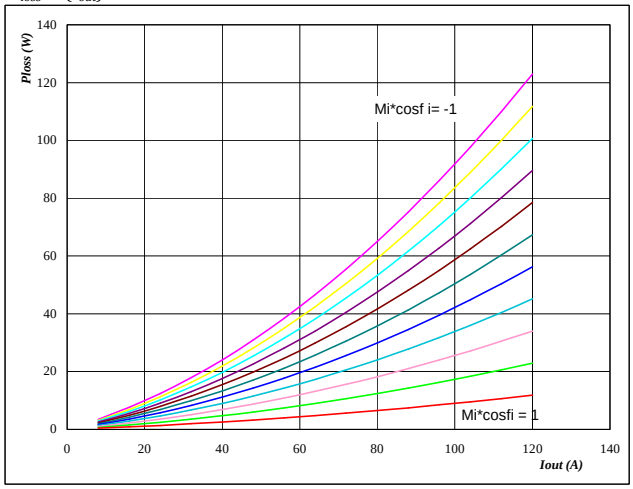
T_j = 150 °C

Mi*cosfi from -1 to 1 in steps of 0,2

Figure 2 — FWD

Typical average static loss as a function of output current

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



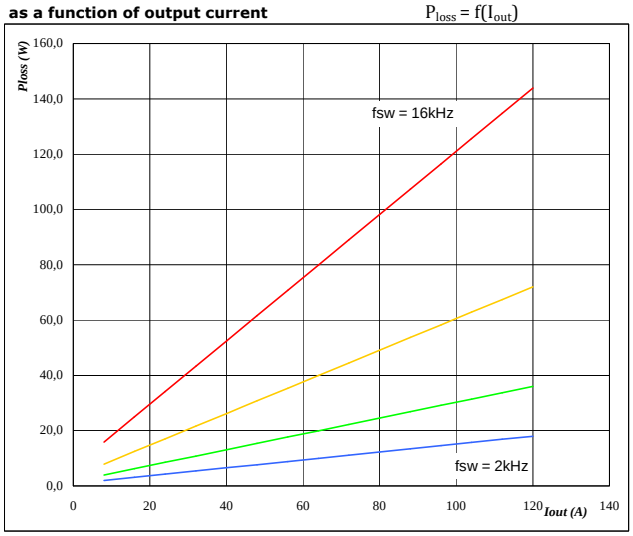
At

T_j = 150 °C

Mi*cosfi 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

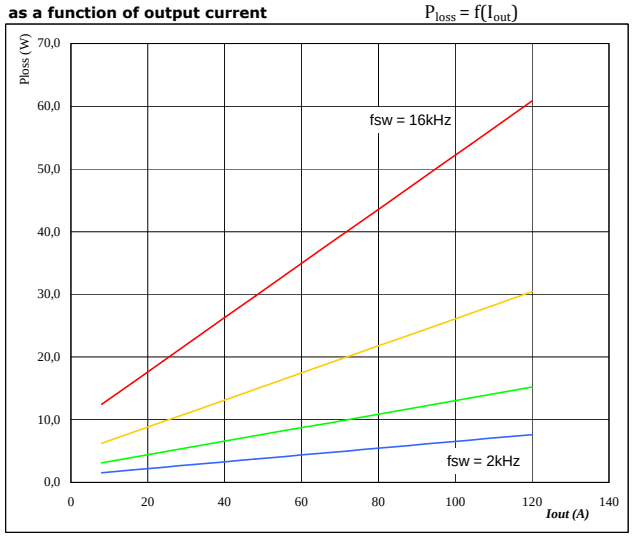
T_j = 150 °C

DC link = 600 V

fsw 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

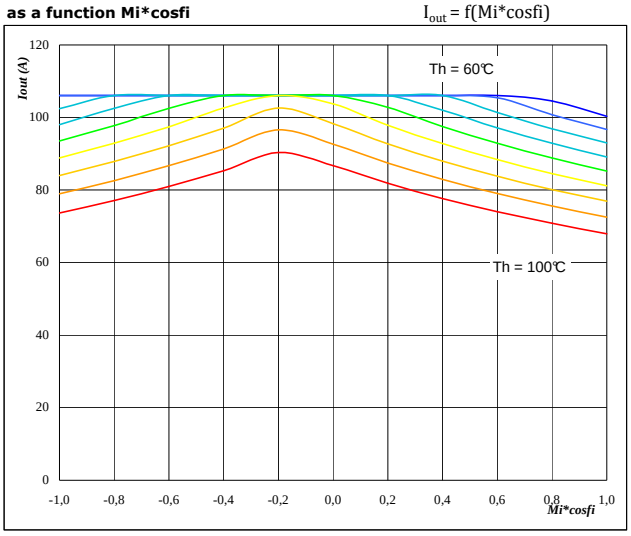
DC link = 600 V

fsw from 2 kHz to 16 kHz in steps of factor 2

Figure 5 Phase

Typical available 50Hz output current as a function Mi*cosfi

$I_{out} = f(Mi*cosfi)$



At

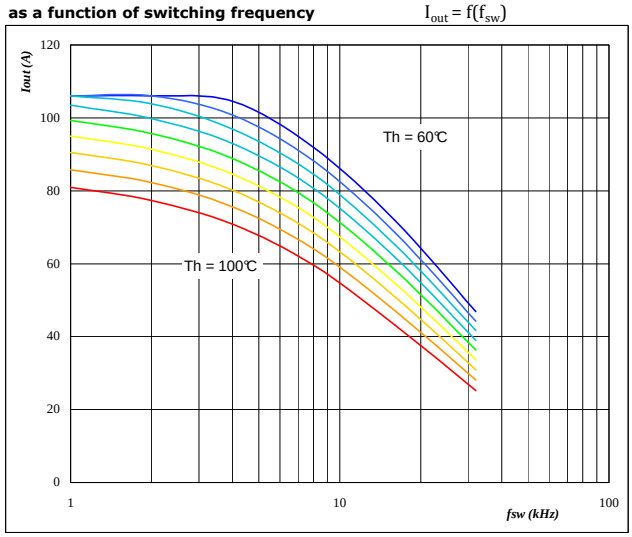
T_j =	150	°C
DC link =	600	V
fsw =	4	kHz

Th 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

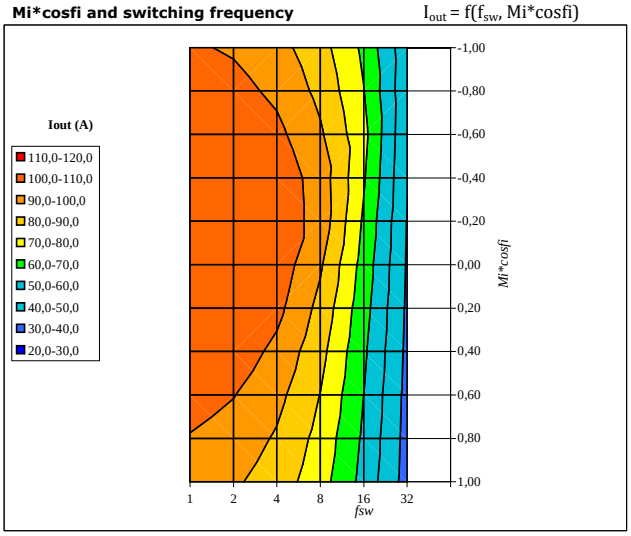
T_j =	150	°C
DC link =	600	V
Mi*cosfi =	0,8	

Th from 60 °C to 100 °C in steps of 5 °C

Figure 7 Phase

Typical available 50Hz output current as a function of Mi*cosfi and switching frequency

$I_{out} = f(f_{sw}, Mi*cosfi)$



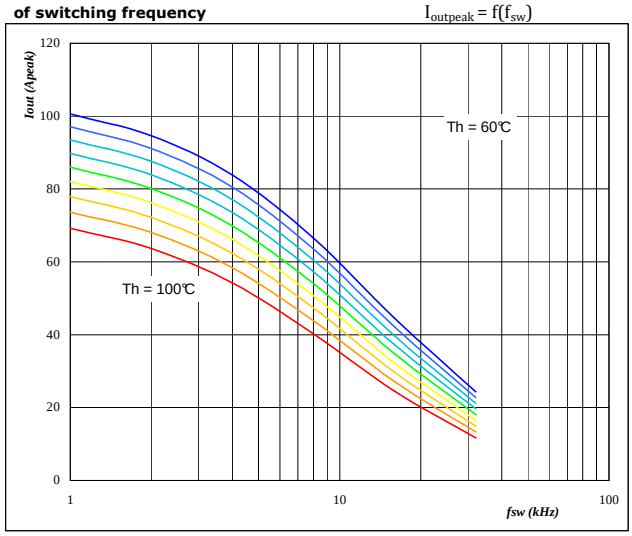
At

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

$I_{outpeak} = f(f_{sw})$



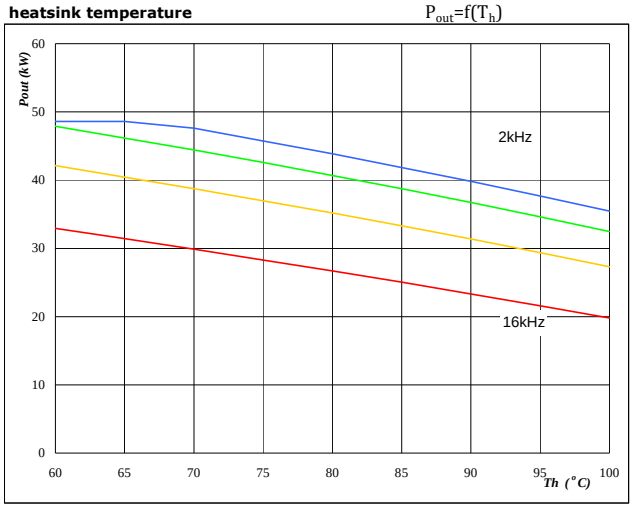
At

T_j =	150	°C
DC link =	600	V

Th from 60 °C to 100 °C in steps of 5 °C

Figure 9 Inverter

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



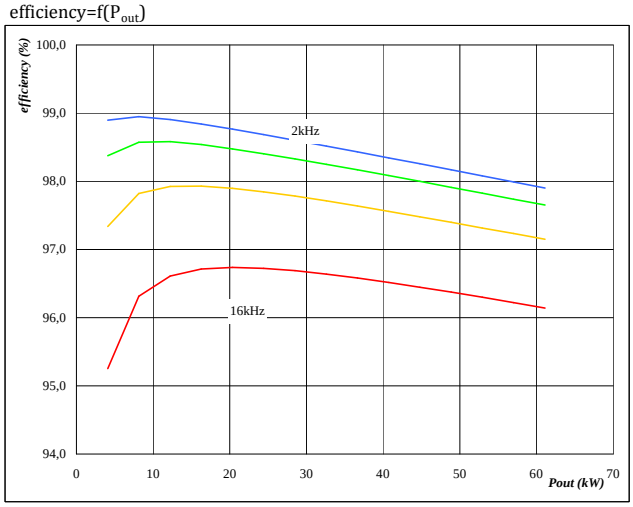
At

T_j =	150	°C
DC link =	600	V
Mi =	1	
cosfi =	0,80	

fsw 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})



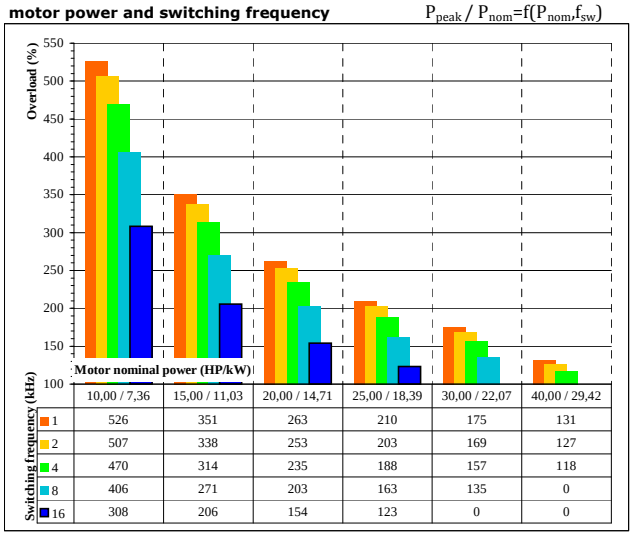
At

T_j =	150	°C
DC link =	600	V
Mi =	1	
cosfi =	0,80	

fsw 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)	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	526	351	263	210	175	131
2	507	338	253	203	169	127
4	470	314	235	188	157	118
8	406	271	203	163	135	0
16	308	206	154	123	0	0

At

T_j =	150	°C
DC link =	600	V
Mi =	1	
cosfi =	0,8	

fsw from 1 kHz to 16 kHz in 2 steps

Th =	80	°C
Motor eff =	0,85	