flowPIM 2 3rd — Output Inverter Application — 1200V/4A

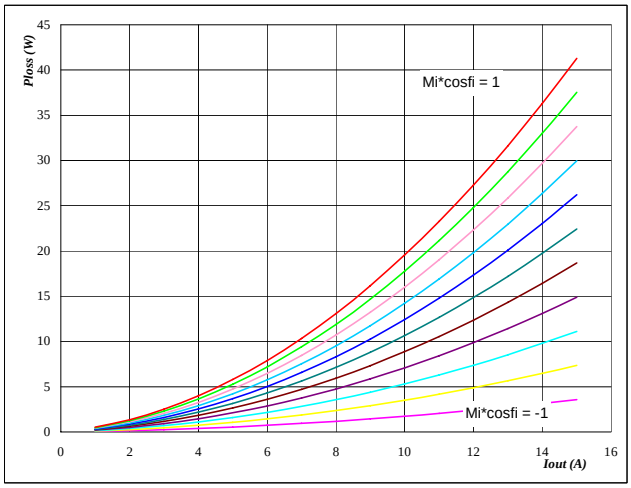
General conditions

3phase SPWM		
V_{GEon}	=	15 V
V_{GEoff}	=	-15 V
R_{gon}	=	64 Ω
R_{goff}	=	64 Ω

Figure 1 IGBT

Typical average static loss as a function of output current

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



At

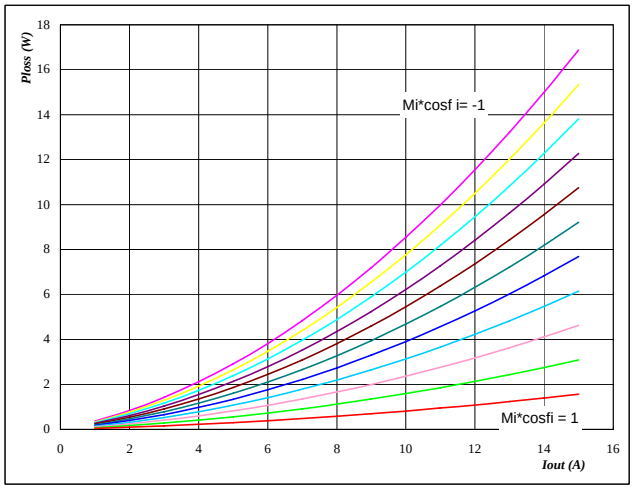
T_j = 150 °C

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

Figure 2 FRED

Typical average static loss as a function of output current

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



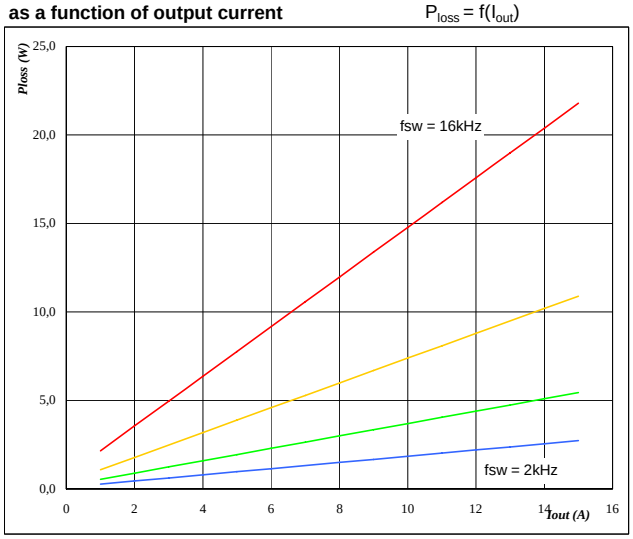
At

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

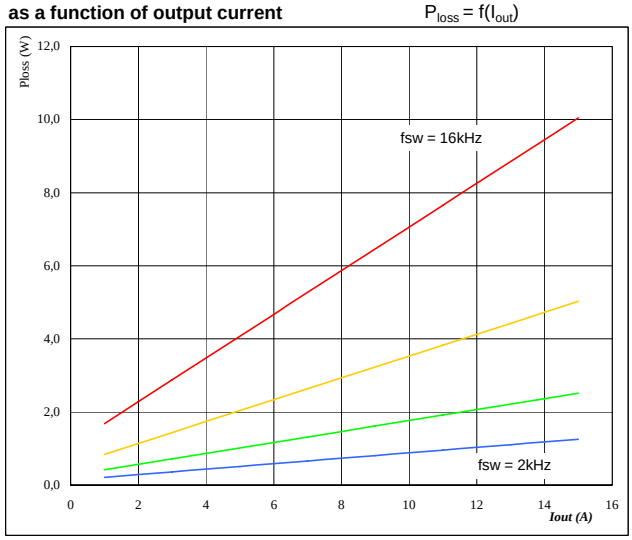
T_j = 150 °C

DC link = 600 V

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

Figure 4 FRED

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



At

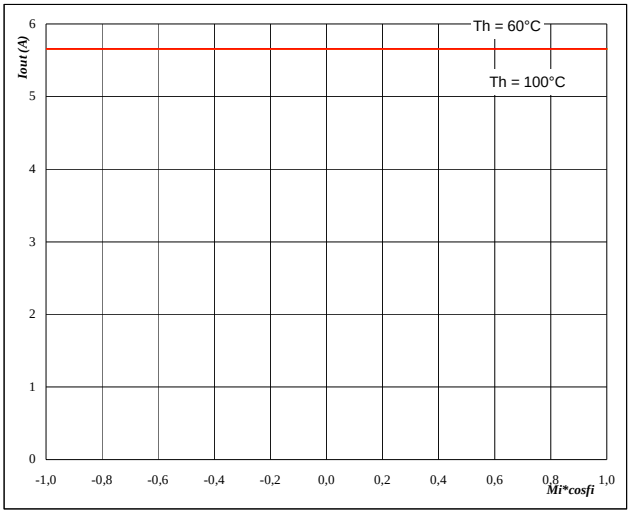
T_j = 150 °C

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



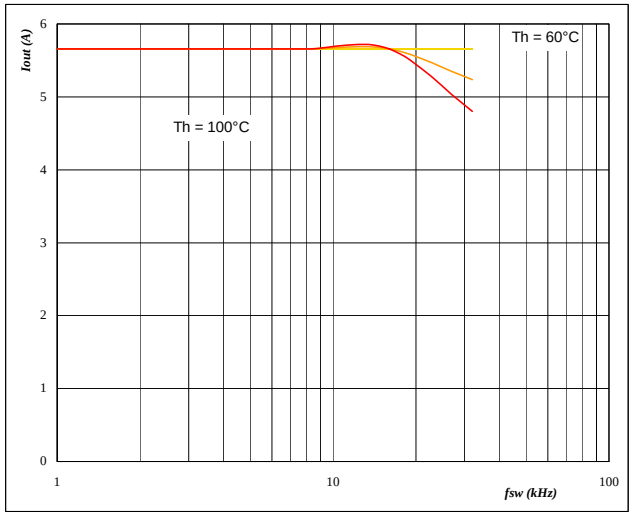
At

T_j =	150	°C
DC link =	600	V
fsw =	8	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 $I_{out} = f(f_{sw})$



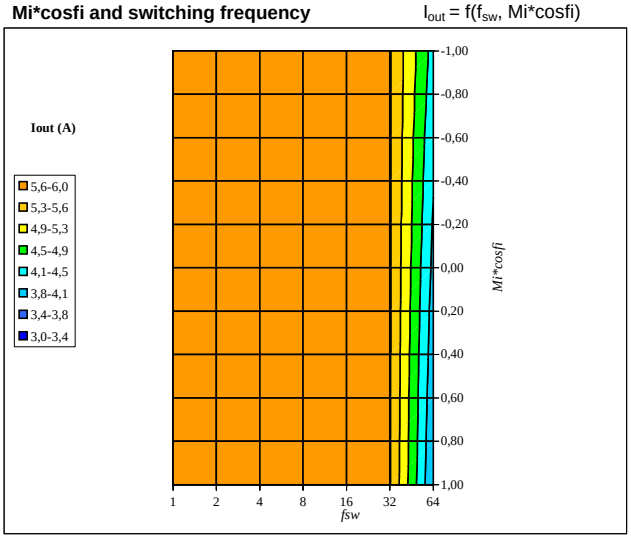
At

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

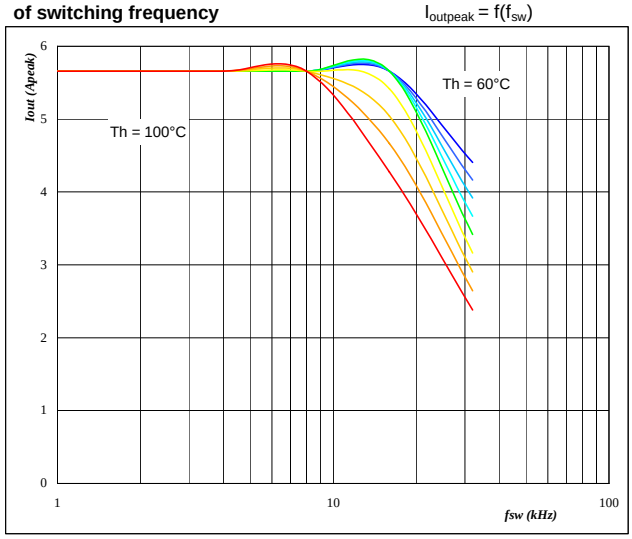


At

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

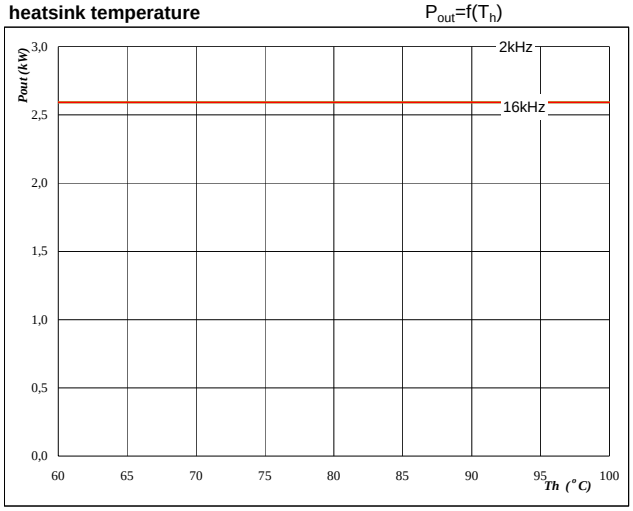
T_j =	150	°C
DC link =	600	V

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

Mi = 0

Figure 9 Inverter

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



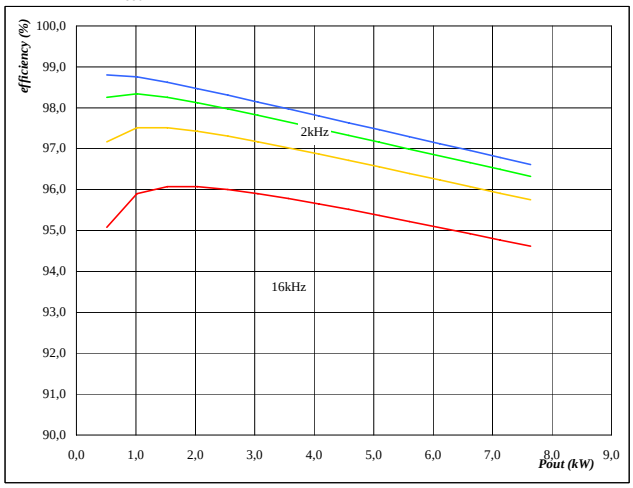
At

T_j =	150	°C
DC link =	600	V
Mi =	1	
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})



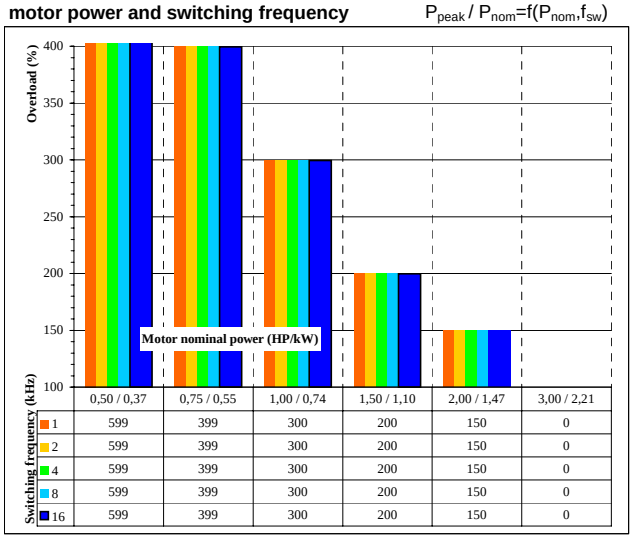
At

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)	0,50 / 0,37	0,75 / 0,55	1,00 / 0,74	1,50 / 1,10	2,00 / 1,47	3,00 / 2,21
1	599	399	300	200	150	0
2	599	399	300	200	150	0
4	599	399	300	200	150	0
8	599	399	300	200	150	0
16	599	399	300	200	150	0

At

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

fsw from 1 kHz to 16kHz in steps of factor 2

Th =	80	°C
Motor eff =	0,85	

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