MiniSKiiP®0 PIM — Output Inverter Application — 600 V / 10 A

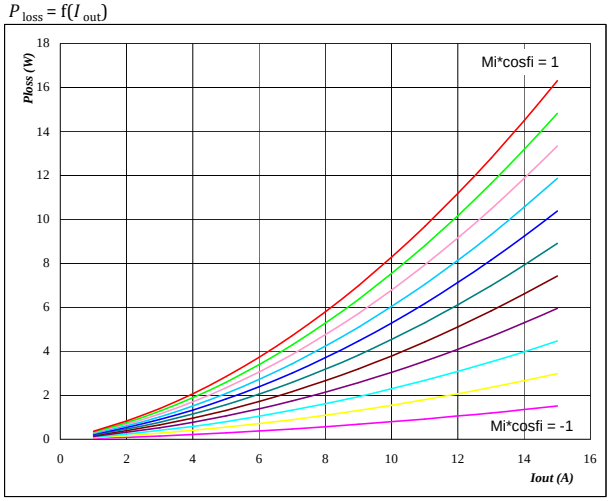
General conditions

3phase SPWM		
V_{GEon}	=	15 V
V_{GEoff}	=	-15 V
R_{gon}	=	32 Ω
R_{goff}	=	32 Ω

Figure 1 IGBT

Typical average static loss as a function of output current

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



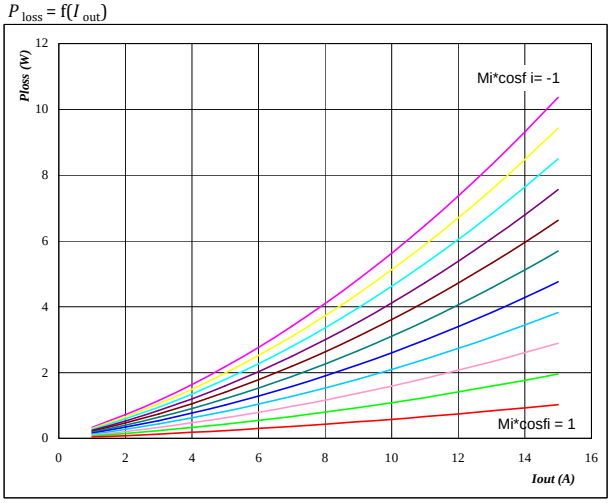
T_j = 150 °C

Mi*cosφ from -1 to 1 in steps of 0,2

Figure 2 FWD

Typical average static loss as a function of output current

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

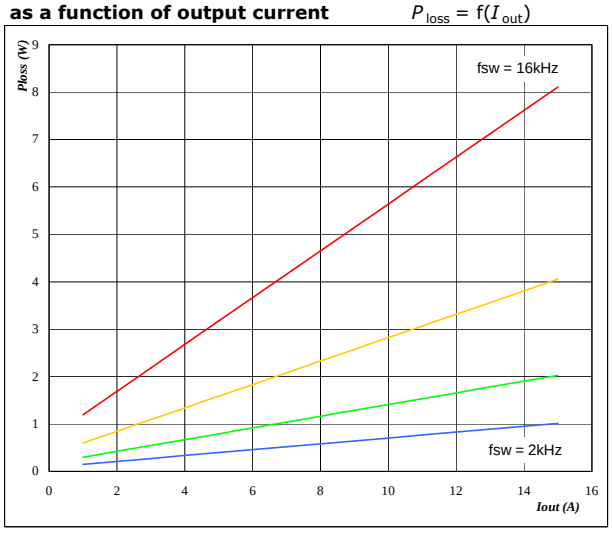


T_j = 150 °C

Mi*cosφ from -1 to 1 in steps of 0,2

Figure 3 IGBT

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



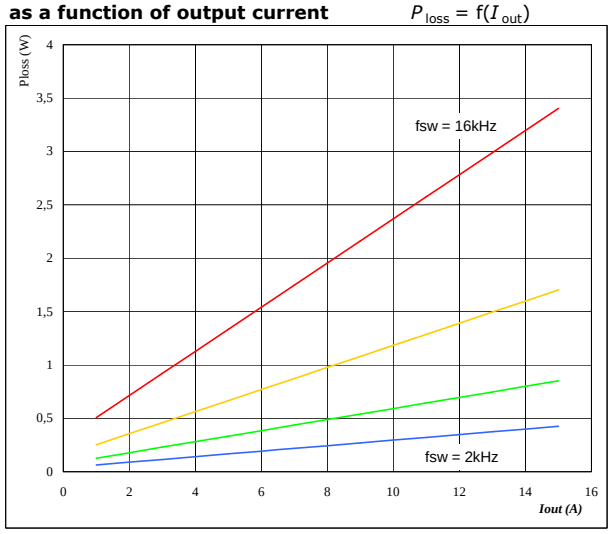
T_j = 150 °C

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



T_j = 150 °C

DC link = 320 V

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

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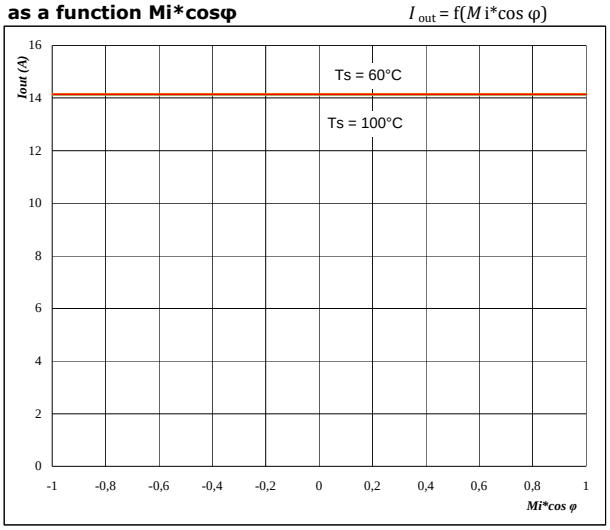
Figure 5 Phase

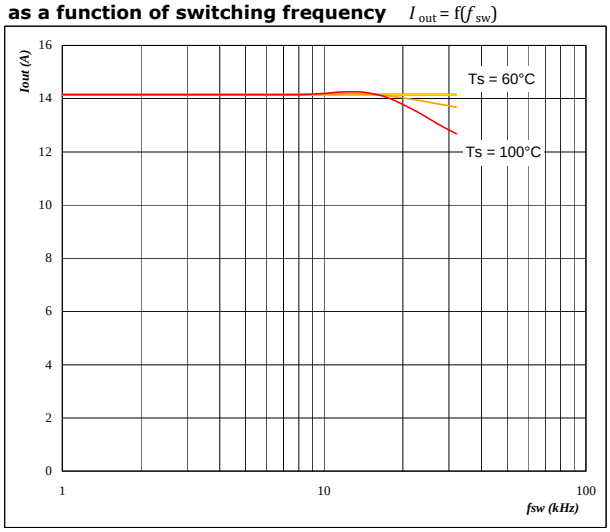
Typical available 50Hz output current as a function Mi*cosφ $I_{out} = f(M\,i^*\cos\varphi)$



T_j =	150	°C
DC link =	320	V
f_{sw} =	4	kHz
T_S from	60 °C to 100 °C in steps of 5 °C	

Figure 6 Phase

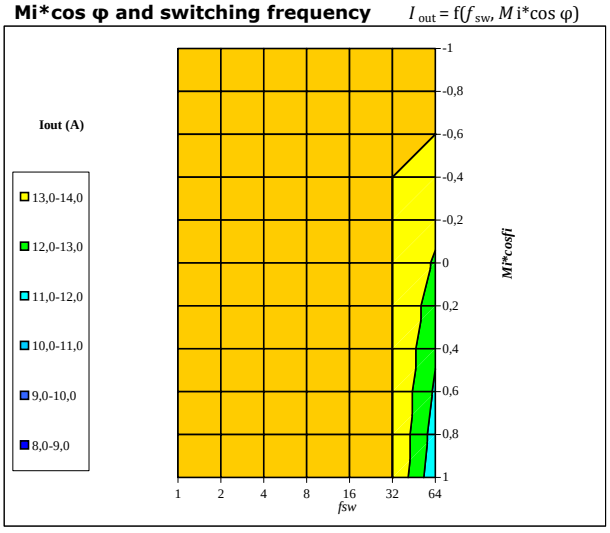
Typical available 50Hz output current as a function of switching frequency $I_{out} = f(f_{sw})$



T_j =	150	°C
DC link =	320	V
$M\,i^*\cos\varphi$ =	0,8	
T_S from	60 °C to 100 °C in steps of 5 °C	

Figure 7 Phase

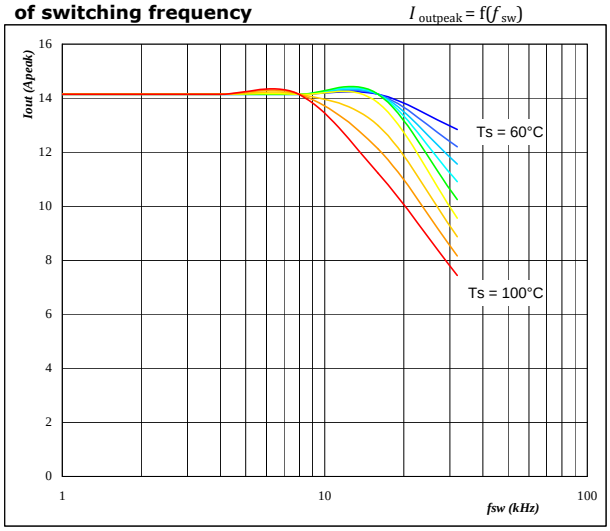
Typical available 50Hz output current as a function of Mi*cos φ and switching frequency $I_{out} = f(f_{sw}, M\,i^*\cos\varphi)$



T_j =	150	°C
DC link =	320	V
T_S =	80	°C

Figure 8 Phase

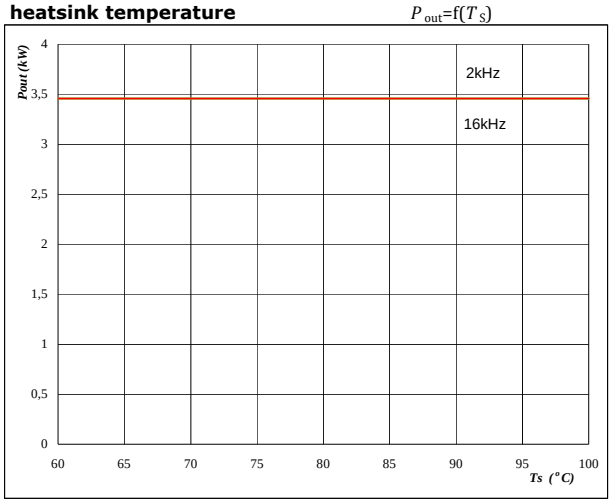
Typical available 0Hz output current as a function of switching frequency $I_{outpeak} = f(f_{sw})$



T_j =	150	°C
DC link =	320	V
T_S from	60 °C to 100 °C in steps of 5 °C	
$M\,i$ =	0	

Figure 9 Inverter

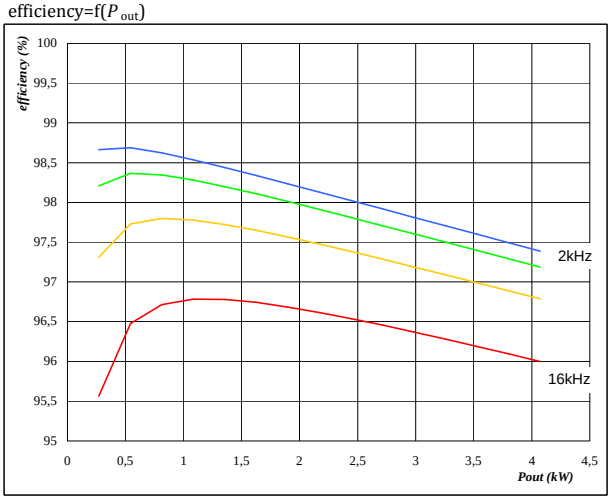
Typical available peak output power as a function of heatsink temperature $P_{out}=f(T_S)$



T_j = 150 °C
DC link = 320 V
M i = 1
cos φ= 0,80
f_{sw} from 2 kHz to 16 kHz in steps of factor 2

Figure 10 Inverter

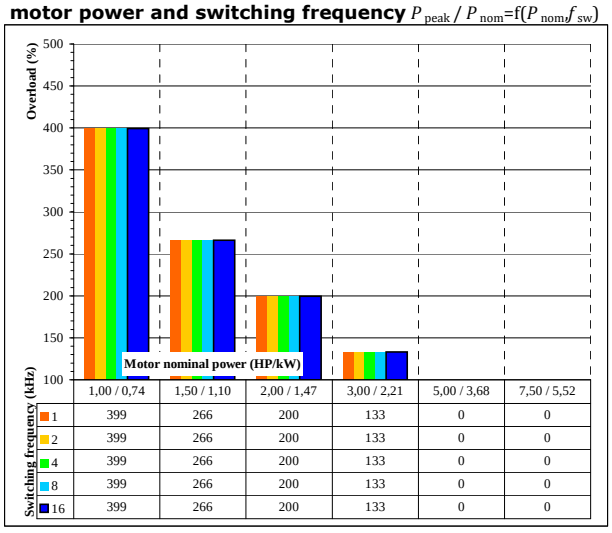
Typical efficiency as a function of output power
efficiency=f(P_{out})



T_j = 150 °C
DC link = 320 V
M i = 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)	1,00 / 0,74	1,50 / 1,10	2,00 / 1,47	3,00 / 2,21	5,00 / 3,68	7,50 / 5,52
1	399	266	200	133	0	0
2	399	266	200	133	0	0
4	399	266	200	133	0	0
8	399	266	200	133	0	0
16	399	266	200	133	0	0

T_j = 150 °C
DC link = 320 V
M i = 1
cos φ= 0,8
f_{sw} from 1 kHz to 16kHz in steps of factor 2
T_S = 80 °C
Motor eff = 0,85