MiniSKiiP® 1 PIM **Output Inverter Application** **600V / 15 A**

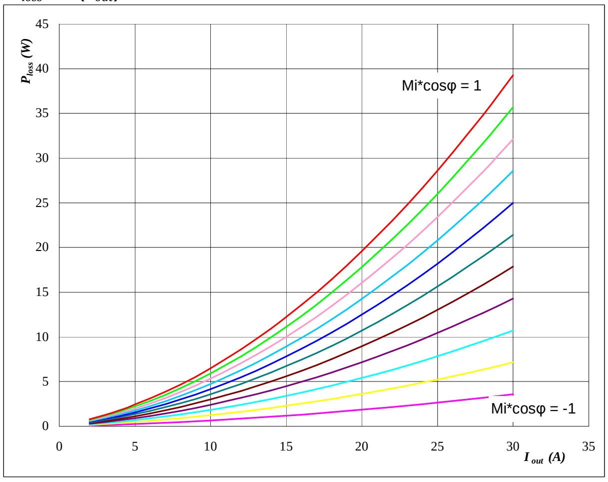
General conditions

3phase SPWM		
V_{GEon}	=	**15 V**
V_{GEoff}	=	**0 V**
R_{gon}	=	**32 Ω**
R_{goff}	=	**16 Ω**

figure 1. **IGBT**

Typical average static loss as a function of output current

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



At

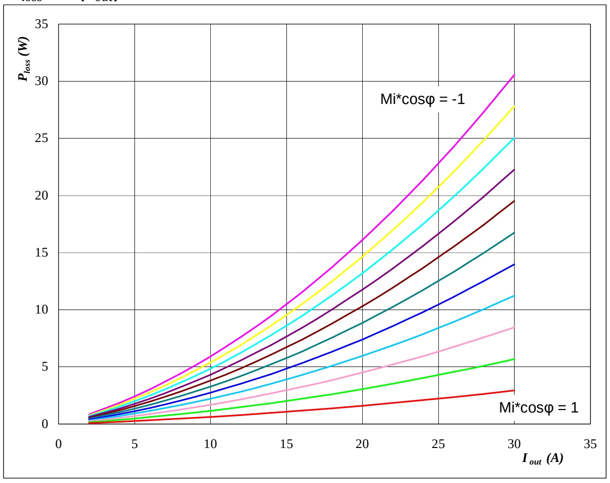
T_j = 125 °C

Mi*cosφ from -1 to 1 in steps of 0,2

figure 2. **FWD**

Typical average static loss as a function of output current

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



At

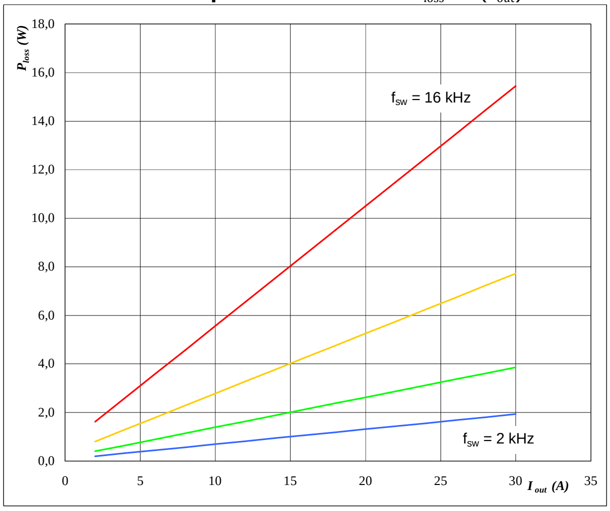
T_j = 125 °C

Mi*cosφ from -1 to 1 in steps of 0,2

figure 3. **IGBT**

Typical average switching loss as a function of output current

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



At

T_j = 125 °C

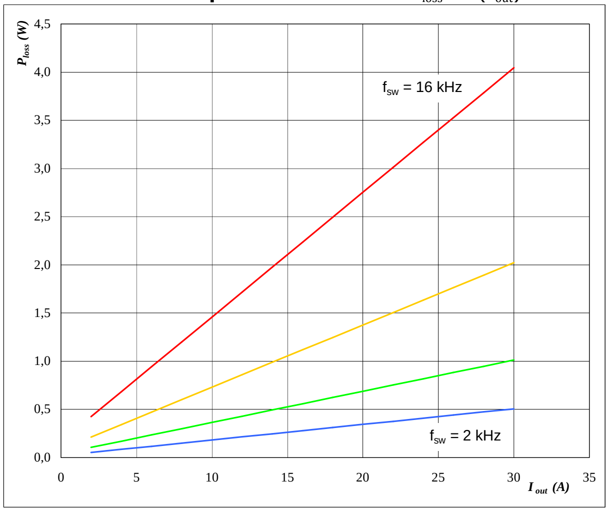
DC-link = 320 V

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

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



At

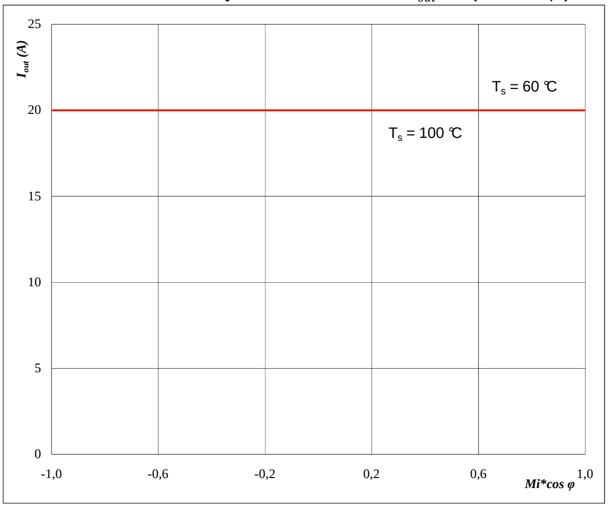
T_j = 125 °C

DC-link = 320 V

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

figure 5. **Phase**

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

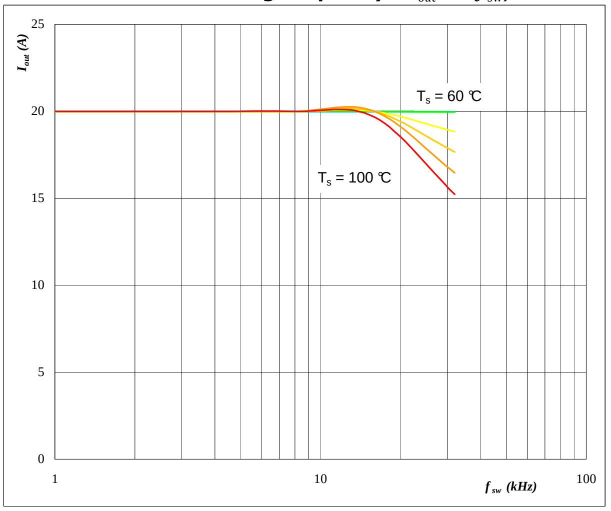


At

T_j = 125 °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 $I_{out} = f(f_{sw})$

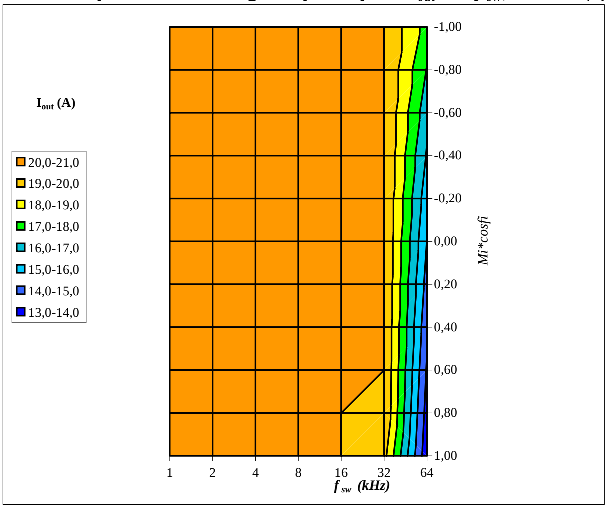


At

T_j = 125 °C
DC-link = 320 V
Mi*cos φ = 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 $I_{out} = f(f_{sw}, Mi*\cos\varphi)$

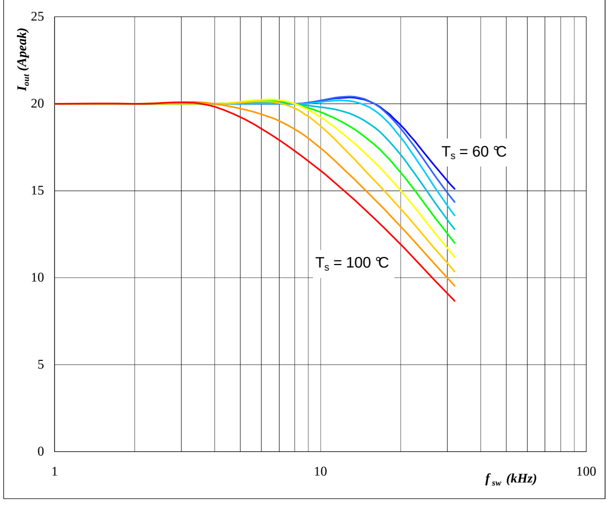


At

T_j = 125 °C
DC-link = 320 V
T_s = 80 °C

figure 8. **Phase**

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

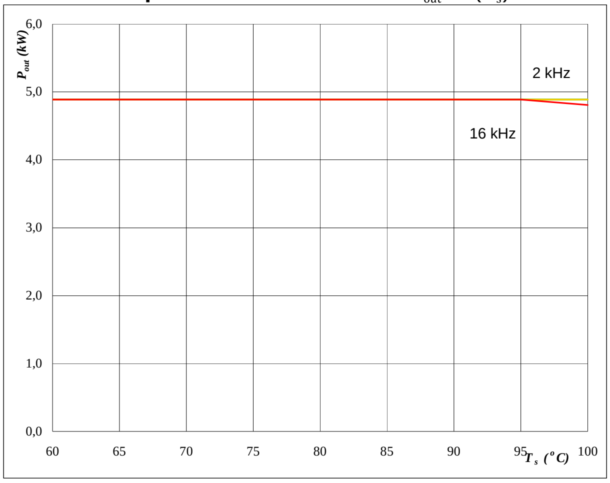


At

T_j = 125 °C
DC-link = 320 V
T_s 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 $P_{out} = f(T_s)$

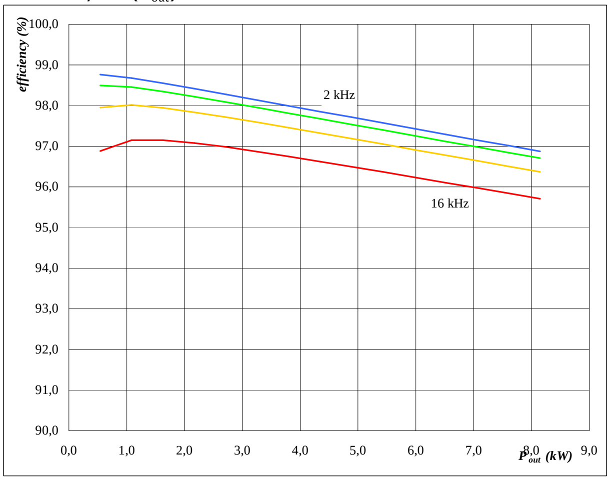


At

T_j =	125	°C
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 = $f(P_{out})$

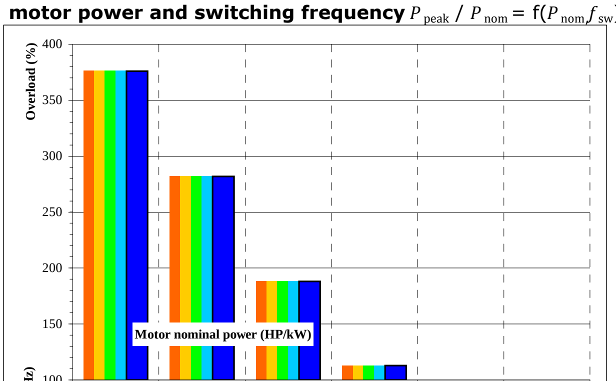


At

T_j =	125	°C
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
2	377	282	188	113	0	0
4	377	282	188	113	0	0
8	377	282	188	113	0	0
16	377	282	188	113	0	0
32	376	282	188	113	0	0

At

T_j =	125	°C
DC-link =	320	V
Mi =	1	
cos φ=	0,8	
f_{sw} from	1 kHz to 16 kHz in steps of factor 2	
T_s =	80	°C
Motor eff =	0,85	