MiniSKiiP® 1 PIM	Inverter Application	1200 V / 15 A

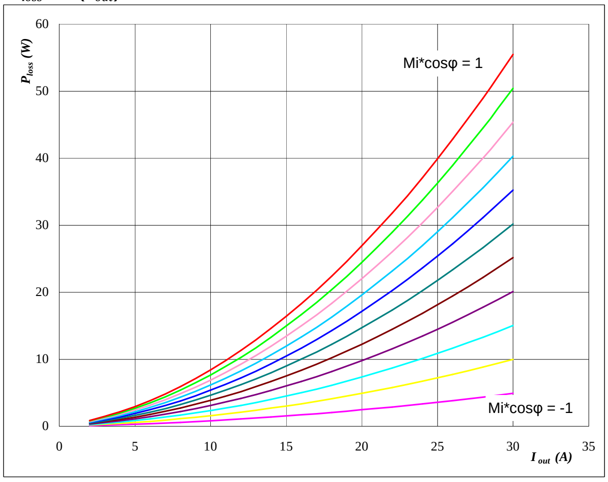
General conditions

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

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



At

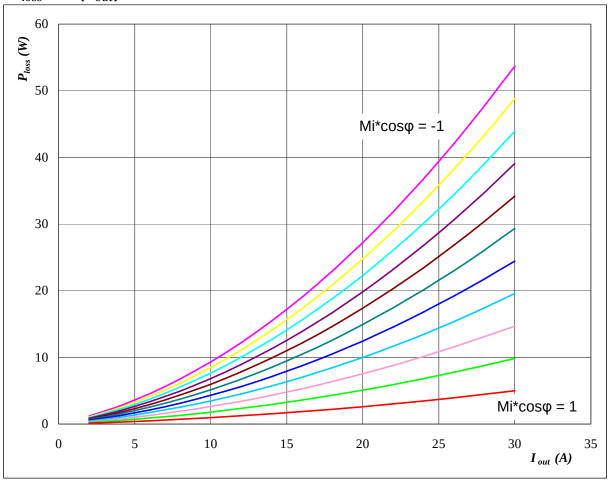
T_j = 150 °C

Mi*cosφ from -1 to 1 in steps of 0,2

figure 2. **FWD**

Typical average static loss as a function of output current

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



At

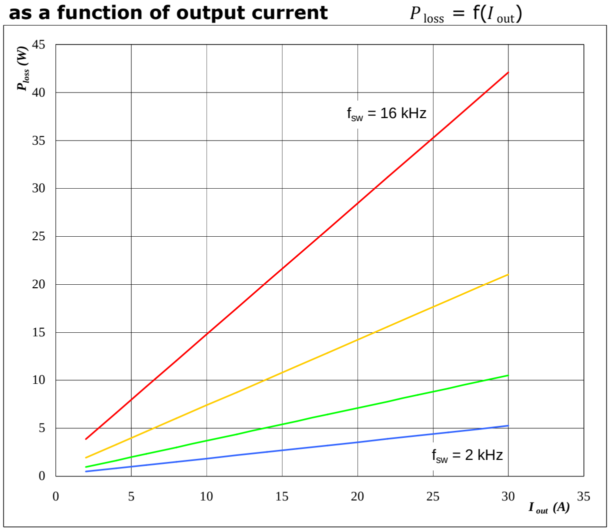
T_j = 150 °C

Mi*cosφ from -1 to 1 in steps of 0,2

figure 3. **IGBT**

Typical average switching loss as a function of output current

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



At

T_j = 150 °C

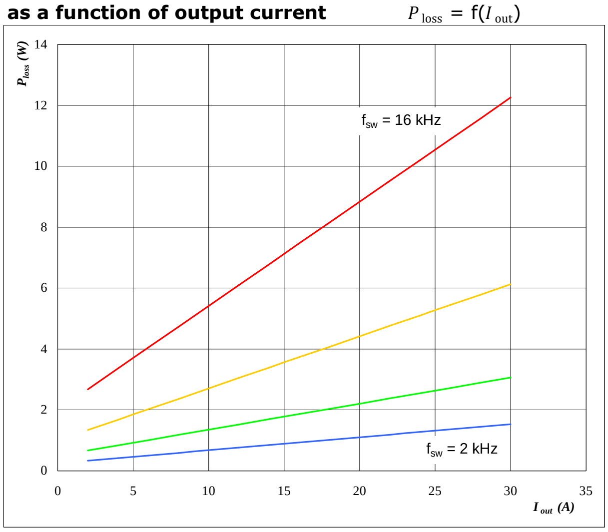
DC-link = 600 V

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

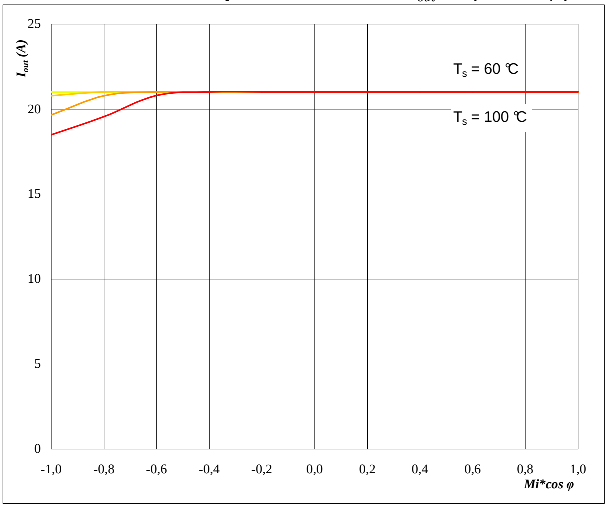
T_j = 150 °C

DC-link = 600 V

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

figure 5. **Phase**

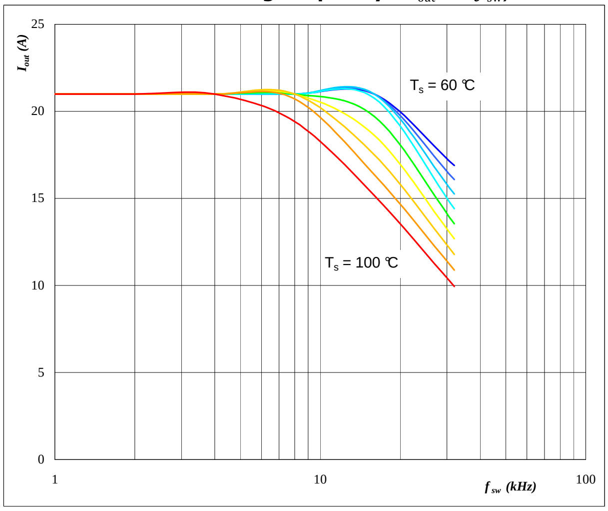
Typical available 50Hz output current as a function Mi*cosφ $I_{out} = f(Mi*\cos\varphi)$



At
T_j = 150 °C
DC-link = 600 V
f_{sw} = 4 kHz
T_s from 60 °C to 100 °C in steps of 5 °C

figure 6. **Phase**

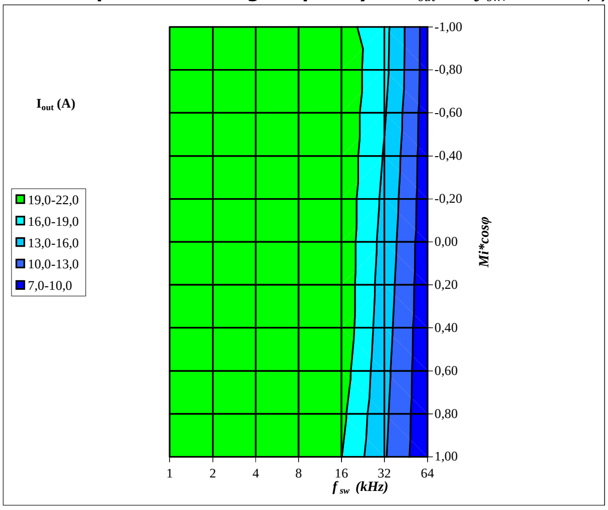
Typical available 50Hz output current as a function of switching frequency $I_{out} = f(f_{sw})$



At
T_j = 150 °C
DC-link = 600 V
Mi*cos φ 0,8
T_s from 60 °C to 100 °C in steps of 5 °C

figure 7. **Phase**

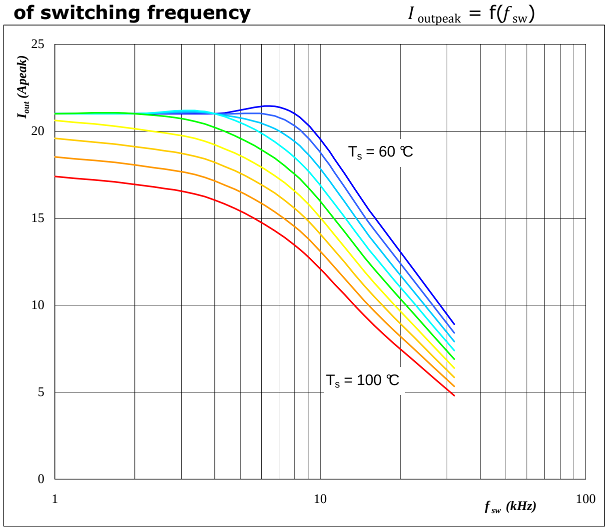
Typical available 50Hz output current as a function of Mi*cos φ and switching frequency $I_{out} = f(f_{sw}, Mi*\cos\varphi)$



At
T_j = 150 °C
DC-link = 600 V
T_s = 80 °C

figure 8. **Phase**

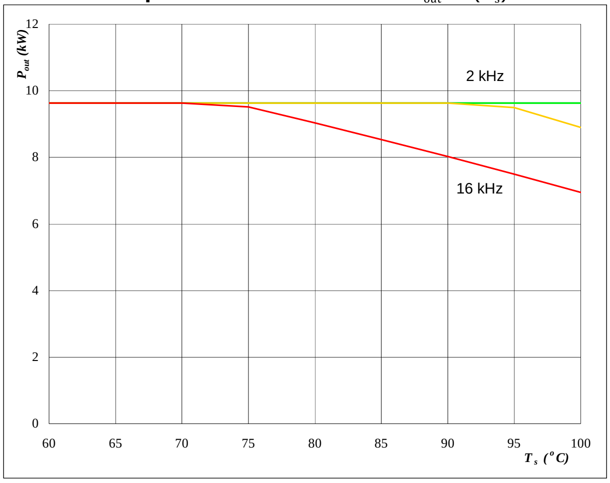
Typical available 0Hz output current as a function of switching frequency $I_{outpeak} = f(f_{sw})$



At
T_j = 150 °C
DC-link = 600 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 $P_{out} = f(T_s)$

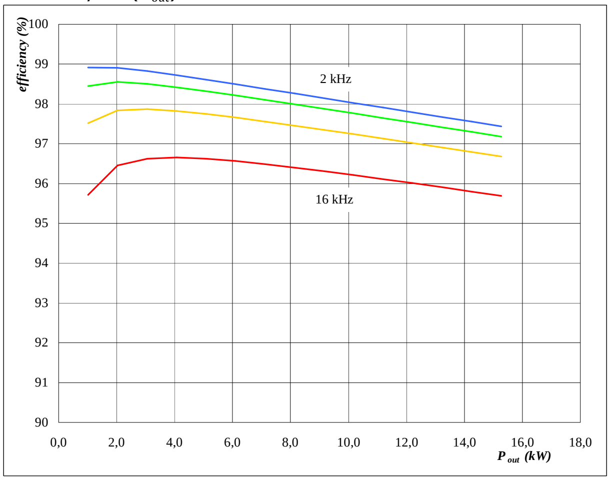


At

T_j = 150 °C
DC-link = 600 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 = $f(P_{out})$

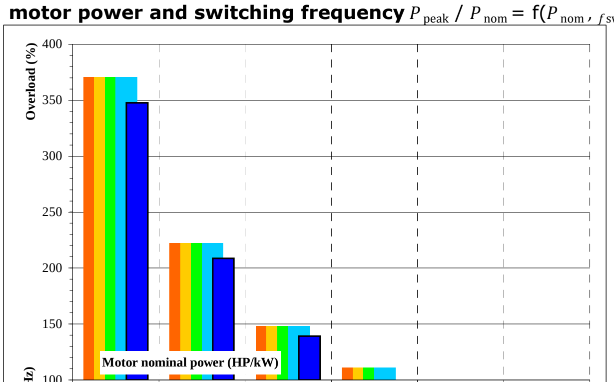


At

T_j = 150 °C
DC-link = 600 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)	3,00 / 2,21	5,00 / 3,68	7,50 / 5,52	10,00 / 7,36	15,00 / 11,03	20,00 / 14,71
1	371	222	148	111	0	0
2	371	222	148	111	0	0
4	371	222	148	111	0	0
8	371	222	148	111	0	0
16	348	209	139	0	0	0

At

T_j = 150 °C
DC-link = 600 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