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MiniSKiiP® 1 PIM Inverter Application 1200V / 8 A

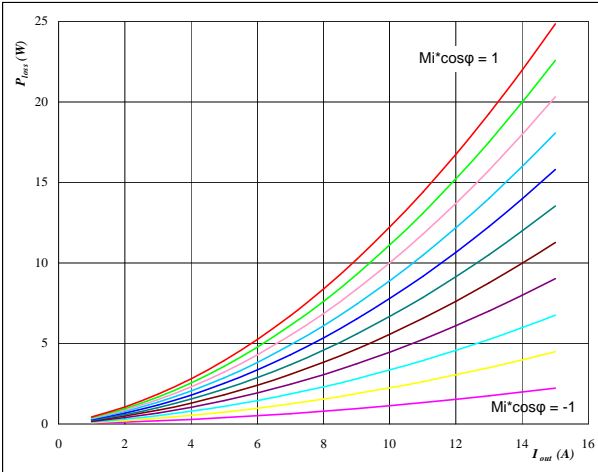
General conditions

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

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

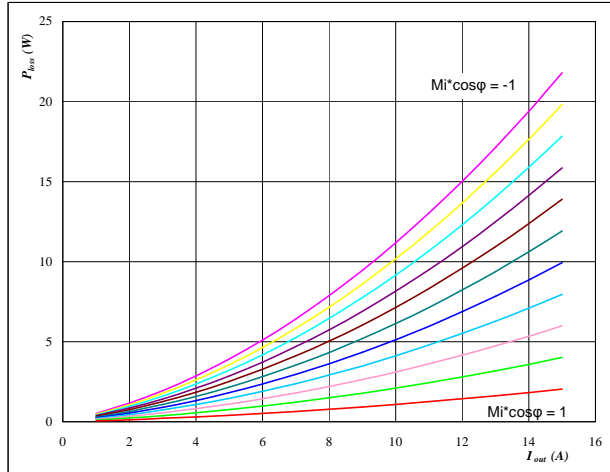


At
 $T_j = 150 \text{ } ^\circ\text{C}$
 $Mi \cdot \cos\phi$ from -1 to 1 in steps of 0,2

figure 2. FWD

Typical average static loss as a function of output current

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

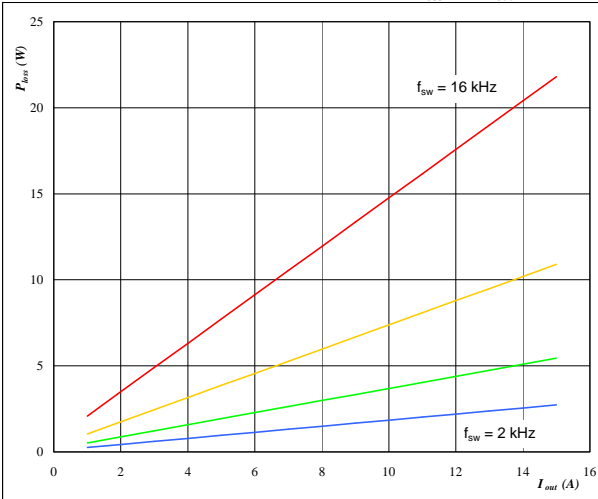


At
 $T_j = 150 \text{ } ^\circ\text{C}$
 $Mi \cdot \cos\phi$ from -1 to 1 in steps of 0,2

figure 3. IGBT

Typical average switching loss as a function of output current

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

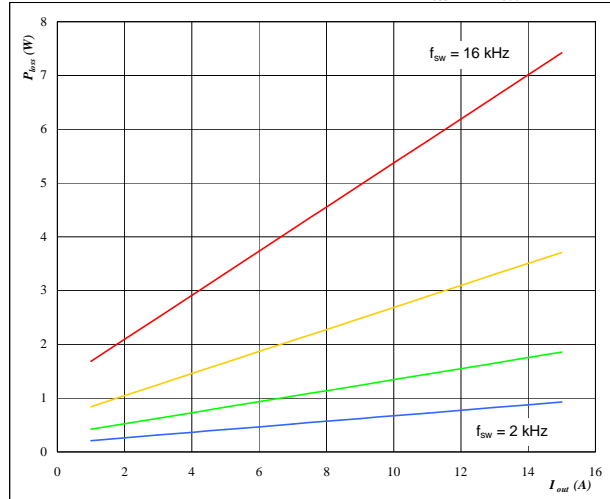


At
 $T_j = 150 \text{ } ^\circ\text{C}$
DC-link = 600 V
 f_{sw} from 2 kHz to 16 kHz in steps of factor 2

figure 4. FWD

Typical average switching loss as a function of output current

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



At
 $T_j = 150 \text{ } ^\circ\text{C}$
DC-link = 600 V
 f_{sw} from 2 kHz to 16 kHz in steps of factor 2

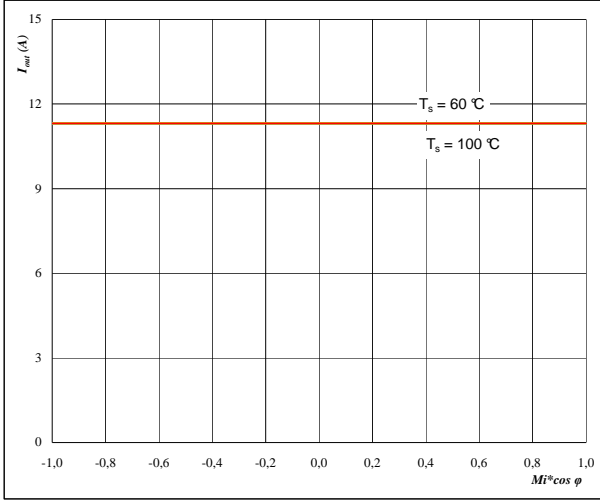


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figure 5. Phase

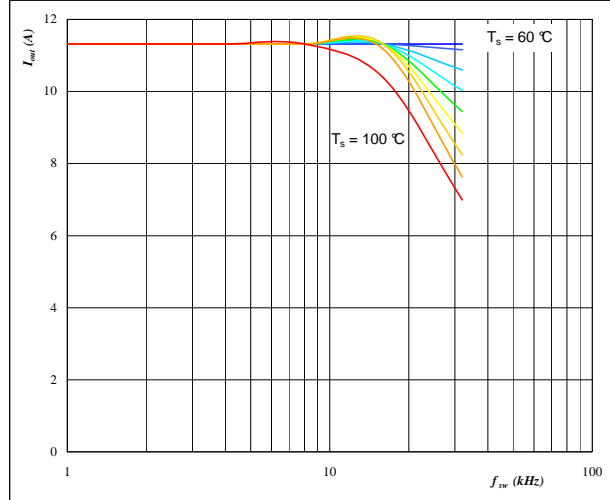
Typical available 50Hz output current as a function $Mi \cdot \cos \varphi$ $I_{out} = f(Mi \cdot \cos \varphi)$



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

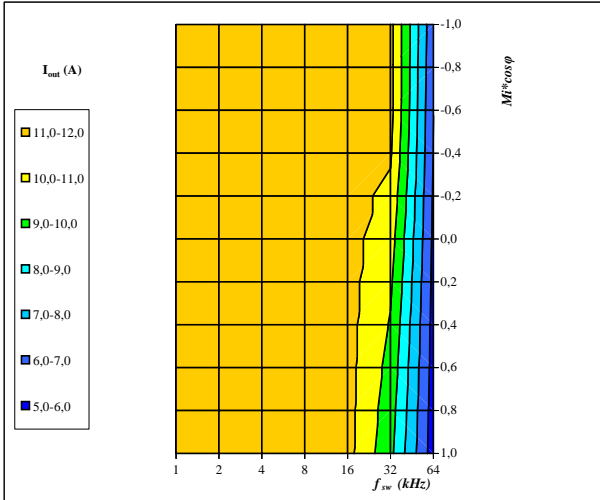
Typical available 50Hz output current as a function of switching frequency $I_{out} = f(f_{sw})$



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

figure 7. Phase

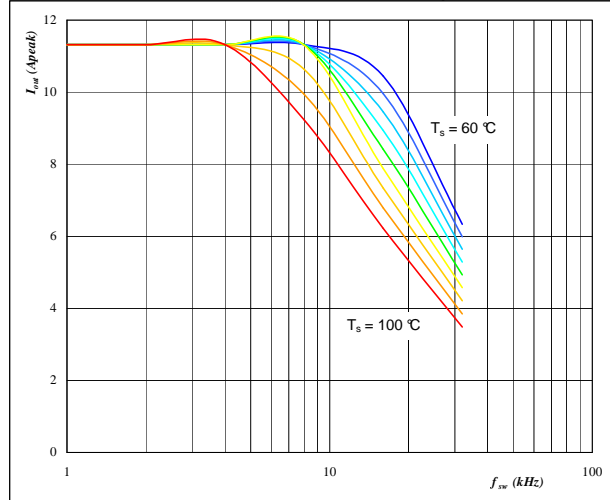
Typical available 50Hz output current as a function of $Mi \cdot \cos \varphi$ and switching frequency $I_{out} = f(f_{sw}, Mi \cdot \cos \varphi)$



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



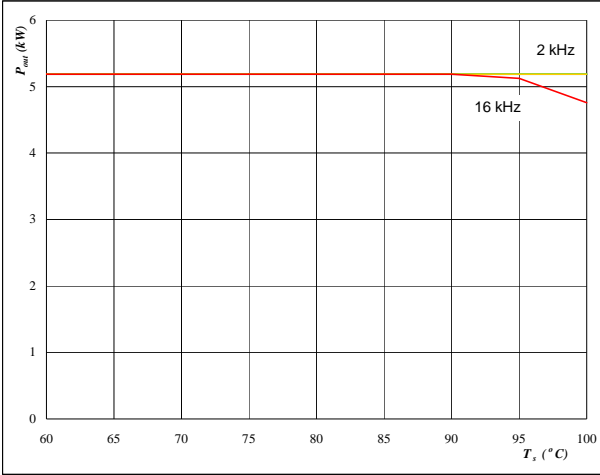
At
 $T_j = 150$ °C
 DC-link = 600 V
 T_s from 60 °C to 100 °C in steps of 5 °C
 $Mi = 0$



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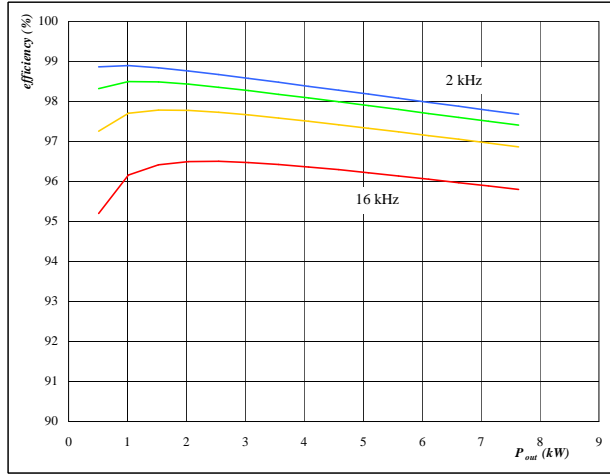
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figure 9. Inverter
Typical available peak output power as a function of heatsink temperature
 $P_{out} = f(T_s)$



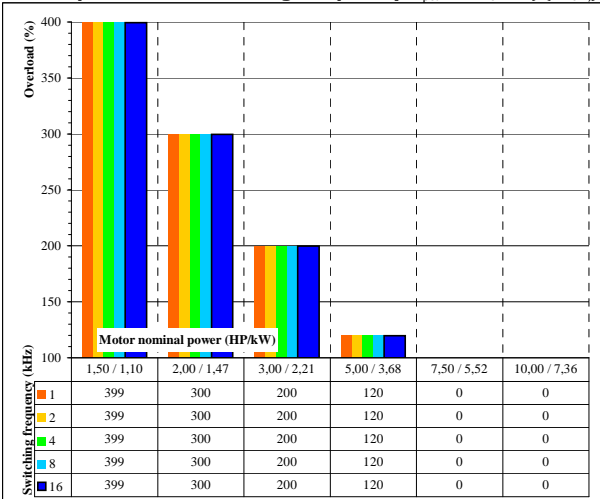
At
 $T_j = 150$ °C
 DC-link = 600 V
 Mi = 1
 cos $\varphi = 0,80$
 f_{sw} from 2 kHz to 16 kHz in steps of factor 2

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 $\varphi = 0,80$
 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
 $P_{peak} / P_{nom} = f(P_{nom}, f_{sw})$



At
 $T_j = 150$ °C
 DC-link = 600 V
 Mi = 1
 cos $\varphi = 0,8$
 f_{sw} from 1 kHz to 16 kHz in steps of factor 2
 $T_s = 80$ °C
 Motor eff = 0,85