



flow PIM 0 Output Inverter Application 600 V / 20 A

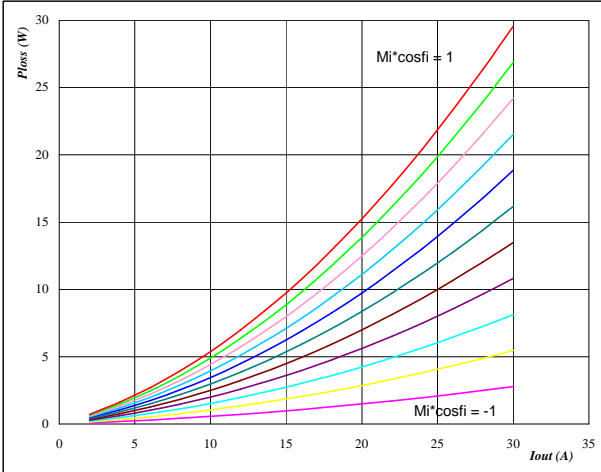
General conditions

3phase SPWM	
V_{GEon}	= 15 V
V_{GEoff}	= 0 V
R_{gon}	= 16 Ω
R_{goff}	= 8 Ω

Figure 1 IGBT

Typical average static loss as a function of output current

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

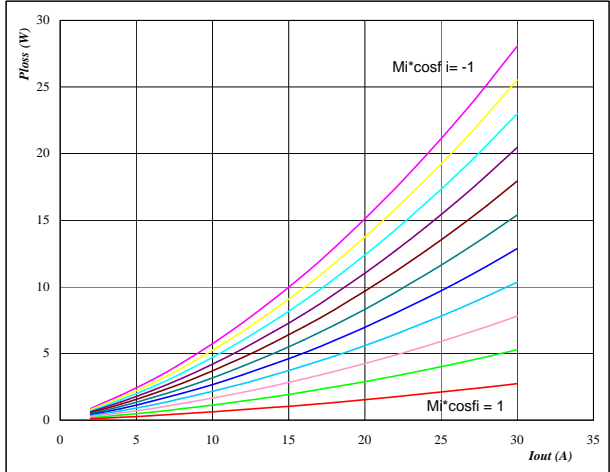


At
 $T_j = 125 \text{ }^\circ\text{C}$
 $M_i \cdot \cos\phi$ from -1 to 1 in steps of 0,2

Figure 2 FWD

Typical average static loss as a function of output current

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

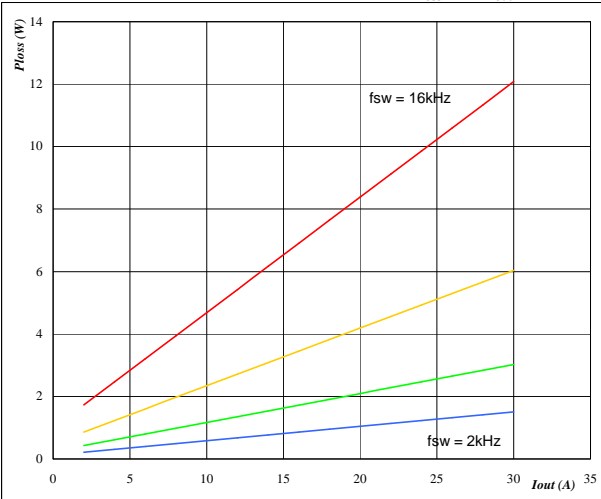


At
 $T_j = 125 \text{ }^\circ\text{C}$
 $M_i \cdot \cos\phi$ from -1 to 1 in steps of 0,2

Figure 3 IGBT

Typical average switching loss as a function of output current

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

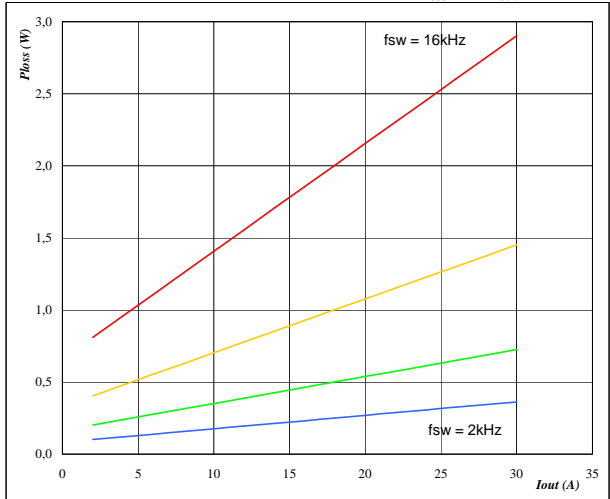


At
 $T_j = 125 \text{ }^\circ\text{C}$
DC-link = 320 V
 f_{sw} from 2 kHz to 16 kHz in steps of factor 2

Figure 4 FWD

Typical average switching loss as a function of output current

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



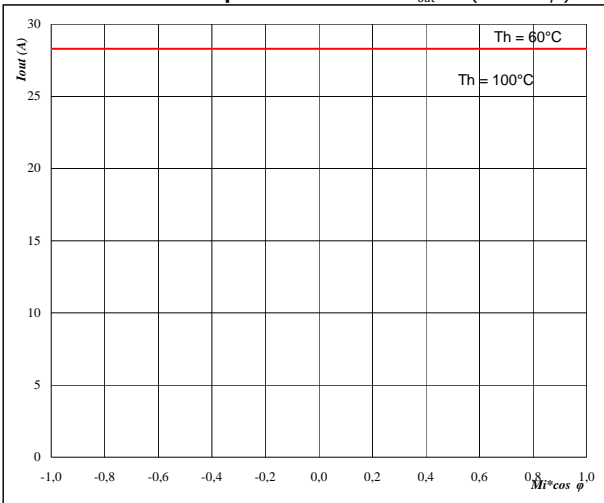
At
 $T_j = 125 \text{ }^\circ\text{C}$
DC-link = 320 V
 f_{sw} from 2 kHz to 16 kHz in steps of factor 2



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Figure 5 Phase

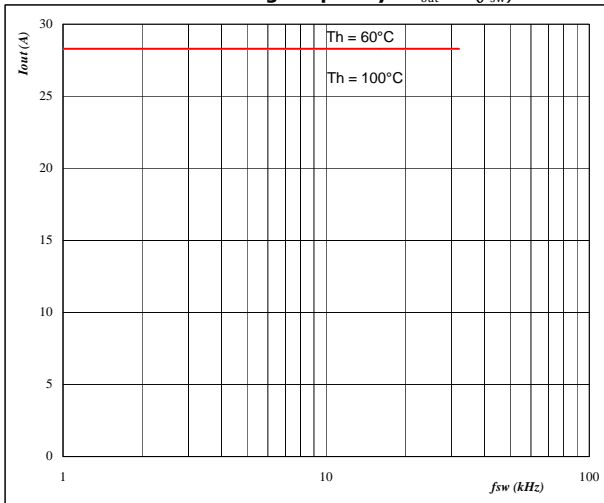
Typical available 50Hz output current as a function $Mi \cdot \cos \varphi$ $I_{out} = f(Mi \cdot \cos \varphi)$



At
 $T_j = 125$ °C
 DC-link = 320 V
 $f_{sw} = 4$ kHz
 T_h from 60 °C to 100 °C in steps of 5 °C

Figure 6 Phase

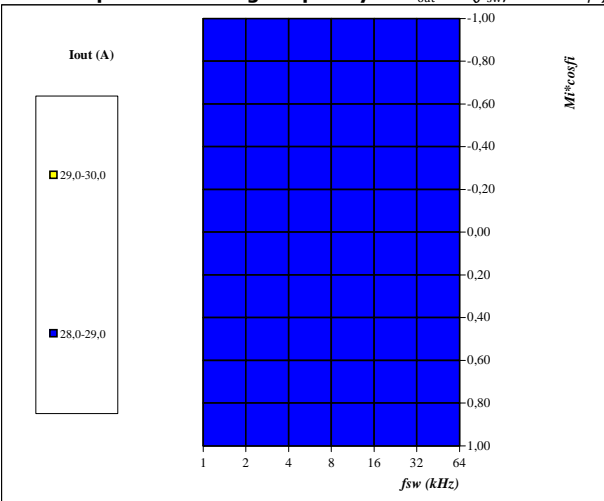
Typical available 50Hz output current as a function of switching frequency $I_{out} = f(f_{sw})$



At
 $T_j = 125$ °C
 DC-link = 320 V
 $Mi \cdot \cos \varphi = 0,8$
 T_h from 60 °C to 100 °C in steps of 5 °C

Figure 7 Phase

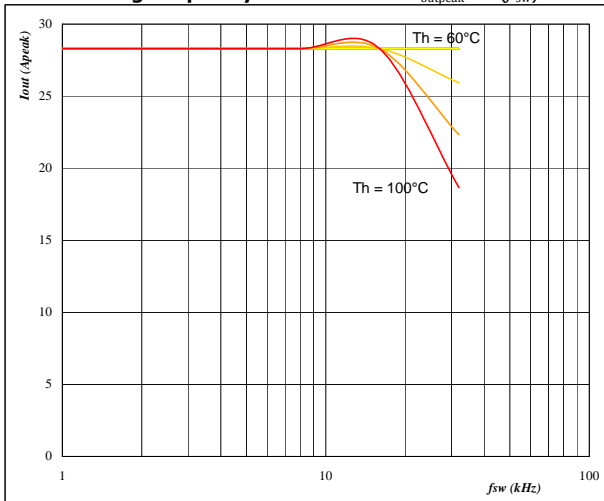
Typical available 50Hz output current as a function of $Mi \cdot \cos \varphi$ and switching frequency $I_{out} = f(f_{sw}, Mi \cdot \cos \varphi)$



At
 $T_j = 125$ °C
 DC-link = 320 V
 $T_h = 80$ °C

Figure 8 Phase

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



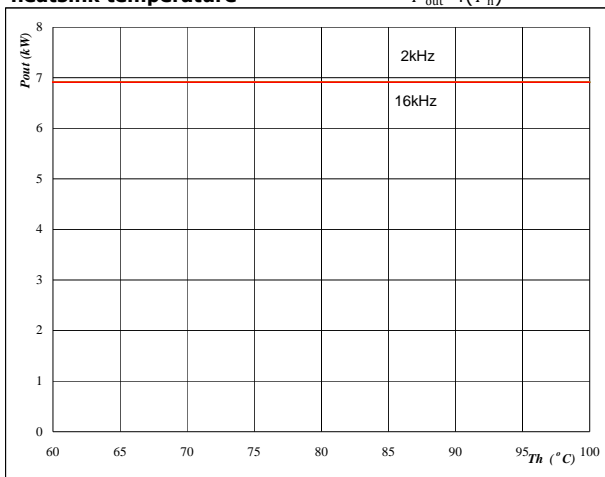
At
 $T_j = 125$ °C
 DC-link = 320 V
 T_h from 60 °C to 100 °C in steps of 5 °C
 $Mi = 0$



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Figure 9 Inverter

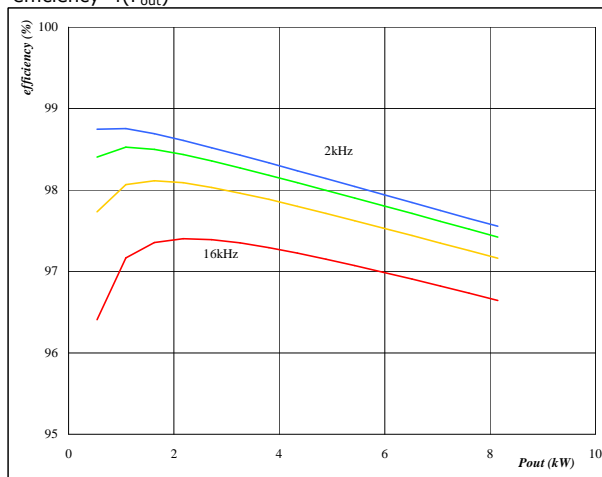
Typical available peak output power as a function of heatsink temperature $P_{out}=f(T_h)$



At
 $T_j = 125 \text{ } ^\circ\text{C}$
 DC-link = 320 V
 $M_i = 1$
 $\cos \varphi = 0,80$
 f_{sw} from 2 kHz to 16 kHz in steps of factor 2

Figure 10 Inverter

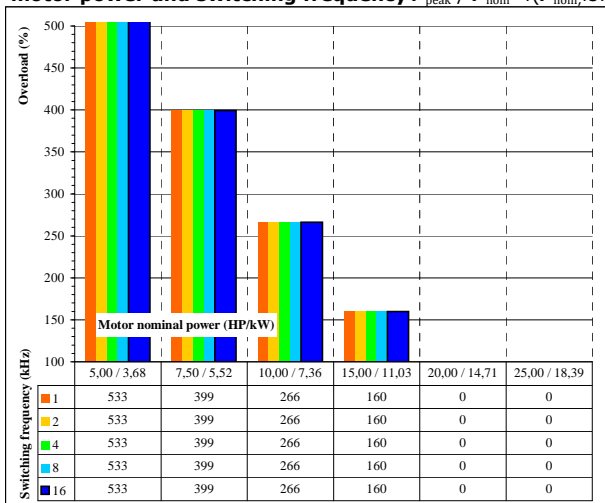
Typical efficiency as a function of output power $\text{efficiency}=f(P_{out})$



At
 $T_j = 125 \text{ } ^\circ\text{C}$
 DC-link = 320 V
 $M_i = 1$
 $\cos \varphi = 0,80$
 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
 $T_j = 125 \text{ } ^\circ\text{C}$
 DC-link = 320 V
 $M_i = 1$
 $\cos \varphi = 0,8$
 f_{sw} from 1 kHz to 16kHz in steps of factor 2
 $T_h = 80 \text{ } ^\circ\text{C}$
 Motor eff = 0,85