

flowPIM® 1, 600V

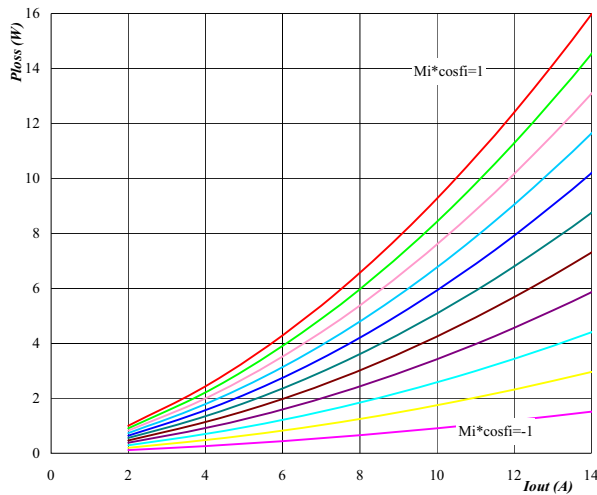
Output inverter application

General conditions: 3 phase SPWM, $V_{geon}= 15\text{ V}$ $V_{geoff}=0\text{V}$

$R_{gon}= 34,5\text{ ohms}$

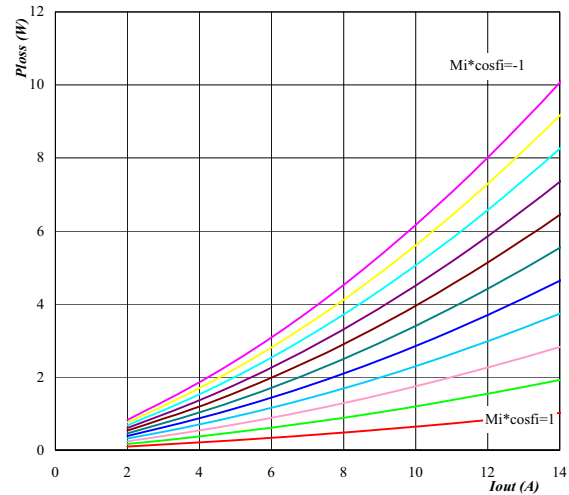
$R_{goff}= 17,3\text{ ohms}$

Figure 1. Typical average static loss as a function of output current
IGBT $P_{loss}=f(I_{out})$



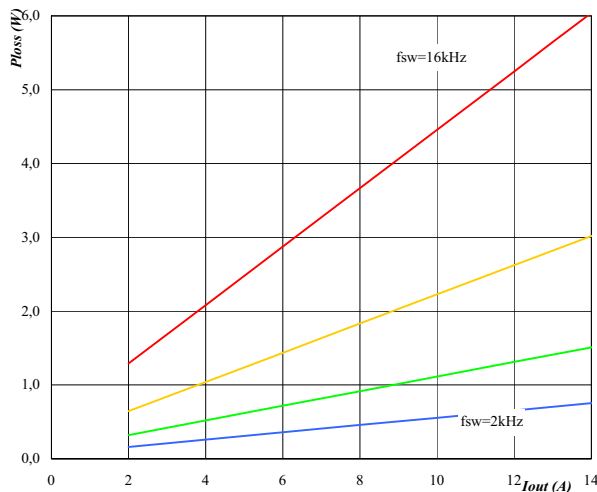
Conditions: $T_j=125^\circ\text{C}$
Modulation index * $\cos\phi$
parameter $M_i \cdot \cos\phi$ from -1,00 to 1,00
in 0,20 steps

Figure 2. Typical average static loss as a function of output current
FRED $P_{loss}=f(I_{out})$



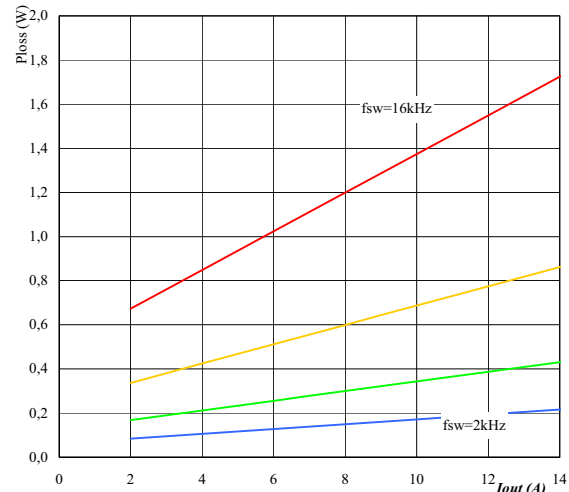
Conditions: $T_j=125^\circ\text{C}$
Modulation index * $\cos\phi$
parameter $M_i \cdot \cos\phi$ from -1,00 to 1,00
in 0,20 steps

Figure 3. Typical average switching loss as a function of output current
IGBT $P_{loss}=f(I_{out})$



Conditions: $T_j=125^\circ\text{C}$
DC link= 320 V
Switching freq. f_{sw} from 2 kHz to 16 kHz
parameter in * 2 steps

Figure 4. Typical average switching loss as a function of output current
FRED $P_{loss}=f(I_{out})$

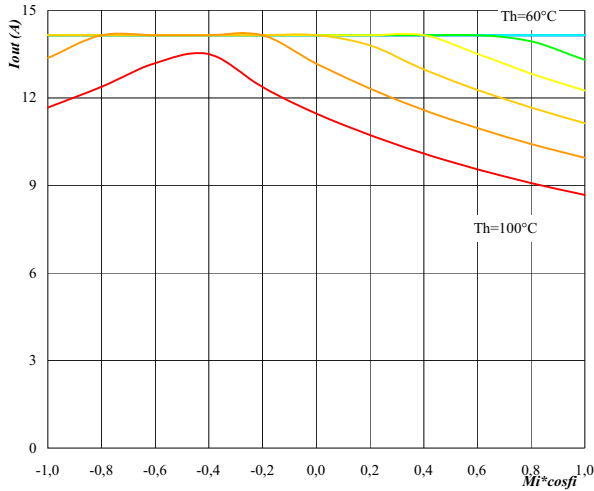


Conditions: $T_j=125^\circ\text{C}$
DC link= 320 V
Switching freq. f_{sw} from 2 kHz to 16 kHz
parameter in * 2 steps

Output inverter application

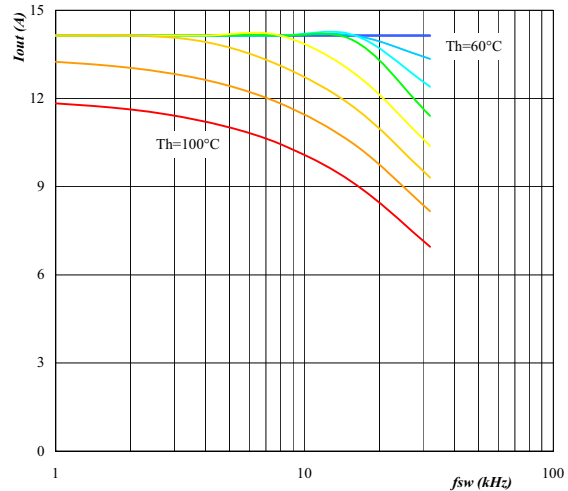
General conditions: 3 phase SPWM, $V_{geon}= 15\text{ V}$ $V_{geoff}=0\text{V}$
 $R_{gon}= 34,5\text{ ohms}$
 $R_{goff}= 17,3\text{ ohms}$

Figure 5. Typical available 50Hz output current as a function of $M_i \cdot \cos \phi_i$

Phase $I_{out}=f(M_i \cdot \cos \phi_i)$


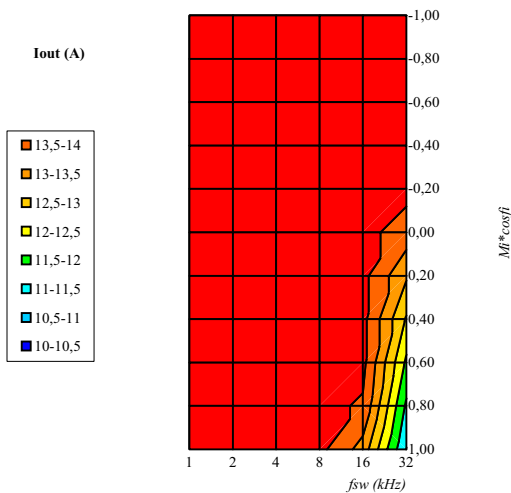
Conditions: $T_j=125^\circ\text{C}$
DC link= 320 V
 $f_{sw}= 16\text{ kHz}$
Heatsink temp. T_h from 60 °C to 100 °C
parameter in 5 °C steps

Figure 6. Typical available 50Hz output current as a function of switching frequency

Phase $I_{out}=f(f_{sw})$


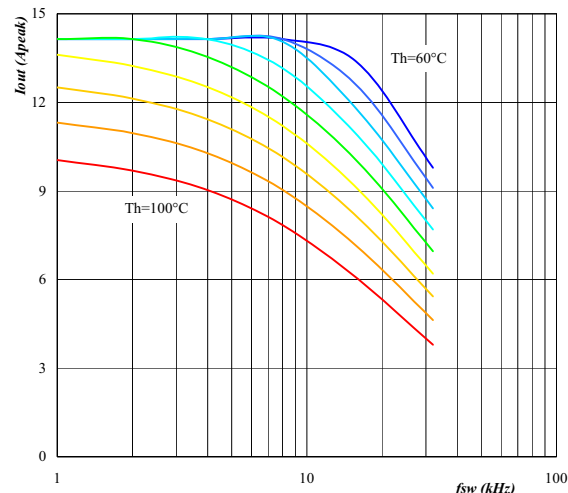
Conditions: $T_j=125^\circ\text{C}$
DC link= 320 V
 $M_i \cdot \cos \phi_i = 0,8$
Heatsink temp. T_h from 60 °C to 100 °C
parameter in 5 °C steps

Figure 7. Typical available 50Hz output current as a function of $M_i \cdot \cos \phi_i$ and f_{sw}

Phase $I_{out}=f(f_{sw}, M_i \cdot \cos \phi_i)$


Conditions: $T_j=125^\circ\text{C}$
DC link= 320 V
 $T_h= 80^\circ\text{C}$

Figure 8. Typical available 0Hz output current as a function of switching frequency

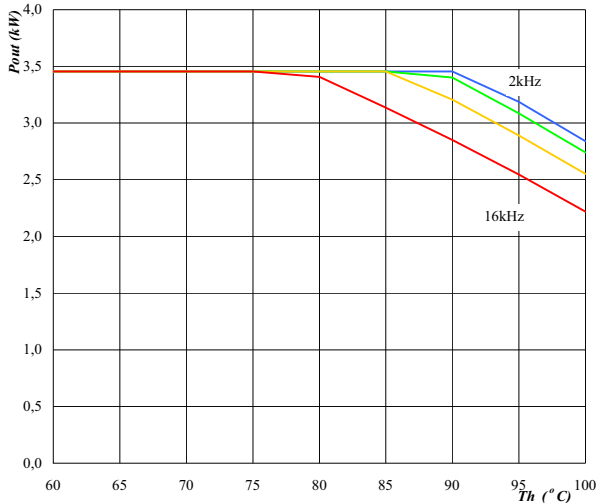
Phase $I_{outpeak}=f(f_{sw})$


Conditions: $T_j=125^\circ\text{C}$
DC link= 320 V
Heatsink temp. T_h from 60 °C to 100 °C
parameter in 5 °C steps

Output inverter application

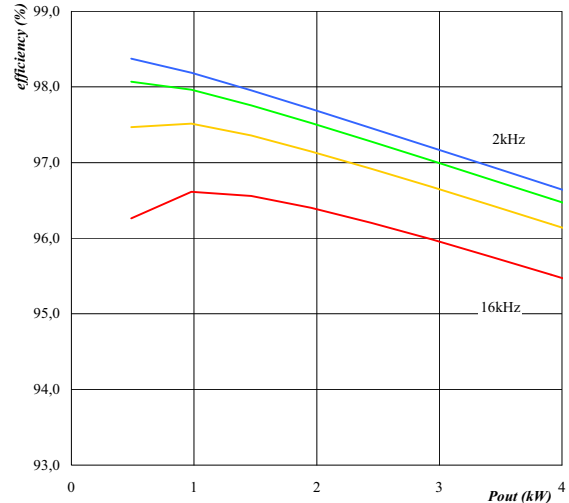
General conditions: 3 phase SPWM, $V_{geon}= 15\text{ V}$ $V_{geoff}=0\text{V}$ $R_{gon}= 34,5\text{ ohms}$ $R_{goff}= 17,3\text{ ohms}$

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



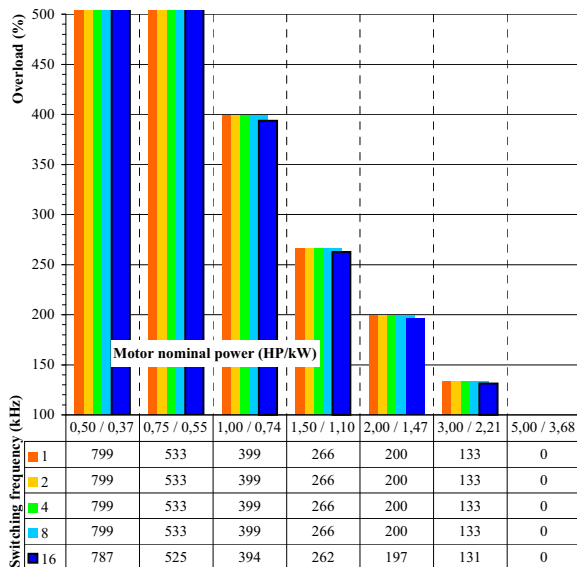
Conditions: $T_j=125\text{C}$
DC link= 320 V
Modulation index $M_i= 1$
 $\cos\phi= 0,80$
Switching freq. parameter fsw from 2 kHz to 16 kHz
in * 2 steps

Figure 10. Typical efficiency as a function of output power
Inverter $\text{efficiency}=f(P_{out})$



Conditions: $T_j=125\text{C}$
DC link= 320 V
Modulation index $M_i= 1$
 $\cos\phi= 0,80$
Switching freq. parameter fsw from 2 kHz to 16 kHz
in * 2 steps

Figure 11. Typical available overload factor as a function of motor power and switching frequency
Inverter $P_{peak}/P_{nom}=f(P_{nom},f_{sw})$



Conditions: $T_j=125\text{C}$
DC link= 320 V
Modulation index $M_i= 1$
 $\cos\phi= 0,8$
Switching freq. parameter fsw from 1 kHz to 16 kHz
in * 2 steps
Heatsink temperature= 80 °C
Motor efficiency= 0,85