

flowPIM® 1 2nd generation

Output inverter application

General conditions: 3 phase SPWM, $V_{geon} = 15\text{ V}$ $V_{geoff} = 0\text{ V}$ $R_{gon} = 32\ \Omega$ $R_{goff} = 16\ \Omega$

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

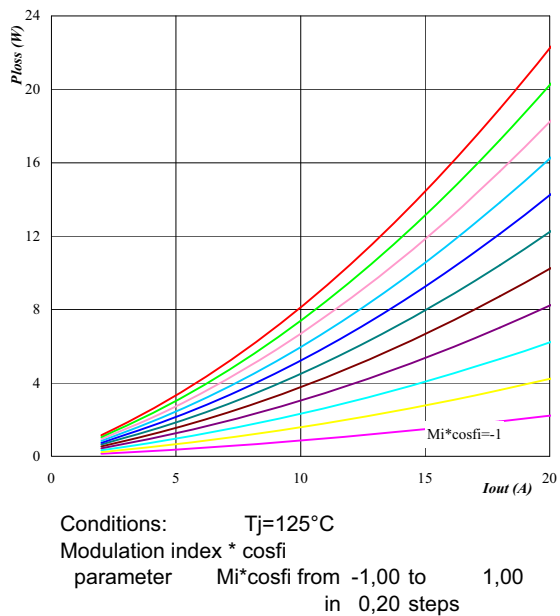


Figure 2. Typical average static loss as a function of output current
FRED $P_{loss} = f(I_{out})$

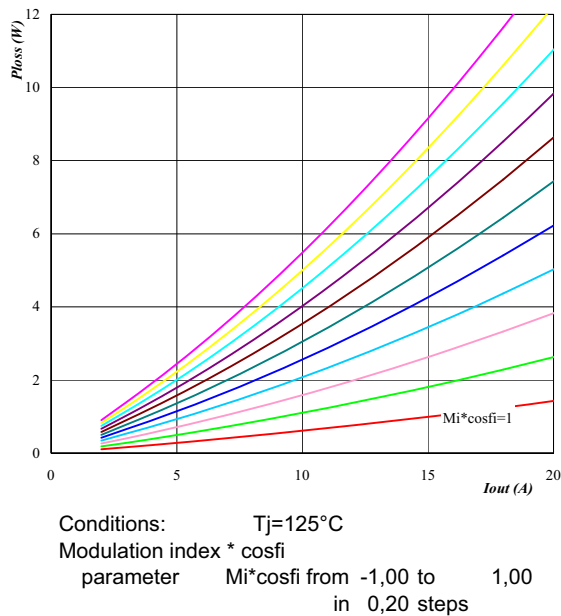


Figure 3. Typical average switching loss as a function of output current
IGBT $P_{loss} = f(I_{out})$

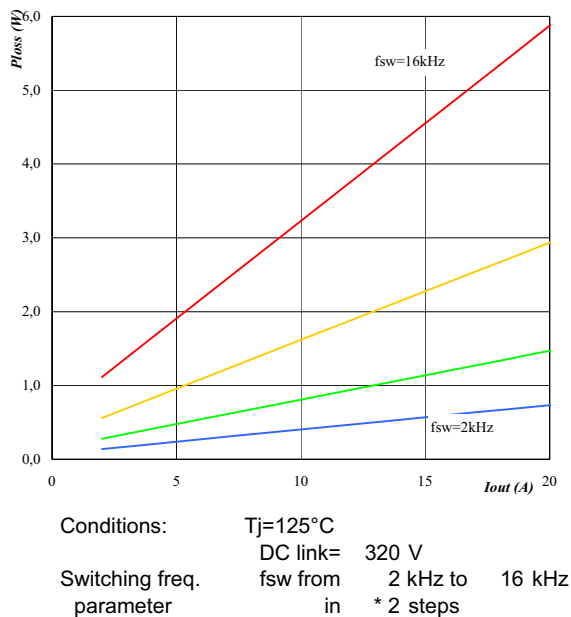
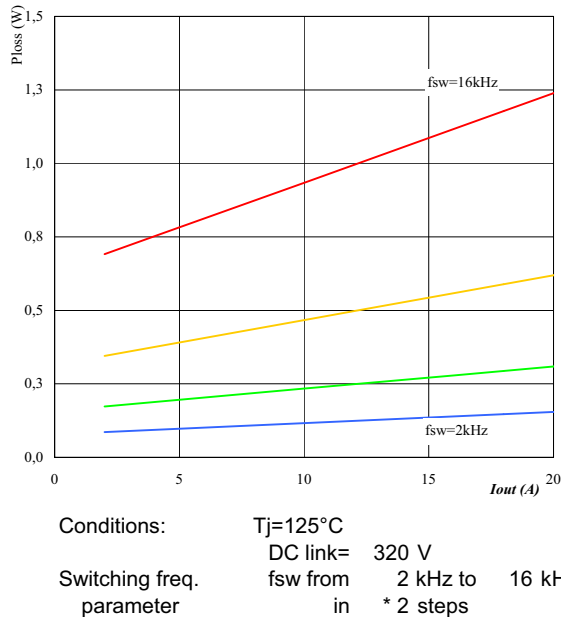


Figure 4. Typical average switching loss as a function of output current
FRED $P_{loss} = f(I_{out})$



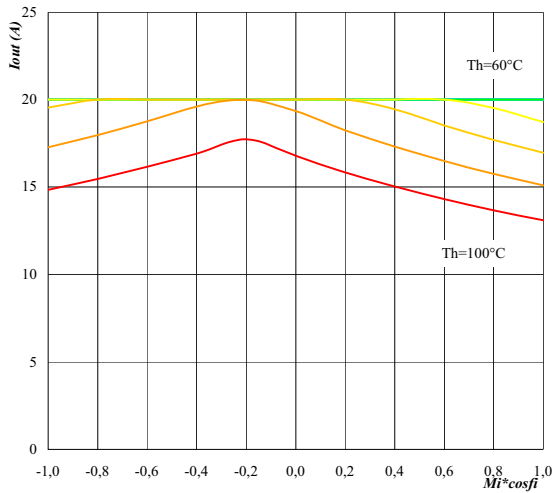
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Figure 5. Typical available 50Hz output current as a function of $M_i \cdot \cos \phi_i$

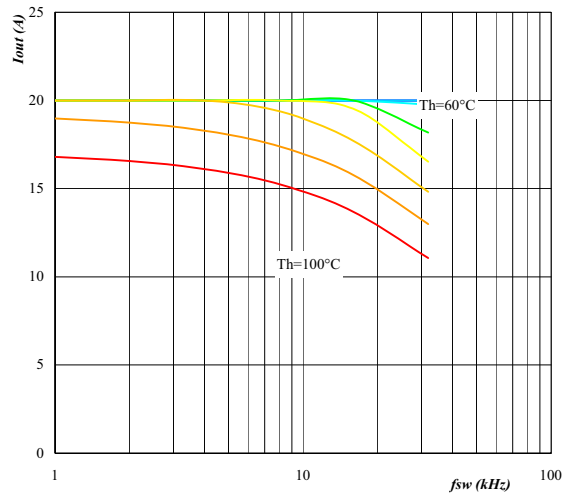
Phase $I_{out}=f(M_i \cdot \cos \phi_i)$



Conditions: $T_j=125^\circ\text{C}$
DC link= 320 V
fsw= 16 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

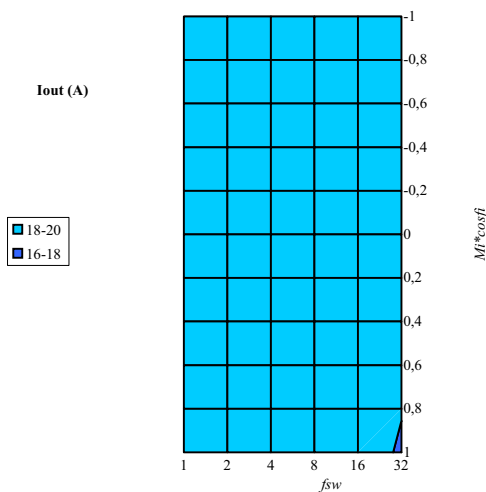
Phase $I_{out}=f(f_{sw})$



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 fsw

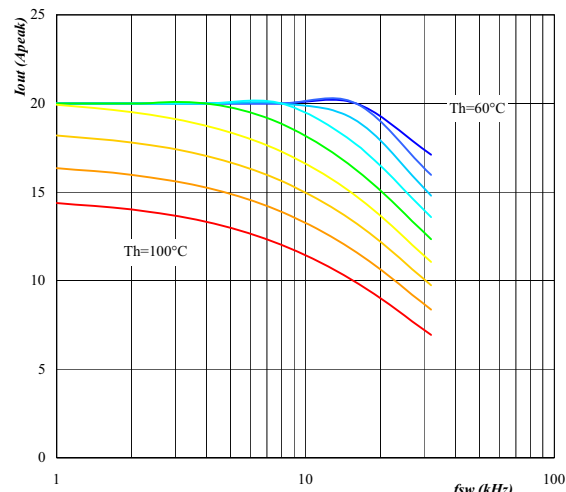
Phase $I_{out}=f(f_{sw}, M_i \cdot \cos \phi_i)$



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



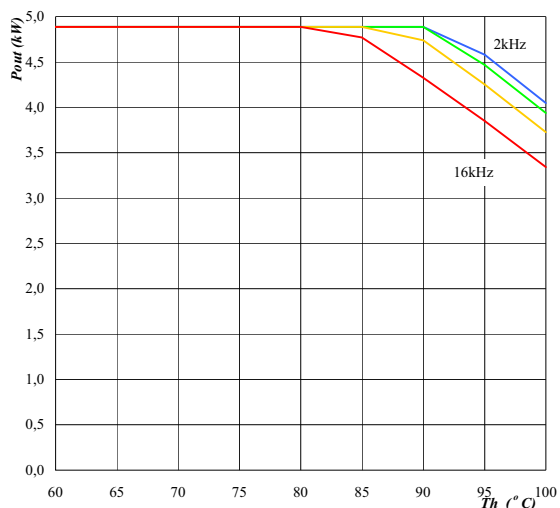
Conditions: $T_j=125^\circ\text{C}$
DC link= 320 V
Heatsink temp. T_h from 60 °C to 100 °C
parameter in 5 °C steps

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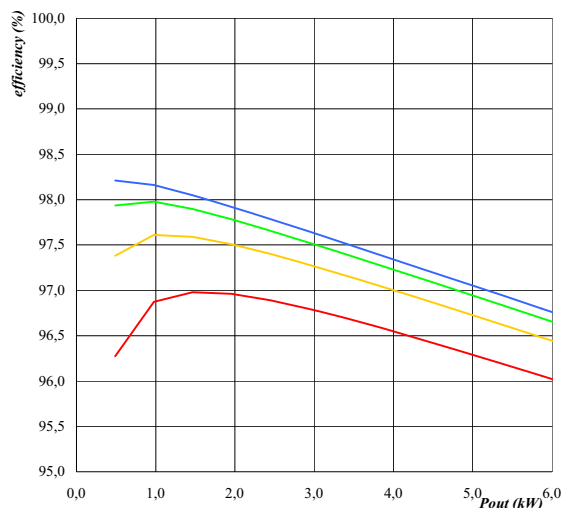
General conditions: 3 phase SPWM, $V_{geon}= 15\text{ V}$ $V_{geoff}=0\text{V}$ $R_{gon}= 32\ \Omega$ $R_{goff}= 16\ \Omega$

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



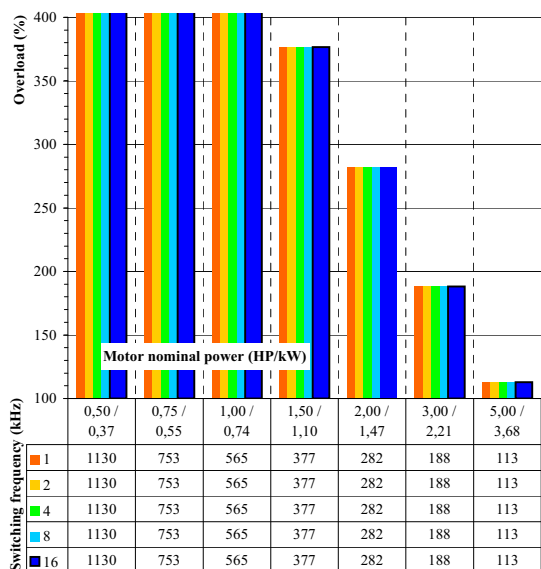
Conditions: $T_j=125^\circ\text{C}$
DC link= 320 V
Modulation index $M_i= 1$
 $\cos\phi_i= 0,80$
Switching freq. fsw from 2 kHz to 16 kHz
parameter in * 2 steps

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



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