

General conditions
3phase SPWM

$$V_{GEon} = 15 \text{ V}$$

$$V_{GEoff} = -15 \text{ V}$$

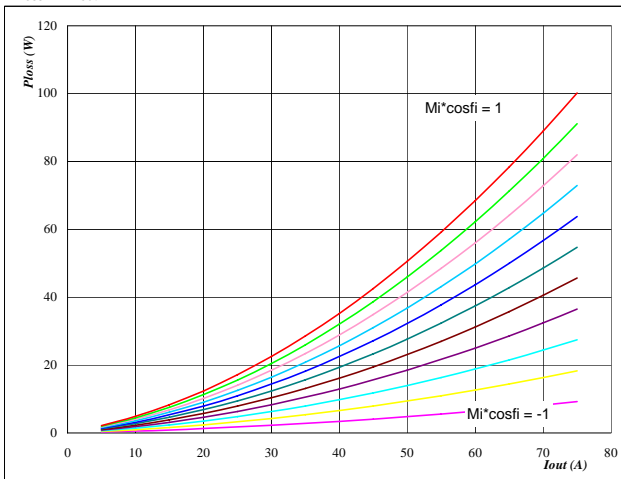
$$R_{gon} = 8 \ \Omega$$

$$R_{goff} = 8 \ \Omega$$

Figure 1 IGBT

Typical average static loss as a function of output current

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

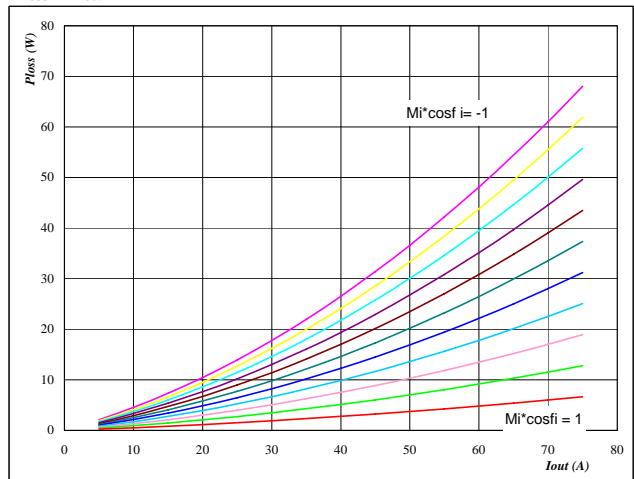


At
 $T_j = 150 \text{ }^\circ\text{C}$
 Mi*cosfi from -1 to 1 in steps of 0,2

Figure 2 FRED

Typical average static loss as a function of output current

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

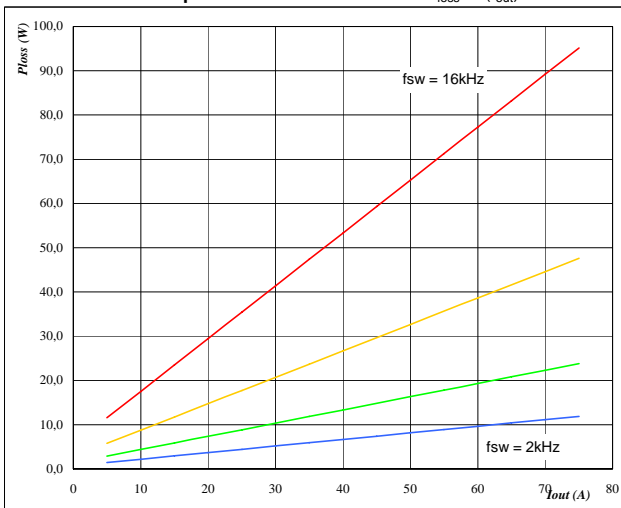


At
 $T_j = 150 \text{ }^\circ\text{C}$
 Mi*cosfi from -1 to 1 in steps of 0,2

Figure 3 IGBT

Typical average switching loss as a function of output current

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

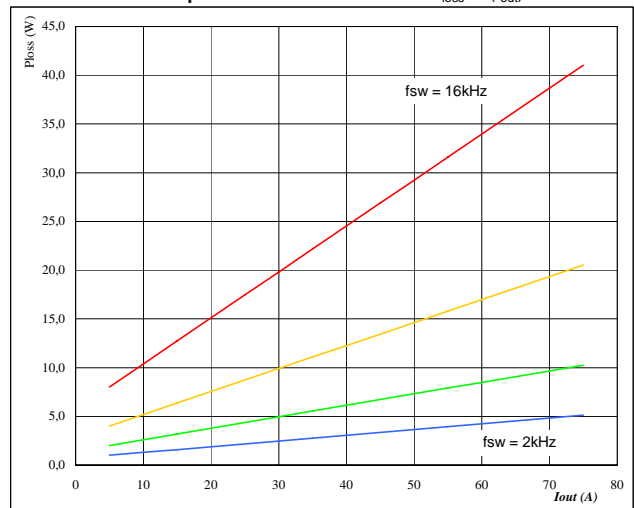


At
 $T_j = 150 \text{ }^\circ\text{C}$
 DC link = 600 V
 fsw from 2 kHz to 16 kHz in steps of factor 2

Figure 4 FRED

Typical average switching loss as a function of output current

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

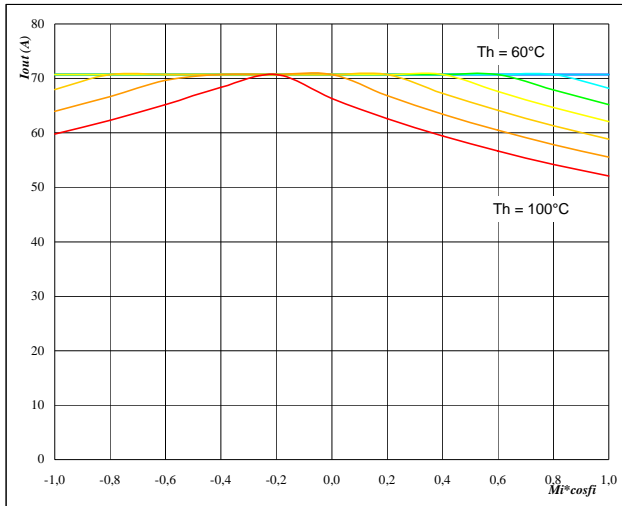


At
 $T_j = 150 \text{ }^\circ\text{C}$
 DC link = 600 V
 fsw from 2 kHz to 16 kHz in steps of factor 2

Figure 5 Phase

Typical available 50Hz output current as a function $Mi^*cos\phi_i$

$$I_{out} = f(Mi^*cos\phi_i)$$

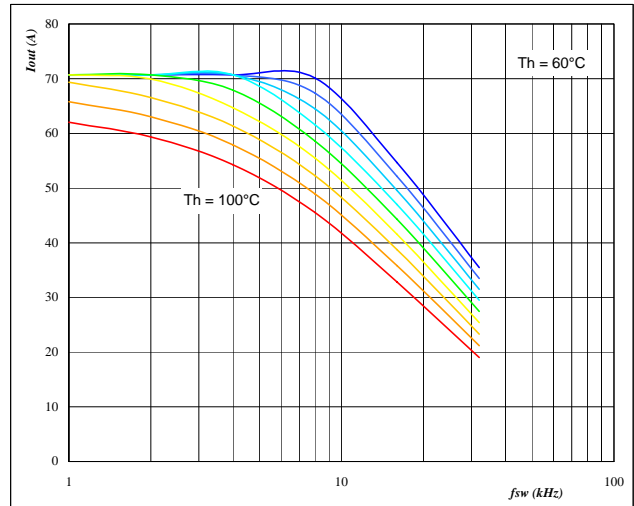


At
 $T_j = 150 \text{ } ^\circ\text{C}$
 DC link = 600 V
 $f_{sw} = 4 \text{ kHz}$
 Th from 60 °C to 100 °C in steps of 5 °C

Figure 6 Phase

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

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

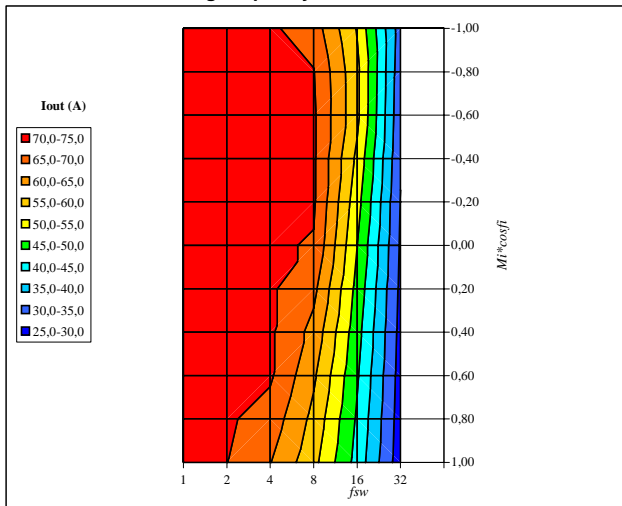


At
 $T_j = 150 \text{ } ^\circ\text{C}$
 DC link = 600 V
 $Mi^*cos\phi_i = 0,8$
 Th from 60 °C to 100 °C in steps of 5 °C

Figure 7 Phase

Typical available 50Hz output current as a function of $Mi^*cos\phi_i$ and switching frequency

$$I_{out} = f(f_{sw}, Mi^*cos\phi_i)$$

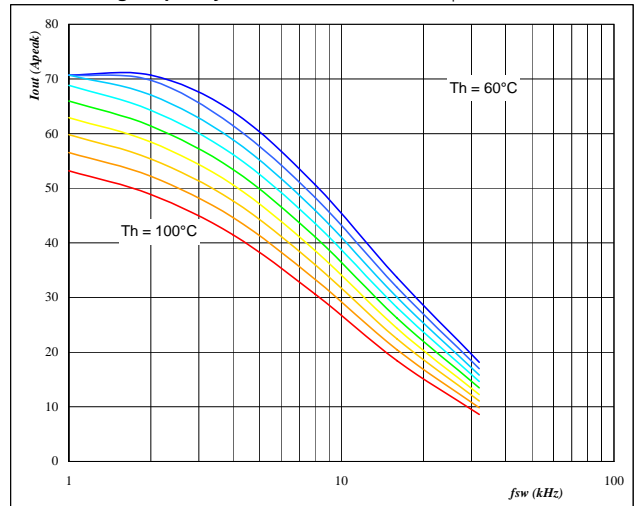


At
 $T_j = 150 \text{ } ^\circ\text{C}$
 DC link = 600 V
 $T_n = 80 \text{ } ^\circ\text{C}$

Figure 8 Phase

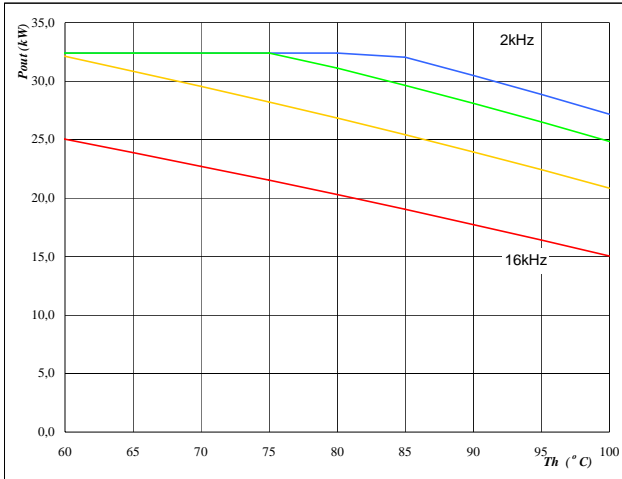
Typical available 0Hz output current as a function of switching frequency

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



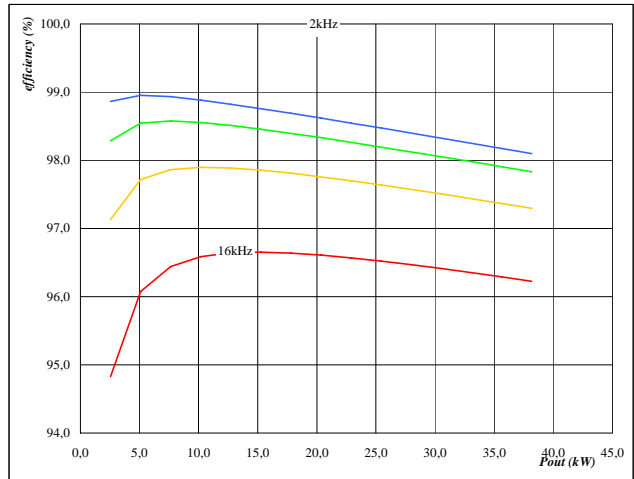
At
 $T_j = 150 \text{ } ^\circ\text{C}$
 DC link = 600 V
 Th from 60 °C to 100 °C in steps of 5 °C

Figure 9 Inverter

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


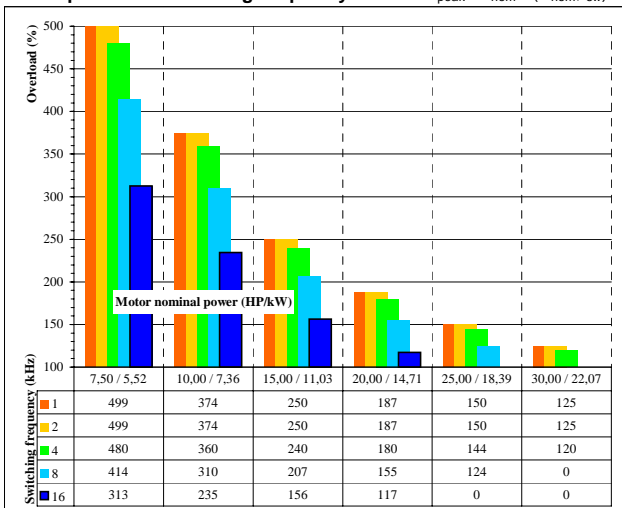
At
 $T_j = 150 \text{ } ^\circ\text{C}$
 DC link = 600 V
 $M_i = 1$
 $\cos\phi_i = 0,80$
 fsw from 2 kHz to 16 kHz in steps of factor 2

Figure 10 Inverter

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


At
 $T_j = 150 \text{ } ^\circ\text{C}$
 DC link = 600 V
 $M_i = 1$
 $\cos\phi_i = 0,80$
 fsw 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
 $T_j = 150 \text{ } ^\circ\text{C}$
 DC link = 600 V
 $M_i = 1$
 $\cos\phi_i = 0,8$
 fsw from 1 kHz to 16 kHz in 2 steps
 $T_h = 80 \text{ } ^\circ\text{C}$
 Motor eff = 0,85