



General conditions

3phase SPWM

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

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

$R_{gon} = 4\ \Omega$

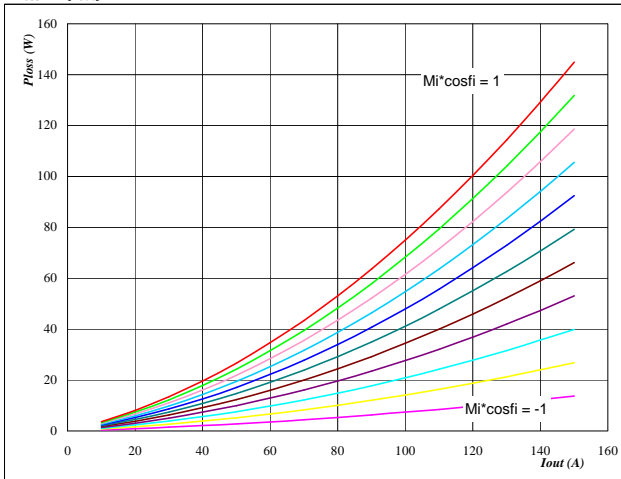
$R_{goff} = 4\ \Omega$

Figure 1

IGBT

Typical average static loss as a function of output current

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



At

$T_j = 150\ \text{°C}$

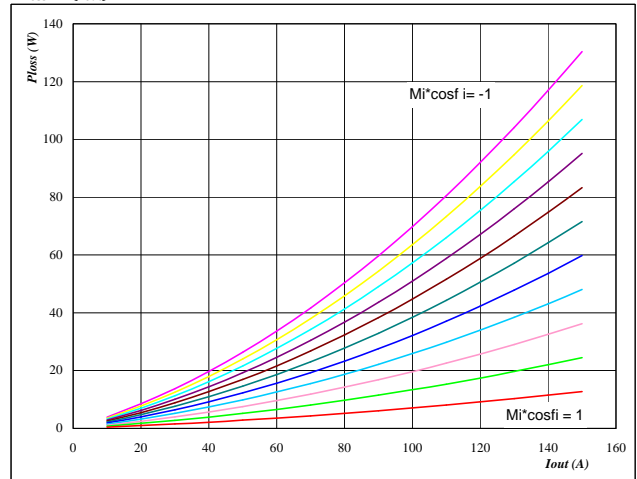
Mi*cosphi from -1 to 1 in steps of 0,2

Figure 2

FWD

Typical average static loss as a function of output current

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



At

$T_j = 150\ \text{°C}$

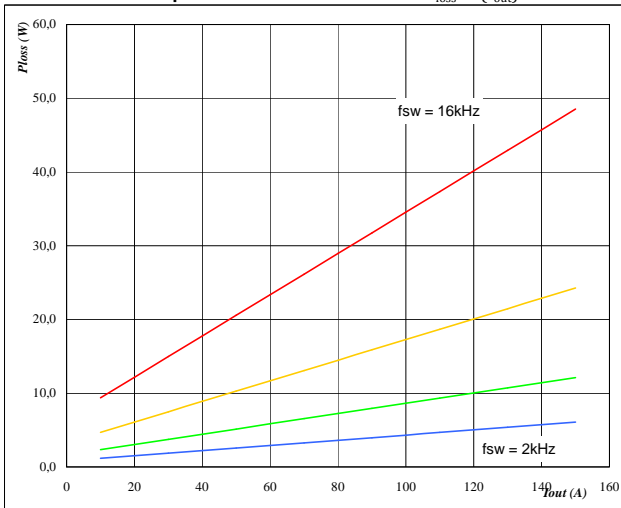
Mi*cosphi from -1 to 1 in steps of 0,2

Figure 3

IGBT

Typical average switching loss as a function of output current

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



At

$T_j = 150\ \text{°C}$

DC link = 320 V

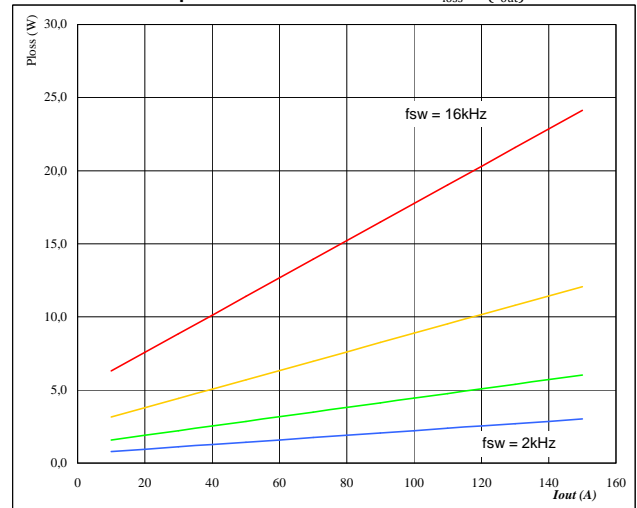
fsw from 2 kHz to 16 kHz in steps of factor 2

Figure 4

FWD

Typical average switching loss as a function of output current

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



At

$T_j = 150\ \text{°C}$

DC link = 320 V

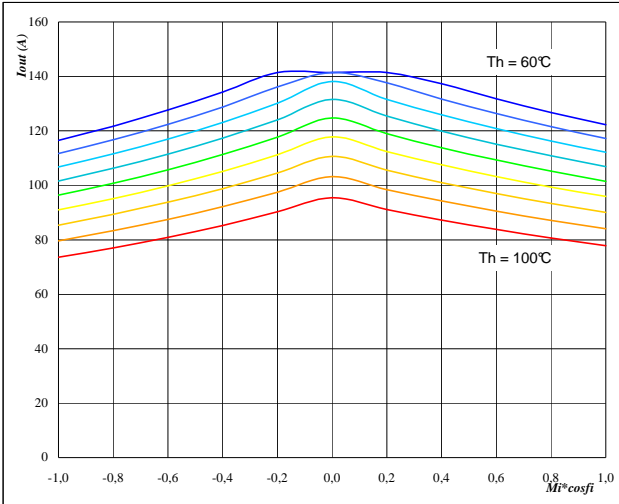
fsw from 2 kHz to 16 kHz in steps of factor 2



Figure 5 Phase

Typical available 50Hz output current as a function $Mi*cosfi$

$$I_{out} = f(Mi*cosfi)$$

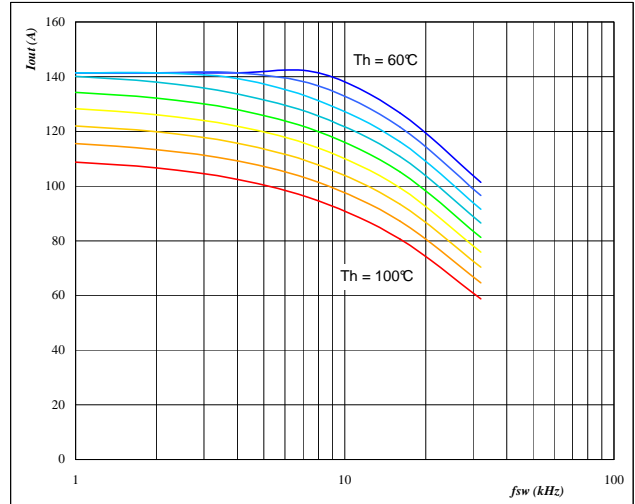


At
 $T_j = 150$ °C
 DC link = 320 V
 $f_{sw} = 16$ kHz
 T_h from 60 °C to 100 °C in steps of 5 °C

Figure 6 Phase

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

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

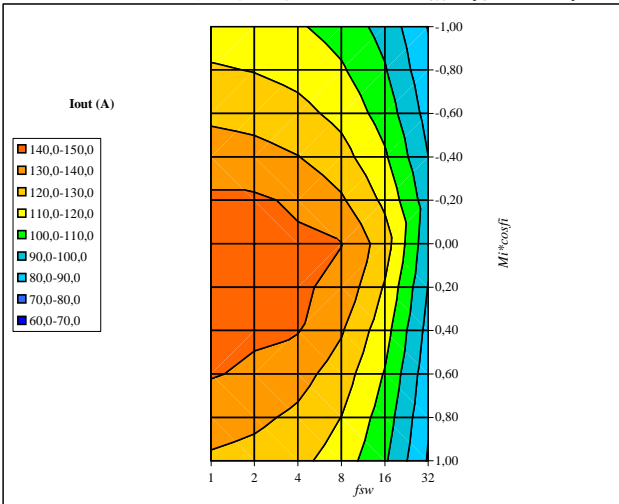


At
 $T_j = 150$ °C
 DC link = 320 V
 $Mi*cosfi = 0,8$
 T_h from 60 °C to 100 °C in steps of 5 °C

Figure 7 Phase

Typical available 50Hz output current as a function of $Mi*cosfi$ and switching frequency

$$I_{out} = f(f_{sw}, Mi*cosfi)$$

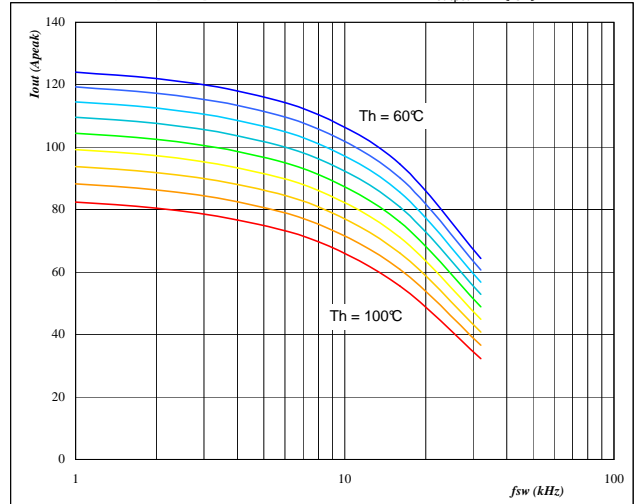


At
 $T_j = 150$ °C
 DC link = 320 V
 $T_h = 80$ °C

Figure 8 Phase

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

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

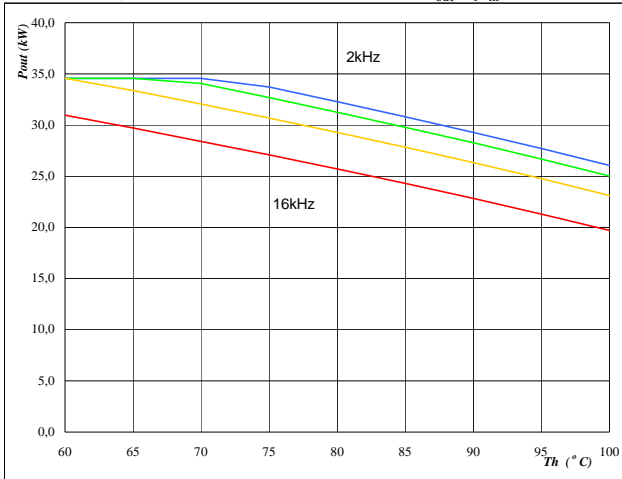


At
 $T_j = 150$ °C
 DC link = 320 V
 T_h from 60 °C to 100 °C in steps of 5 °C



Figure 9 Inverter

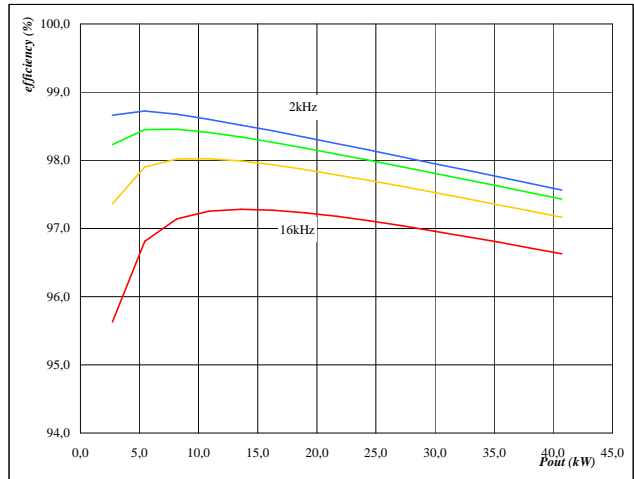
Typical available peak output power as a function of heatsink temperature $P_{out}=f(T_h)$



At
 $T_j = 150 \text{ } ^\circ\text{C}$
 DC link = 320 V
 $M_i = 1$
 $\cos\phi_i = 0,80$
 fsw from 2 kHz to 16 kHz in steps of factor 2

Figure 10 Inverter

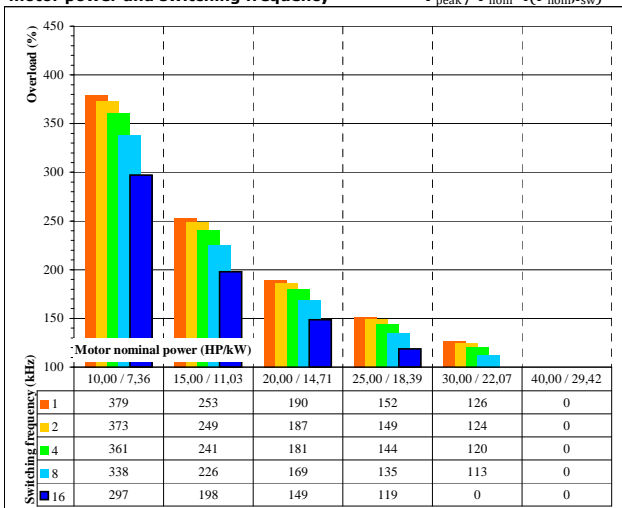
Typical efficiency as a function of output power $\text{efficiency}=f(P_{out})$



At
 $T_j = 150 \text{ } ^\circ\text{C}$
 DC link = 320 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 = 320 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