



General conditions

3phase SPWM

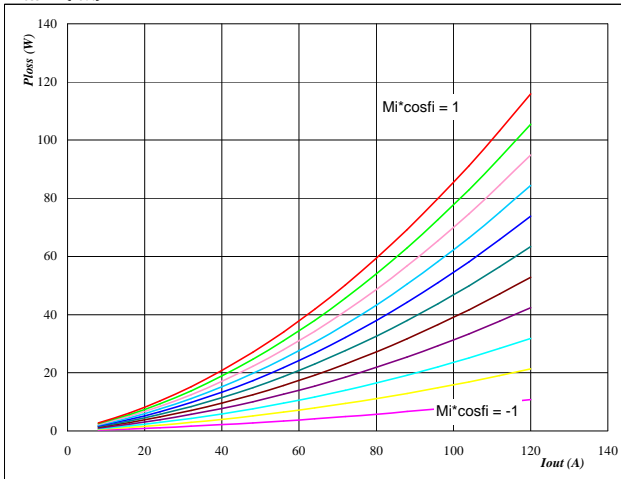
$V_{GEon} = 15\text{ V}$   
 $V_{GEoff} = -15\text{ V}$   
 $R_{gon} = 4\ \Omega$   
 $R_{goff} = 4\ \Omega$

Figure 1

IGBT

Typical average static loss as a function of output current

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



At

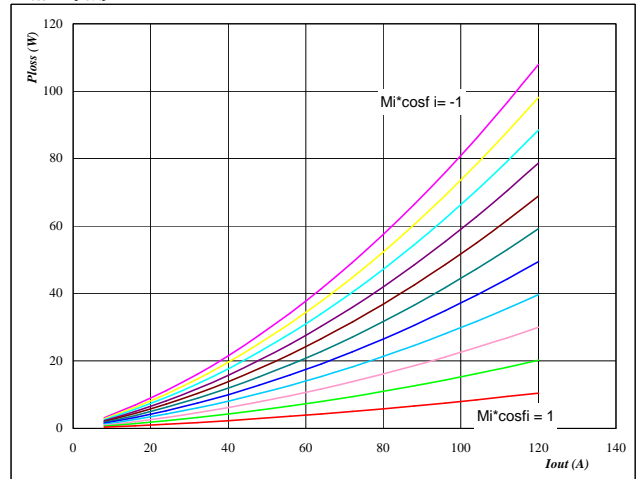
$T_j = 150\text{ }^\circ\text{C}$   
 $Mi*cosfi$  from -1 to 1 in steps of 0,2

Figure 2

FWD

Typical average static loss as a function of output current

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



At

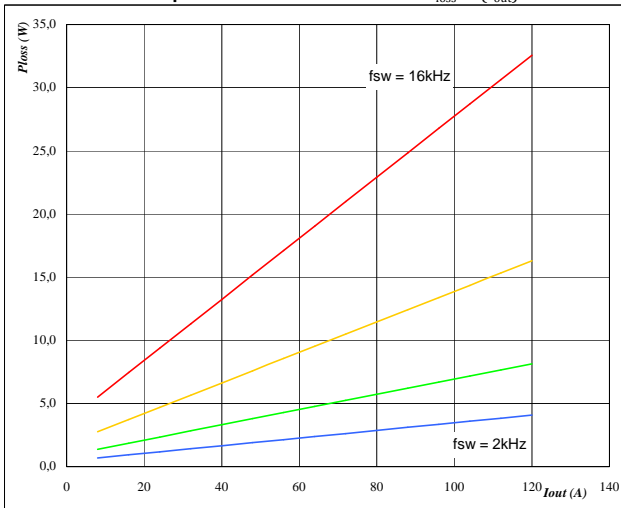
$T_j = 150\text{ }^\circ\text{C}$   
 $Mi*cosfi$  from -1 to 1 in steps of 0,2

Figure 3

IGBT

Typical average switching loss as a function of output current

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



At

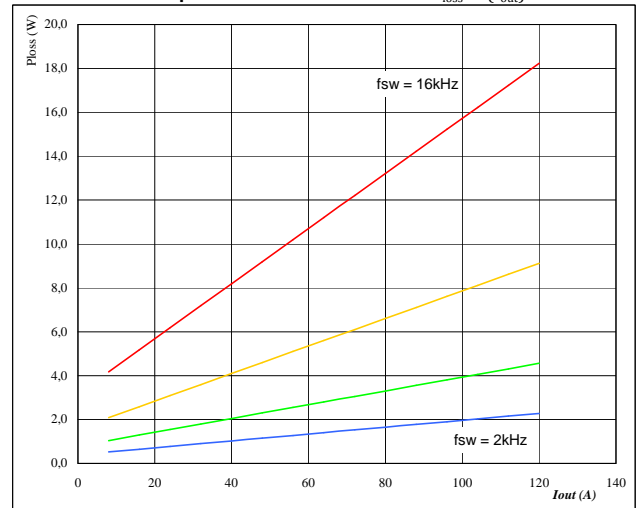
$T_j = 150\text{ }^\circ\text{C}$   
 DC link = 320 V  
 $fsw$  from 2 kHz to 16 kHz in steps of factor 2

Figure 4

FWD

Typical average switching loss as a function of output current

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



At

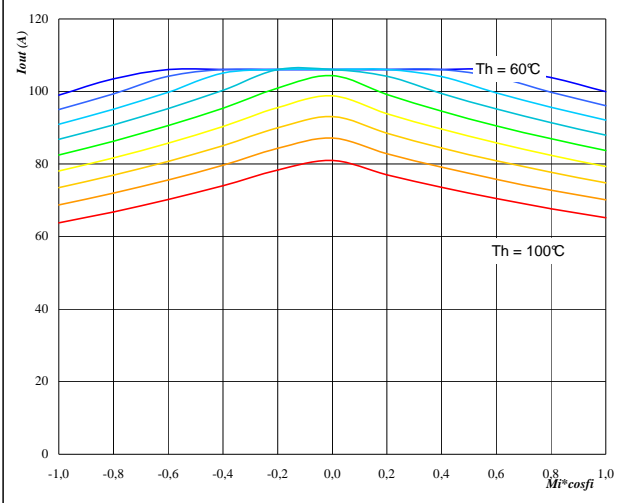
$T_j = 150\text{ }^\circ\text{C}$   
 DC link = 320 V  
 $fsw$  from 2 kHz to 16 kHz in steps of factor 2



Figure 5 Phase

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

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

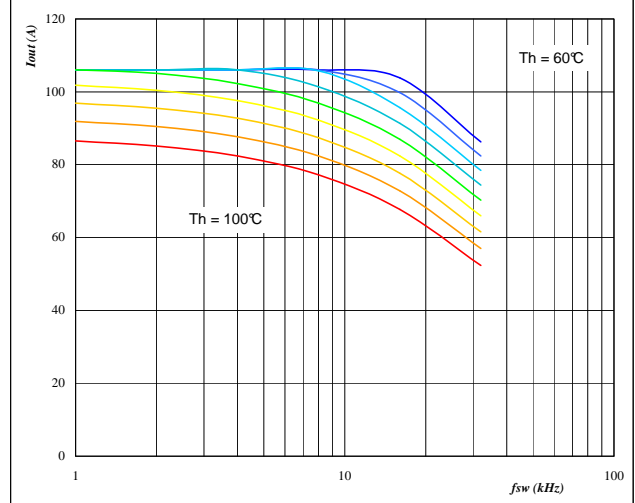


**At**  
 $T_j = 150$  °C  
 DC link = 320 V  
 $f_{sw} = 16$  kHz  
 $T_h$  from 60 °C to 100 °C in steps of 5 °C

Figure 6 Phase

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

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

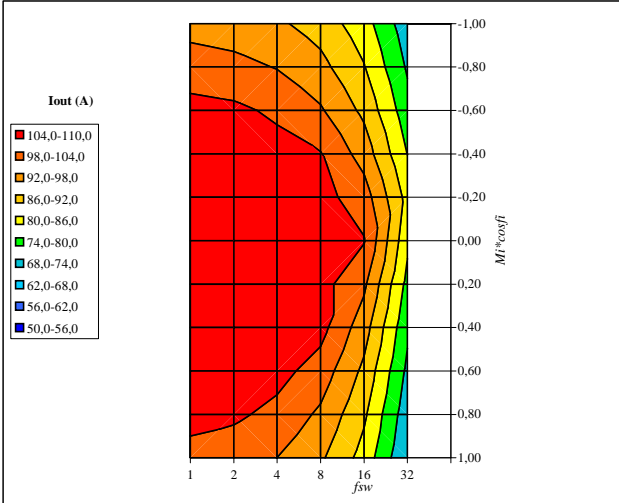


**At**  
 $T_j = 150$  °C  
 DC link = 320 V  
 $Mi \cdot \cos\phi_i = 0,8$   
 $T_h$  from 60 °C to 100 °C in steps of 5 °C

Figure 7 Phase

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

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

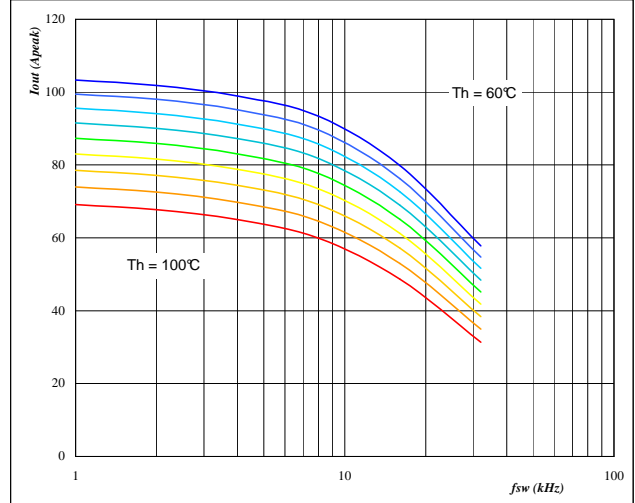


**At**  
 $T_j = 150$  °C  
 DC link = 320 V  
 $T_h = 80$  °C

Figure 8 Phase

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

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

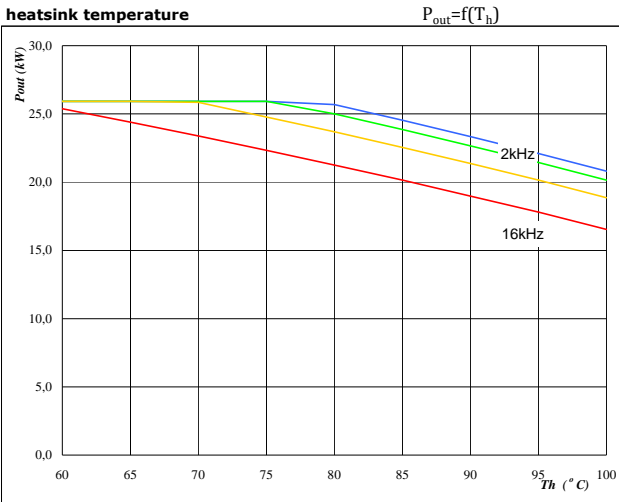


**At**  
 $T_j = 150$  °C  
 DC link = 320 V  
 $T_h$  from 60 °C to 100 °C in steps of 5 °C



Figure 9 Inverter

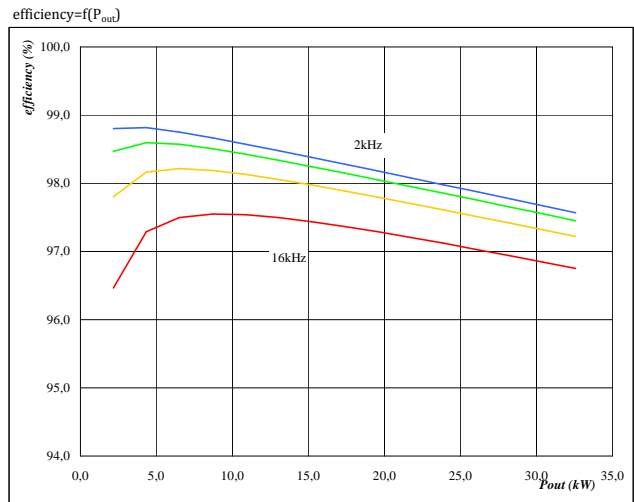
Typical available peak output power as a function of heatsink temperature



**At**  
 $T_j = 125 \text{ } ^\circ\text{C}$   
 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

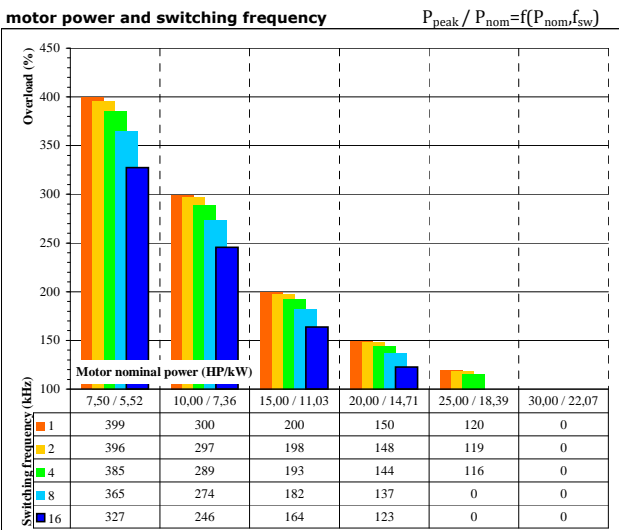
Typical efficiency as a function of output power



**At**  
 $T_j = 125 \text{ } ^\circ\text{C}$   
 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



**At**  
 $T_j = 125 \text{ } ^\circ\text{C}$   
 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