



General conditions

3phase SPWM

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

$V_{GEoff} = 0\text{ V}$

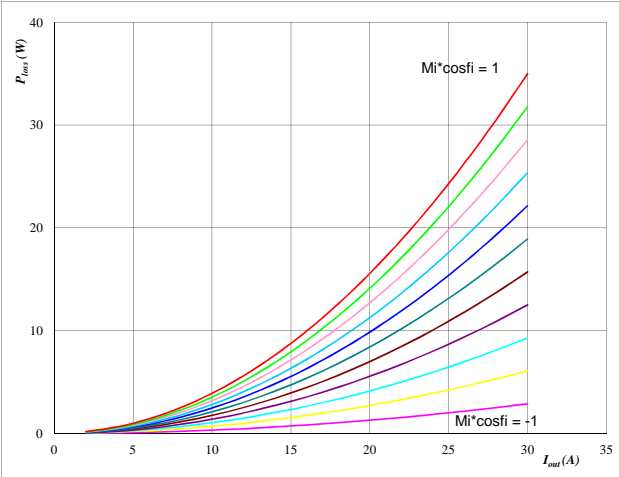
$R_{gon} = 16\ \Omega$

$R_{goff} = 8\ \Omega$

Figure 1 IGBT

Typical average static loss as a function of output current

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

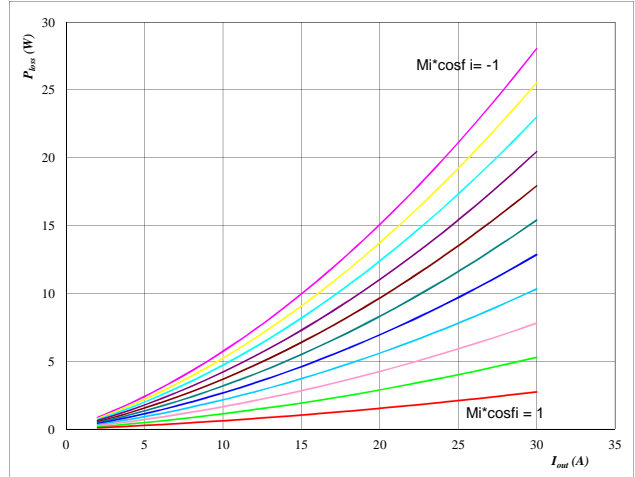


At
 $T_j = 125\text{ }^\circ\text{C}$
 $Mi \cdot \cos\phi$ from -1 to 1 in steps of 0,2

Figure 2 FWD

Typical average static loss as a function of output current

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

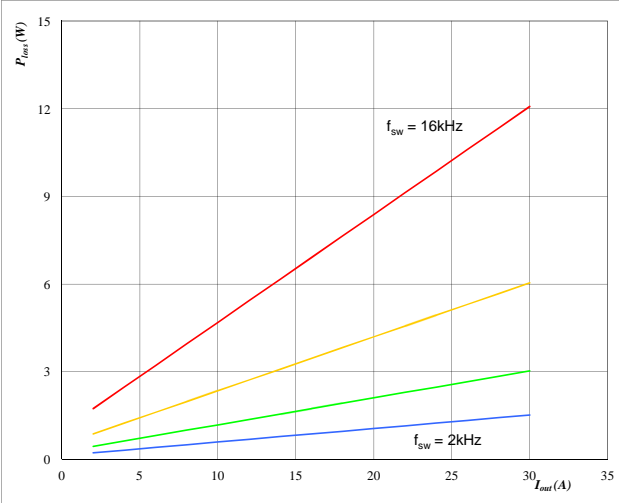


At
 $T_j = 125\text{ }^\circ\text{C}$
 $Mi \cdot \cos\phi$ from -1 to 1 in steps of 0,2

Figure 3 IGBT

Typical average switching loss as a function of output current

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

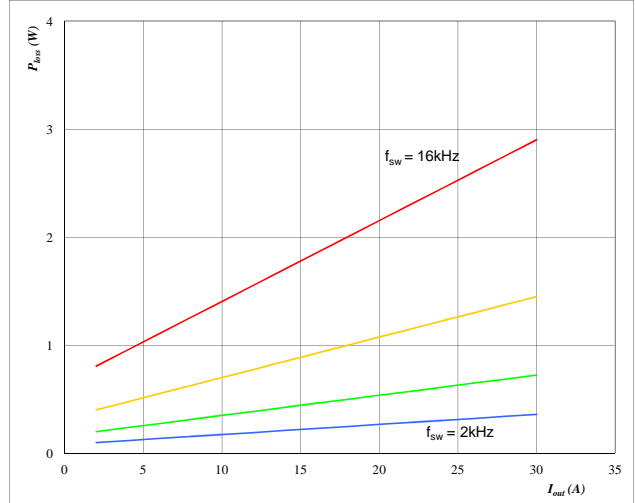


At
 $T_j = 125\text{ }^\circ\text{C}$
 DC-link = 320 V
 f_{sw} from 2 kHz to 16 kHz in steps of factor 2

Figure 4 FWD

Typical average switching loss as a function of output current

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

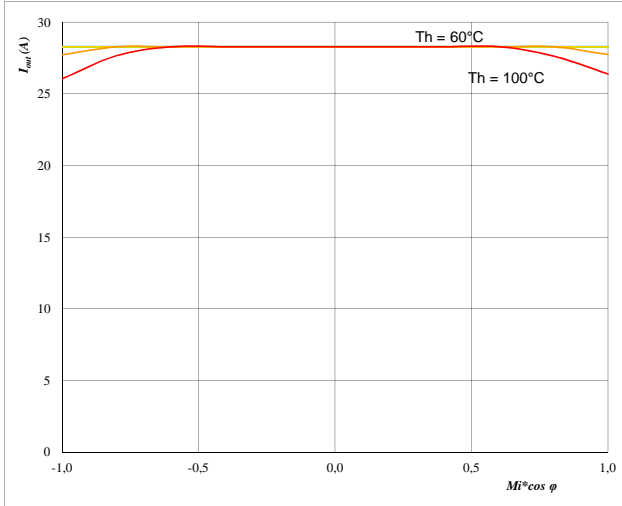


At
 $T_j = 125\text{ }^\circ\text{C}$
 DC-link = 320 V
 f_{sw} from 2 kHz to 16 kHz in steps of factor 2



Figure 5 Phase

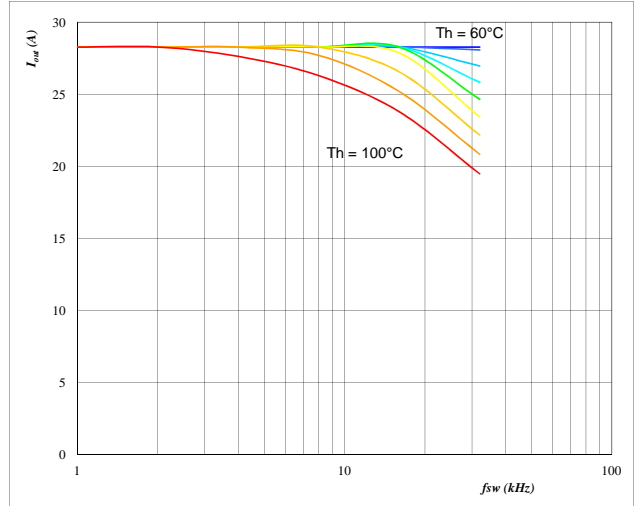
Typical available 50Hz output current as a function $Mi \cdot \cos \phi$ $I_{out} = f(Mi \cdot \cos \phi)$



At
 $T_j = 125 \text{ } ^\circ C$
 DC-link = 320 V
 $f_{sw} = 4 \text{ kHz}$
 T_s from 60 °C to 100 °C in steps of 5 °C

Figure 6 Phase

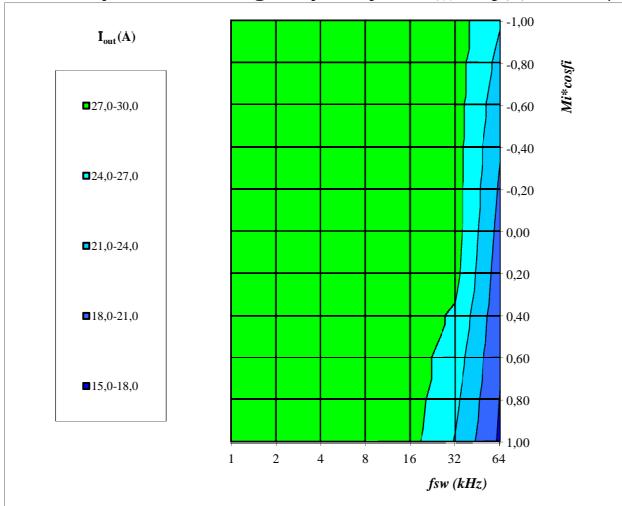
Typical available 50Hz output current as a function of switching frequency $I_{out} = f(f_{sw})$



At
 $T_j = 125 \text{ } ^\circ C$
 DC-link = 320 V
 $Mi \cdot \cos \phi = 0,8$
 T_s from 60 °C to 100 °C in steps of 5 °C

Figure 7 Phase

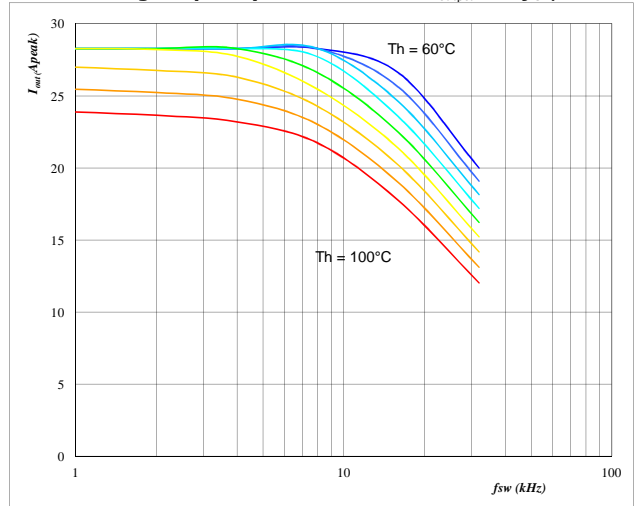
Typical available 50Hz output current as a function of $Mi \cdot \cos \phi$ and switching frequency $I_{out} = f(f_{sw}, Mi \cdot \cos \phi)$



At
 $T_j = 125 \text{ } ^\circ C$
 DC-link = 320 V
 $T_s = 80 \text{ } ^\circ C$

Figure 8 Phase

Typical available 0Hz output current as a function of switching frequency $I_{outpeak} = f(f_{sw})$

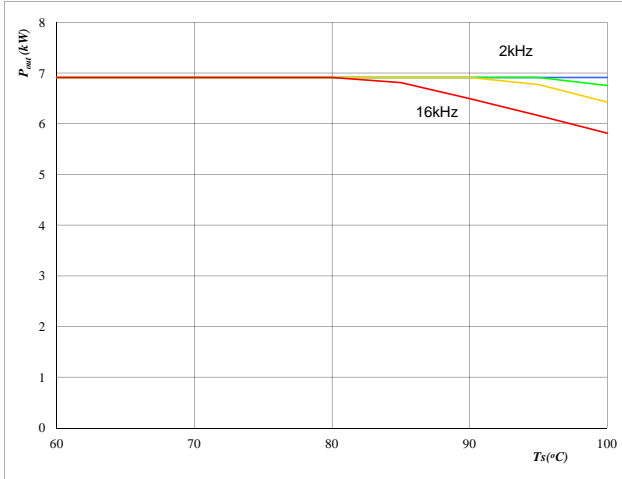


At
 $T_j = 125 \text{ } ^\circ C$
 DC-link = 320 V
 T_s from 60 °C to 100 °C in steps of 5 °C
 $Mi = 0$



Figure 9 Inverter

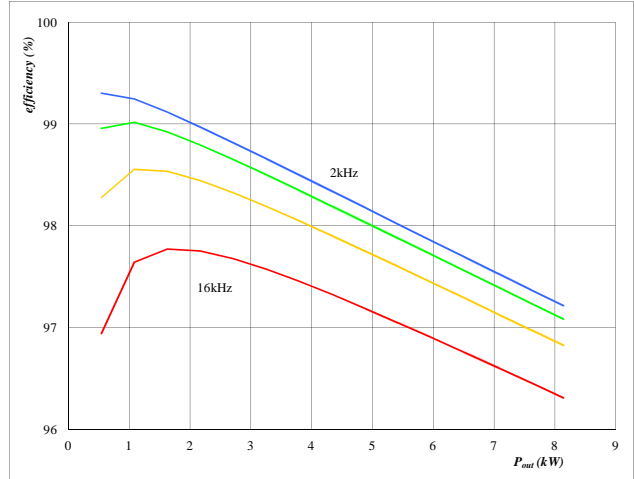
Typical available peak output power as a function of heatsink temperature
 $P_{out} = f(T_h)$



At
 $T_j = 125$ °C
 DC-link = 320 V
 $M_i = 1$
 $\cos \varphi = 0,80$
 f_{sw} from 2 kHz to 16 kHz in steps of factor 2

Figure 10 Inverter

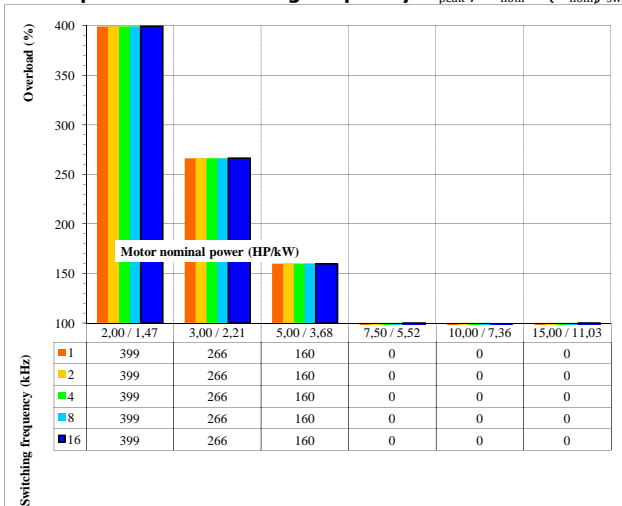
Typical efficiency as a function of output power
 $\text{efficiency} = f(P_{out})$



At
 $T_j = 125$ °C
 DC-link = 320 V
 $M_i = 1$
 $\cos \varphi = 0,80$
 f_{sw} 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
 $T_j = 125$ °C
 DC-link = 320 V
 $M_i = 1$
 $\cos \varphi = 0,8$
 f_{sw} from 1 kHz to 16kHz in steps of factor 2
 $T_s = 80$ °C
 Motor eff = 0,85