

General conditions
3phase SPWM
 $V_{GEon} = 15\text{ V}$
 $V_{GEoff} = -15\text{ V}$
 $R_{gon} = 32\ \Omega$
 $R_{goff} = 32\ \Omega$
Figure 1

IGBT

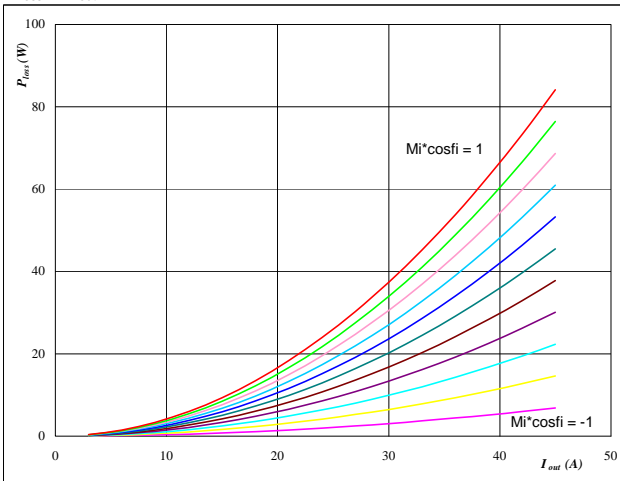
Typical average static loss as a function of output current
 $P_{loss} = f(I_{out})$

At
 $T_j = 150\text{ }^\circ\text{C}$
 $M_i \cdot \cos\phi$ from -1 to 1 in steps of 0,2

Figure 2

FWD

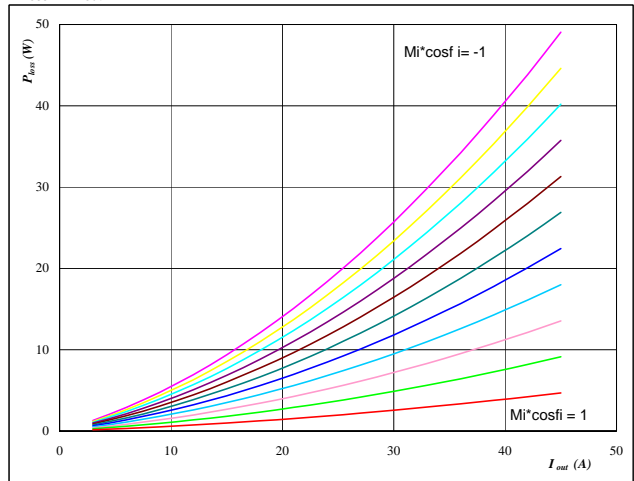
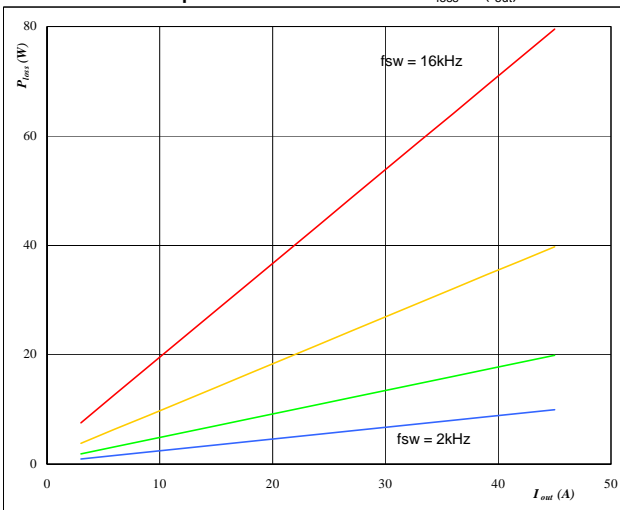
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Figure 3

IGBT

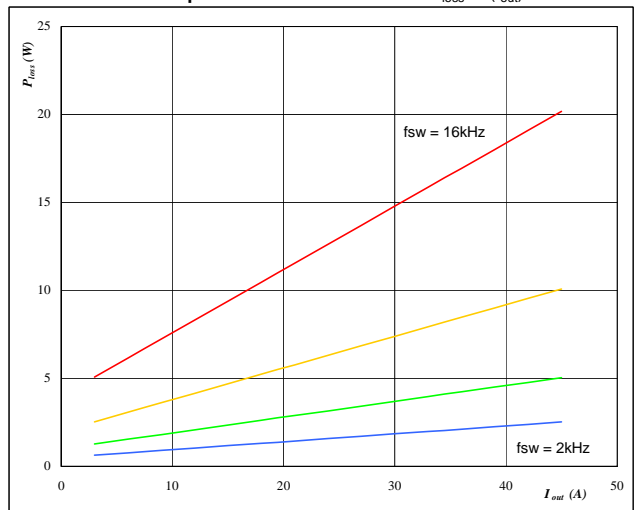
Typical average switching loss as a function of output current
 $P_{loss} = f(I_{out})$

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

DC link = 600 V

 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
 $T_j = 150\text{ }^\circ\text{C}$

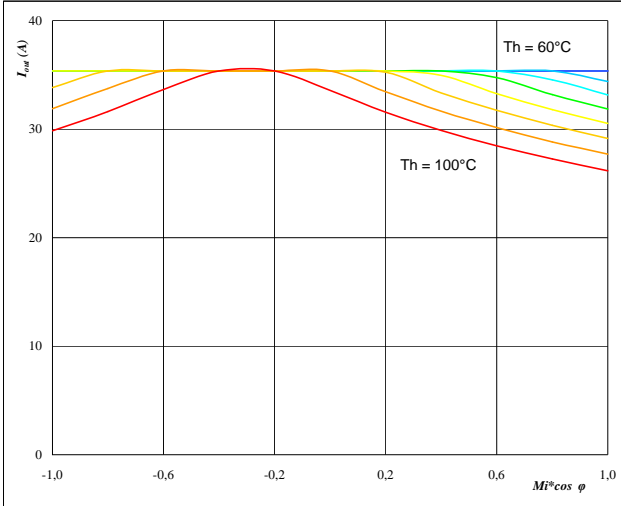
DC link = 600 V

 f_{sw} from 2 kHz to 16 kHz in steps of factor 2

Figure 5 Phase

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

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

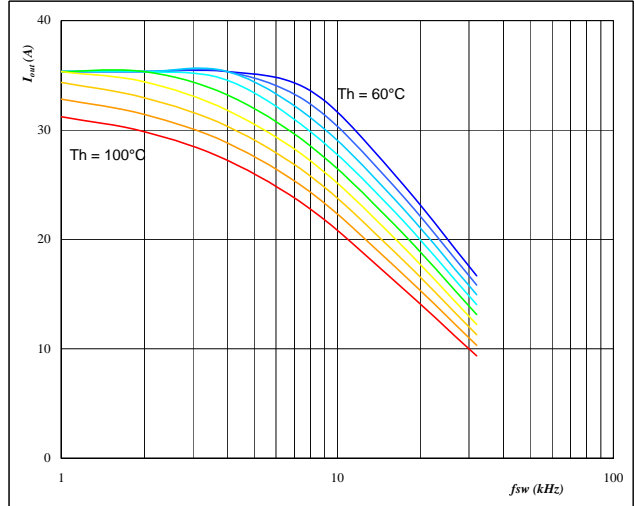


At
 $T_j = 150 \text{ } ^\circ\text{C}$
 DC link = 600 V
 $f_{sw} = 4 \text{ kHz}$
 T_h from 60 °C to 100 °C in steps of 5 °C

Figure 6 Phase

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

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

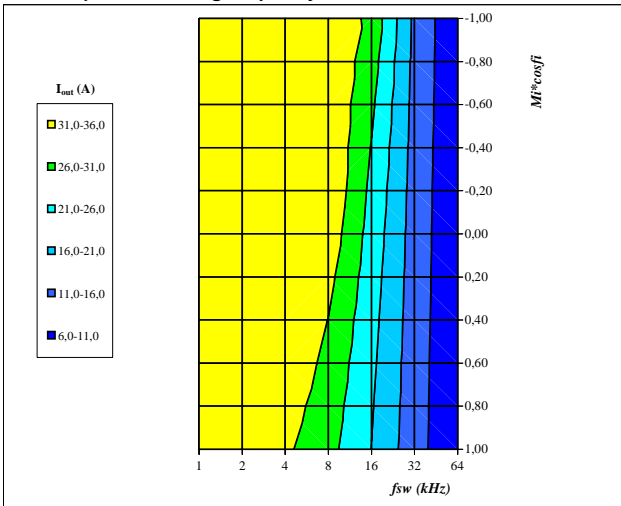


At
 $T_j = 150 \text{ } ^\circ\text{C}$
 DC link = 600 V
 $Mi \cdot \cos \varphi = 0,8$
 T_h from 60 °C to 100 °C in steps of 5 °C

Figure 7 Phase

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

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

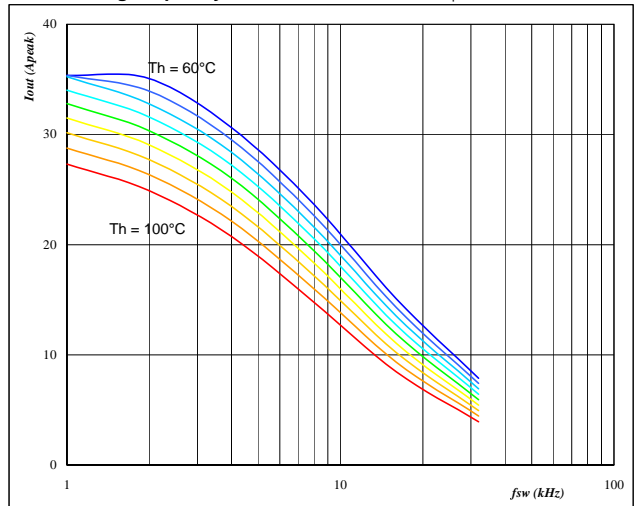


At
 $T_j = 150 \text{ } ^\circ\text{C}$
 DC link = 600 V
 $T_h = 80 \text{ } ^\circ\text{C}$

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
 T_h from 60 °C to 100 °C in steps of 5 °C
 $Mi = 0$

Figure 9 Inverter

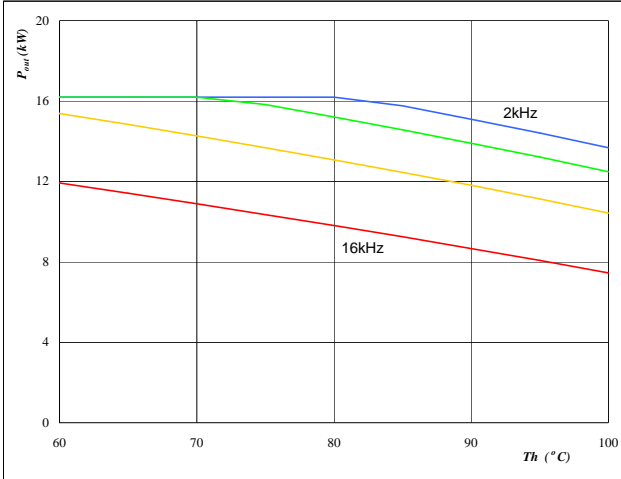
Typical available peak output power as a function of heatsink temperature
 $P_{out}=f(T_h)$

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

Figure 10 Inverter

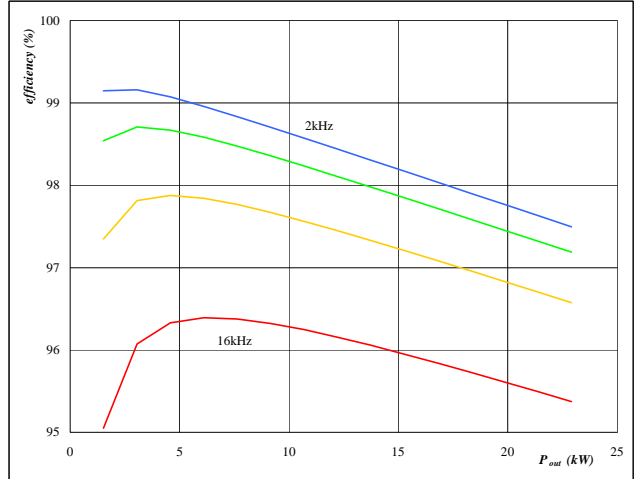
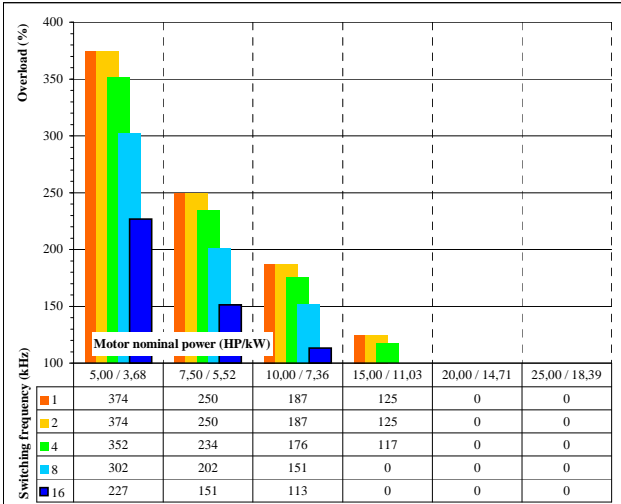
Typical efficiency as a function of output power
 $\text{efficiency}=f(P_{out})$

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