

General conditions
3phase SPWM

| | | |
|-------------|---|------------|
| V_{GEon} | = | 15 V |
| V_{GEoff} | = | -15 V |
| R_{gon} | = | 2 Ω |
| R_{goff} | = | 2 Ω |

Figure 1

IGBT

Typical average static loss as a function of output current

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

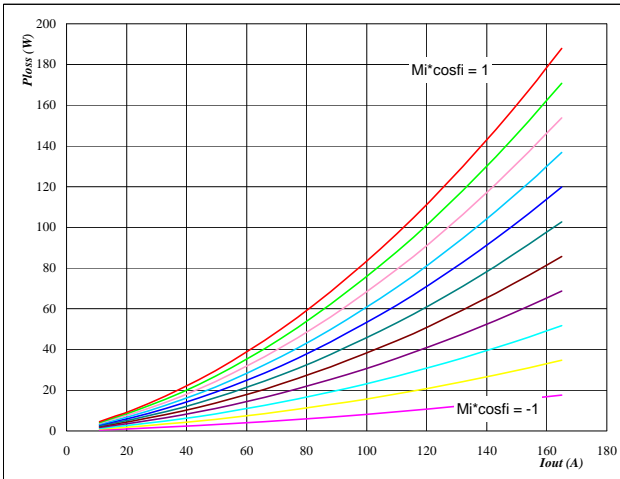

At
 $T_j = 150 \text{ } ^\circ\text{C}$
 $Mi \cdot \cos\phi$ from -1 to 1 in steps of 0,2

Figure 2

FRED

Typical average static loss as a function of output current

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

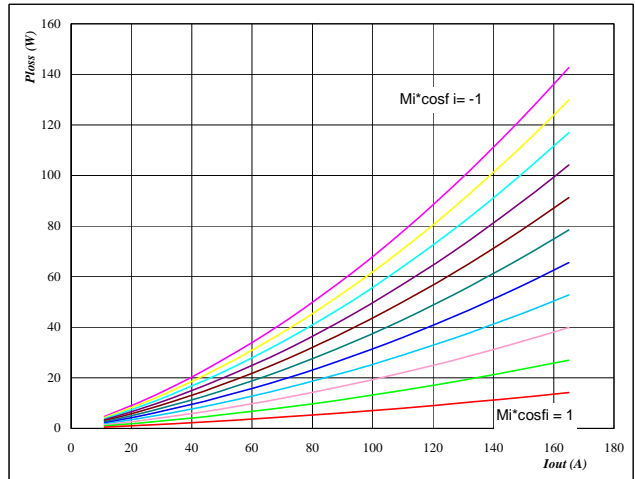
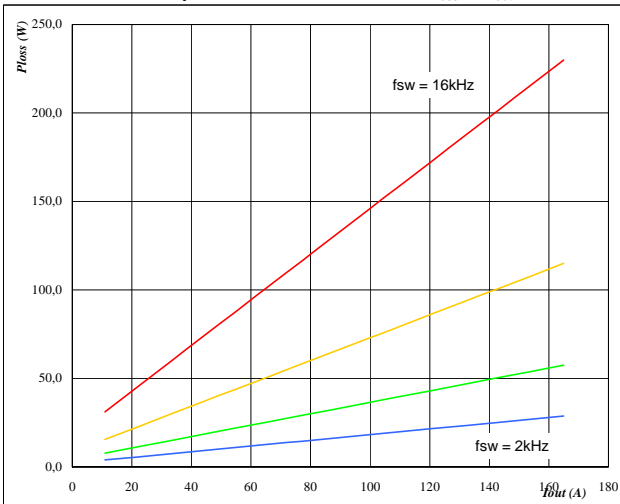

At
 $T_j = 150 \text{ } ^\circ\text{C}$
 $Mi \cdot \cos\phi$ from -1 to 1 in steps of 0,2

Figure 3

IGBT

Typical average switching loss as a function of output current

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


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

DC link = 600 V

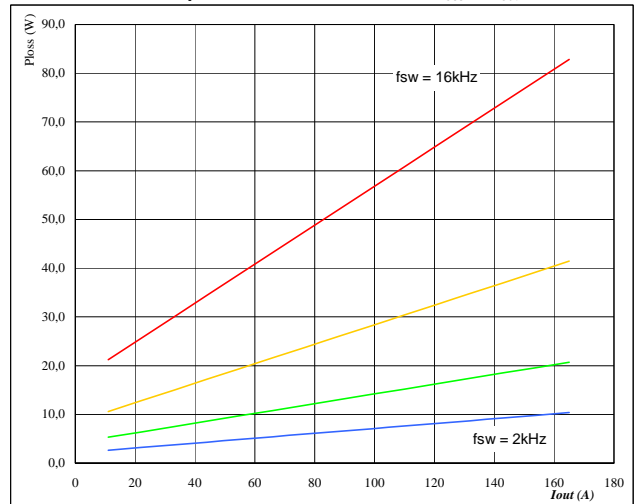
 f_{sw} from 2 kHz to 16 kHz in steps of factor 2

Figure 4

FRED

Typical average switching loss as a function of output current

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


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

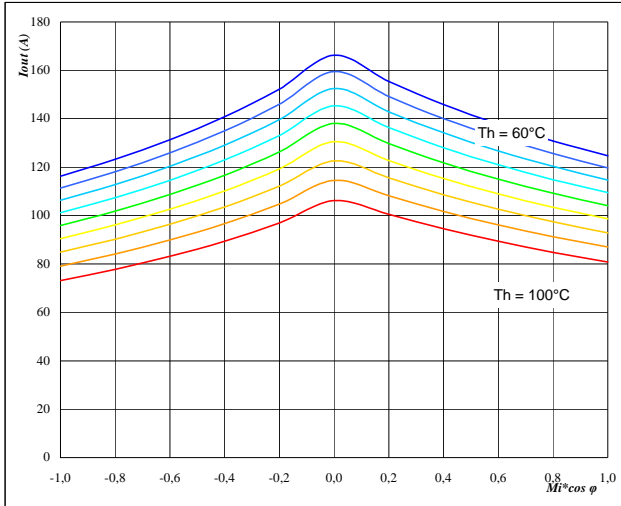
DC link = 600 V

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

Figure 5 Phase

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

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

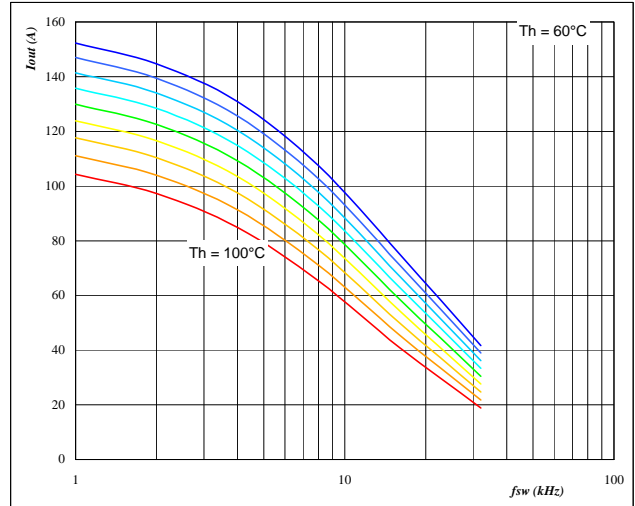


At
 $T_j = 150 \text{ } ^\circ\text{C}$
 DC link = 600 V
 $f_{sw} = 4 \text{ kHz}$
 T_h from 60 °C to 100 °C in steps of 5 °C

Figure 6 Phase

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

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

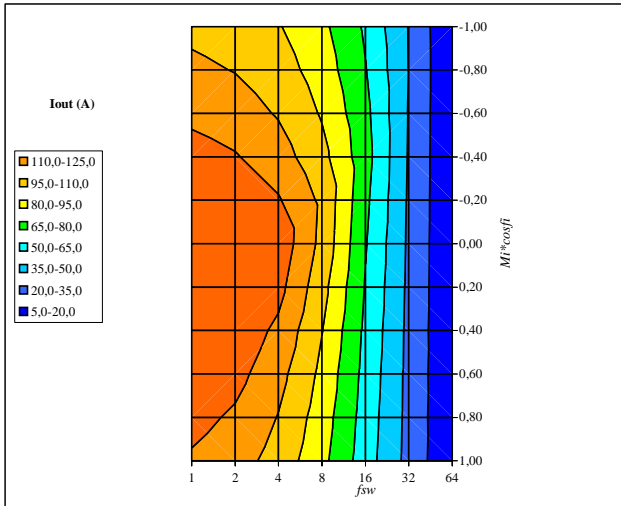


At
 $T_j = 150 \text{ } ^\circ\text{C}$
 DC link = 600 V
 $Mi \cdot \cos \phi = 0,8$
 T_h from 60 °C to 100 °C in steps of 5 °C

Figure 7 Phase

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

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

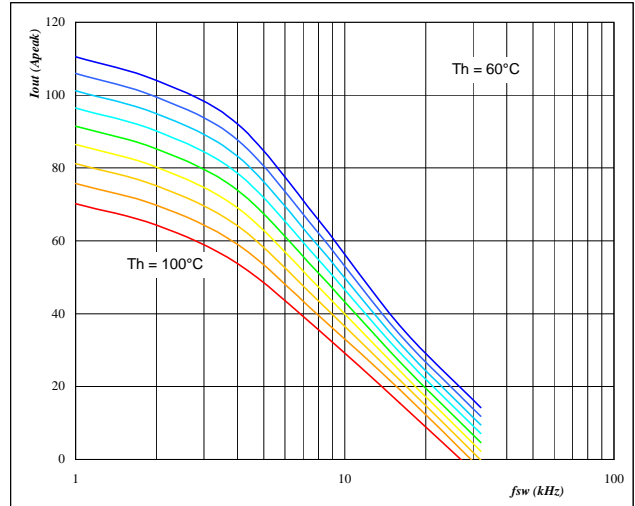


At
 $T_j = 150 \text{ } ^\circ\text{C}$
 DC link = 600 V
 $T_h = 80 \text{ } ^\circ\text{C}$

Figure 8 Phase

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

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

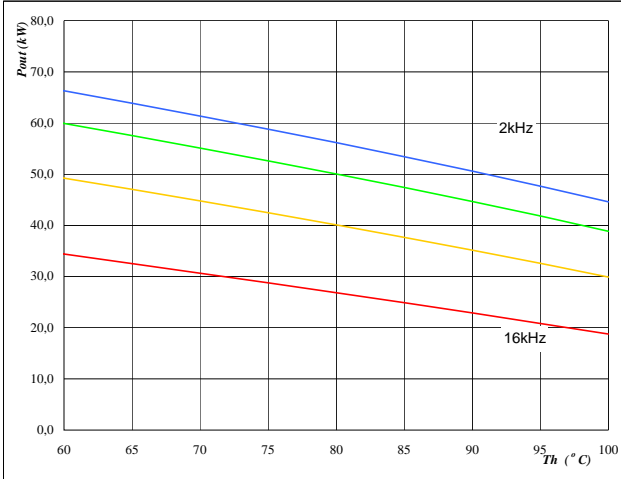


At
 $T_j = 150 \text{ } ^\circ\text{C}$
 DC link = 600 V
 T_h from 60 °C to 100 °C in steps of 5 °C
 $Mi = 0$

flowPHASE0 **Output Inverter Application** 1200V/150A

Figure 9 Inverter

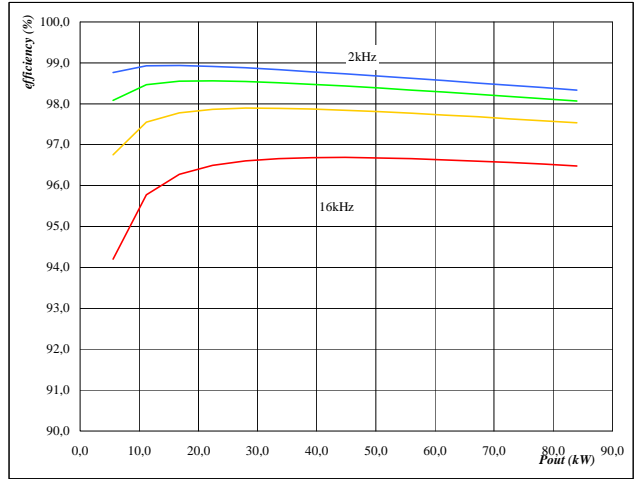
Typical available peak output power as a function of heatsink temperature
 $P_{out}=f(T_h)$



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

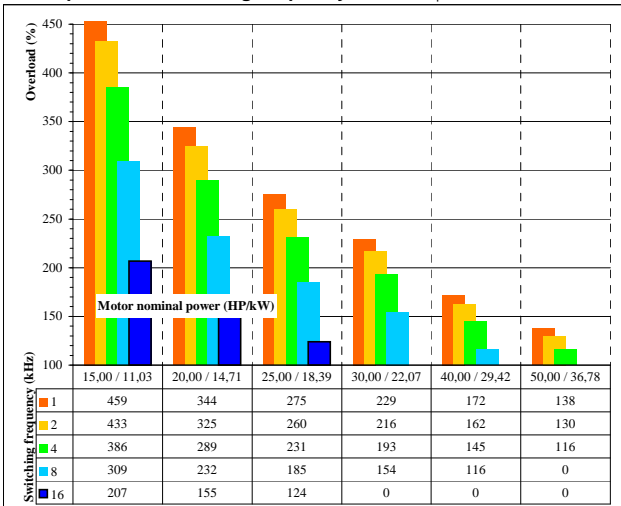
Typical efficiency as a function of output power
 $\text{efficiency}=f(P_{out})$



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

PRODUCT STATUS DEFINITIONS

| Datasheet Status | Product Status | Definition |
|------------------|------------------------|--|
| Target | Formative or In Design | This datasheet contains the design specifications for product development. Specifications may change in any manner without notice. The data contained is exclusively intended for technically trained staff. |
| Preliminary | First Production | This datasheet contains preliminary data, and supplementary data may be published at a later date. Vincotech reserves the right to make changes at any time without notice in order to improve design. The data contained is exclusively intended for technically trained staff. |
| Final | Full Production | This datasheet contains final specifications. Vincotech reserves the right to make changes at any time without notice in order to improve design. The data contained is exclusively intended for technically trained staff. |

DISCLAIMER

The information given in this datasheet describes the type of component and does not represent assured characteristics. For tested values please contact Vincotech. Vincotech reserves the right to make changes without further notice to any products herein to improve reliability, function or design. Vincotech does not assume any liability arising out of the application or use of any product or circuit described herein; neither does it convey any license under its patent rights, nor the rights of others.

LIFE SUPPORT POLICY

Vincotech products are not authorised for use as critical components in life support devices or systems without the express written approval of Vincotech.

As used herein:

1. Life support devices or systems are devices or systems which, (a) are intended for surgical implant into the body, or (b) support or sustain life, or (c) whose failure to perform when properly used in accordance with instructions for use provided in labelling can be reasonably expected to result in significant injury to the user.
2. A critical component is any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.