Vincotech

| *flow* PIM 2 3rd | Output Inverter Application | 1200 V / 35 A |

General conditions

3phase SPWM

V_{GEon}	=	**15 V**
V_{GEoff}	=	**-15 V**
R_{gon}	=	**16 Ω**
R_{goff}	=	**16 Ω**

| Figure 1 | IGBT |

Typical average static loss as a function of output current

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

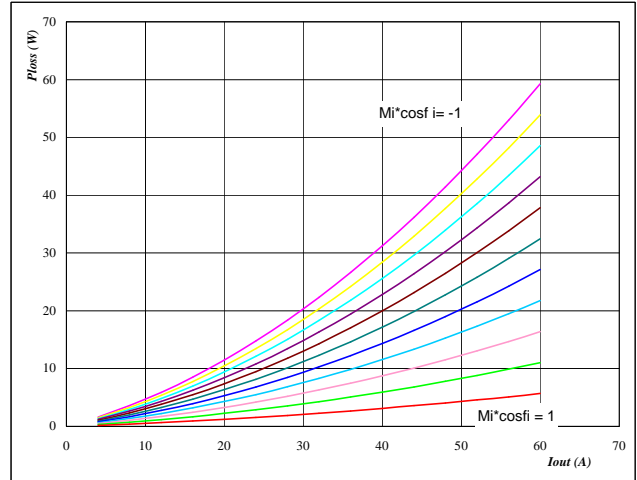Mi*cosfi = 1

Mi*cosfi = -1

At
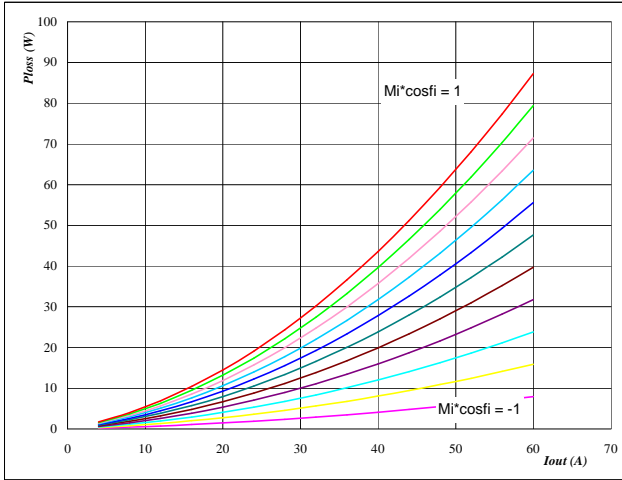
T_j = 150 °C

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

| Figure 2 | FWD |

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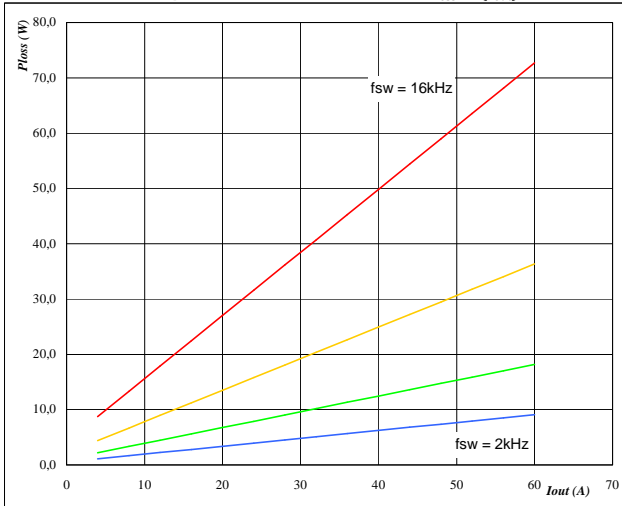
$P_{loss} = f(I_{out})$

Mi*cosf i= -1

Mi*cosfi = 1

At

T_j = 150 °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 $P_{loss} = f(I_{out})$
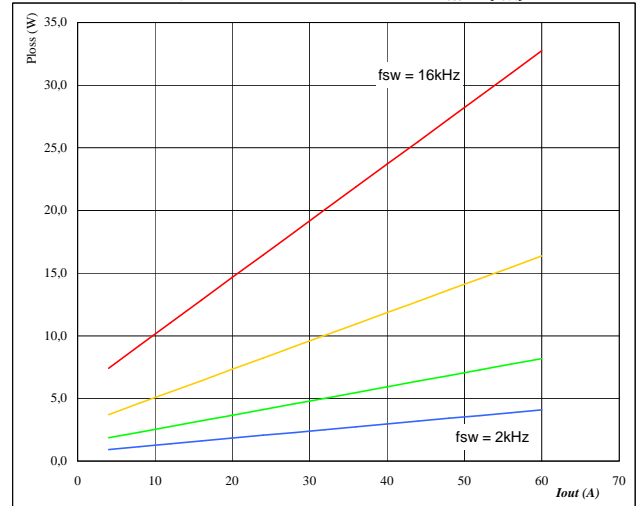

fsw = 16kHz

fsw = 2kHz

At

T_j = 150 °C

DC link = 600 V

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

| Figure 4 | FWD |

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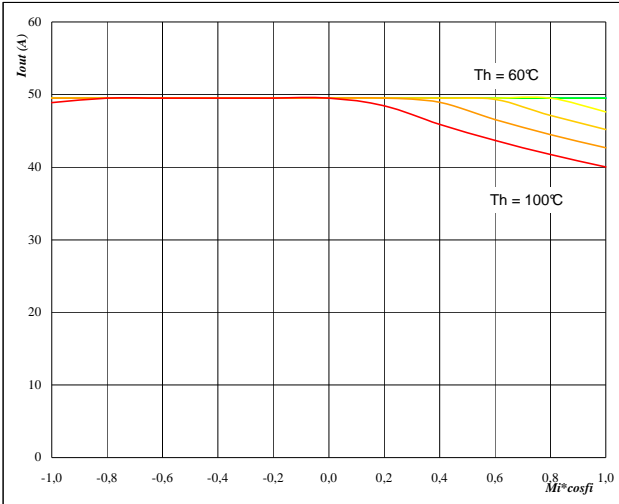**as a function of output current** $P_{loss} = f(I_{out})$

fsw = 16kHz

fsw = 2kHz

At

T_j = 150 °C

DC link = 600 V

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

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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 =	600	V
fsw =	4	kHz

Th from 60 °C to 100 °C in steps of 5 °C

Figure 6   Phase

Typical available 50Hz output current

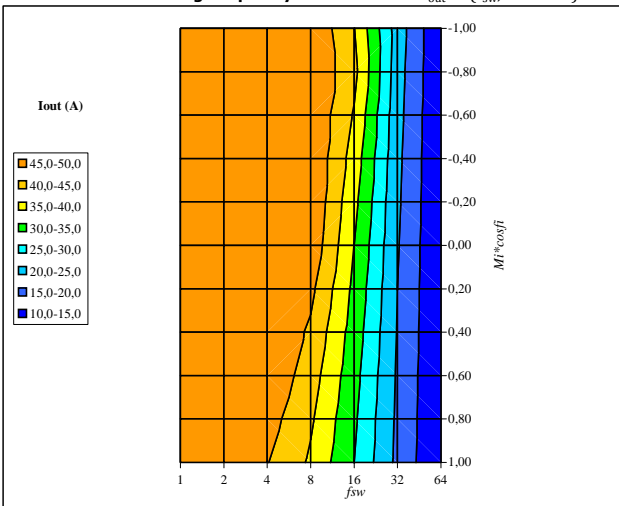**as a function of switching frequency** $I_{out} = f(f_{sw})$

At
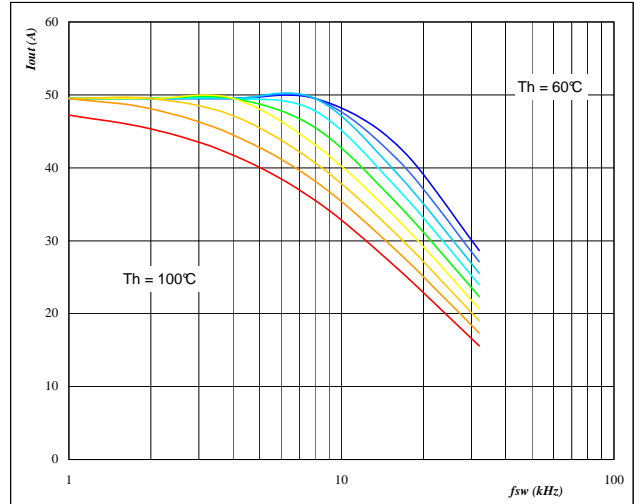
T_j =	150	°C
DC link =	600	V
Mi*cosfi =	0,8	

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

Iout (A)
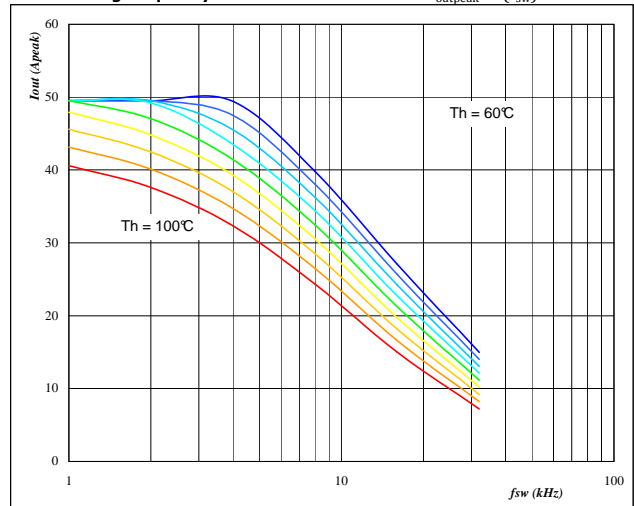
- 45,0-50,0
- 40,0-45,0
- 35,0-40,0
- 30,0-35,0
- 25,0-30,0
- 20,0-25,0
- 15,0-20,0
- 10,0-15,0

At

T_j =	150	°C
DC link =	600,00	V
T_h =	90	°C

Figure 8   Phase

Typical available 0Hz output current as a function

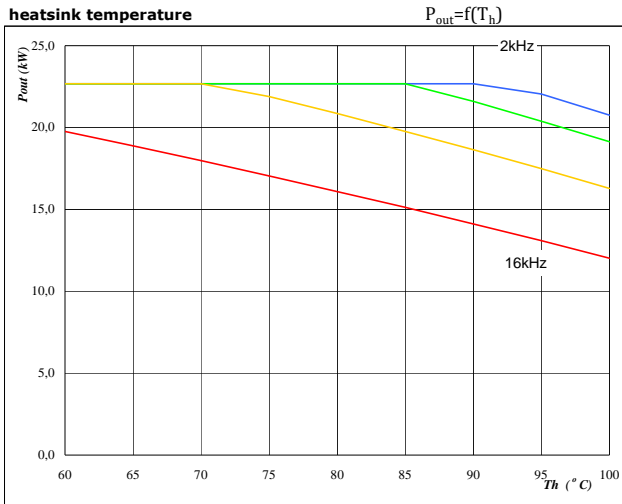**of switching frequency** $I_{outpeak} = f(f_{sw})$

At

| T_j = | 150 | °C |
| DC link = | 600,00 | V |

Th from 60 °C to 100 °C in steps of 5 °C

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Figure 9   Inverter

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

At

T_j =	150	°C
DC link =	600	V
Mi =	1	
cosfi =	0,80	

fsw from 8 kHz to 64 kHz in steps of factor 2

Figure 10   Inverter

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

At
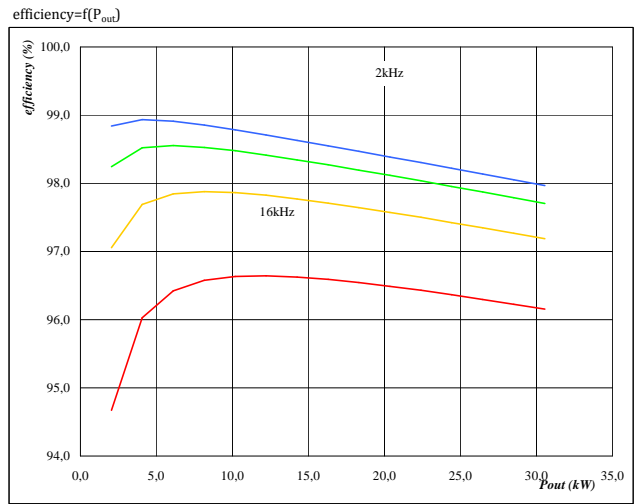
T_j =	150	°C
DC link =	600	V
Mi =	1	
cosfi =	0,80	

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 $P_{peak} / P_{nom}=f(P_{nom},f_{sw})$

Switching frequency (kHz)	Motor nominal power (HP/kW)					
	5,00 / 3,68	7,50 / 5,52	10,00 / 7,36	15,00 / 11,03	20,00 / 14,71	25,00 / 18,39
1	524	349	262	175	131	0
2	524	349	262	175	131	0
4	499	333	250	166	125	0
8	431	287	216	144	0	0
16	326	218	163	0	0	0

At
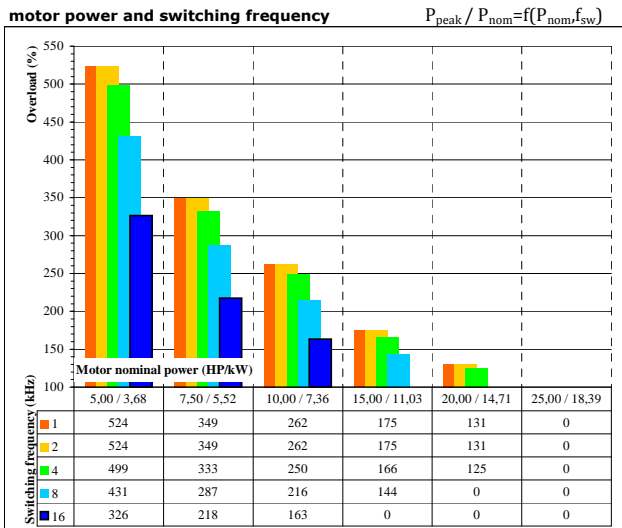
T_j =	150	°C
DC link =	600	V
Mi =	1	
cosfi =	0,8	
fsw from 1 kHz to 16 kHz in 2 steps		
Th =	90	°C
Motor eff =	0,85	