flow PFC 0 CD	PFC Application	650 V / 2 x 30 A

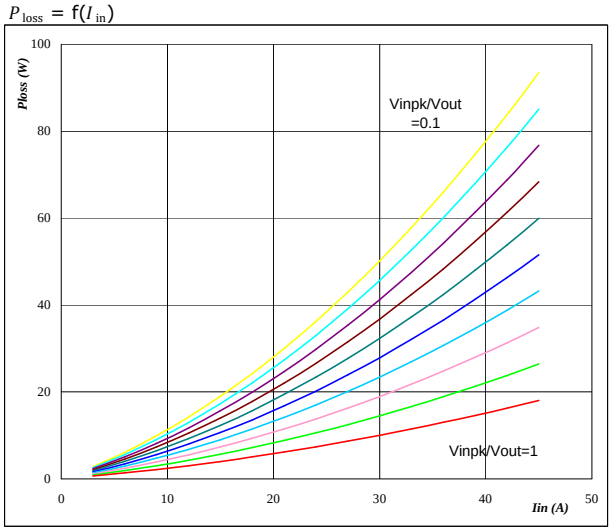
General conditions

Boost PFC	
V_{GEon}	= 15 V
V_{GEoff}	= 0 V
R_{gon}	= 16 Ω
R_{goff}	= 16 Ω
V_{in}	= V_{inpk}*sinωt

Figure 1 IGBT

Typical average static loss as a function of input current

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



At

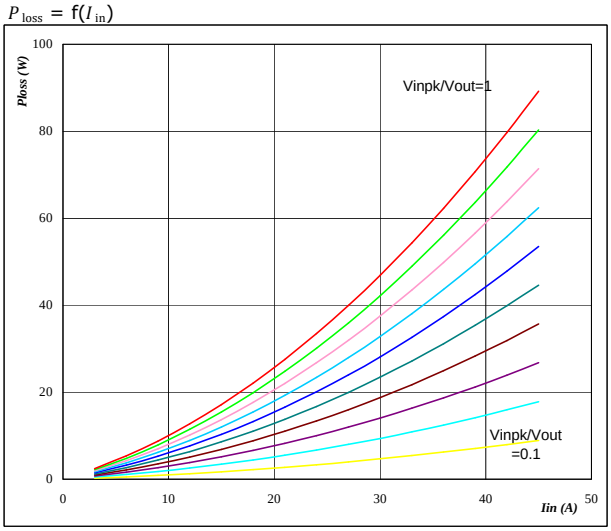
T_j = 125 °C

Vinpk / Vout from 0,1 to 1 in steps of 0,1

Figure 2 FWD

Typical average static loss as a function of input current

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



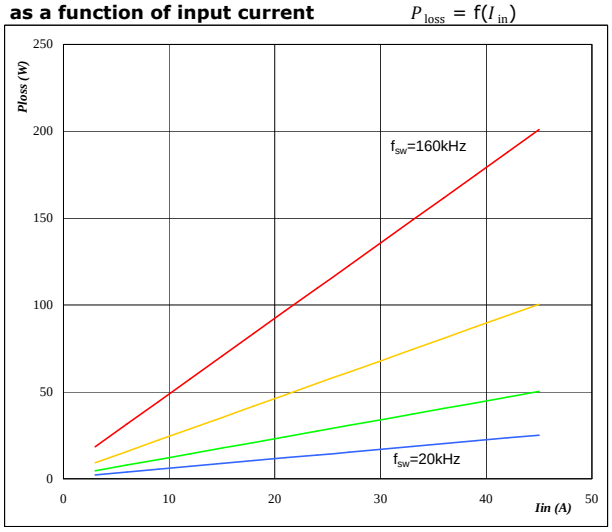
At

T_j = 125 °C

Vinpk / Vout from 0,1 to 1 in steps of 0,1

Figure 3 IGBT

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



At

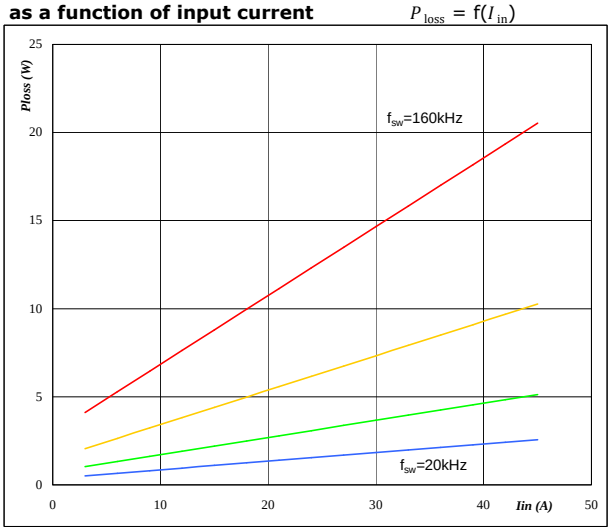
T_j = 125 °C

DC-link = 400 V

fsw from 20 kHz to 160 kHz in steps of factor 2

Figure 4 FWD

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



At

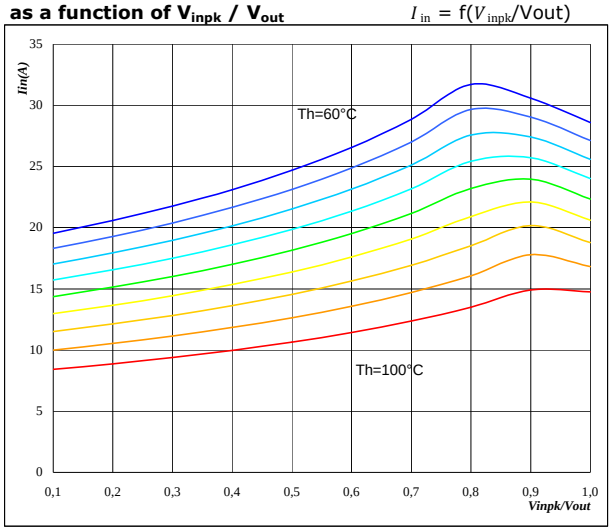
T_j = 125 °C

DC-link = 400 V

fsw from 20 kHz to 160 kHz in steps of factor 2

Figure 5 PFC-per leg

Typical available input current as a function of V_{inpk} / V_{out} I_{in} = f(V_{inpk}/Vout)

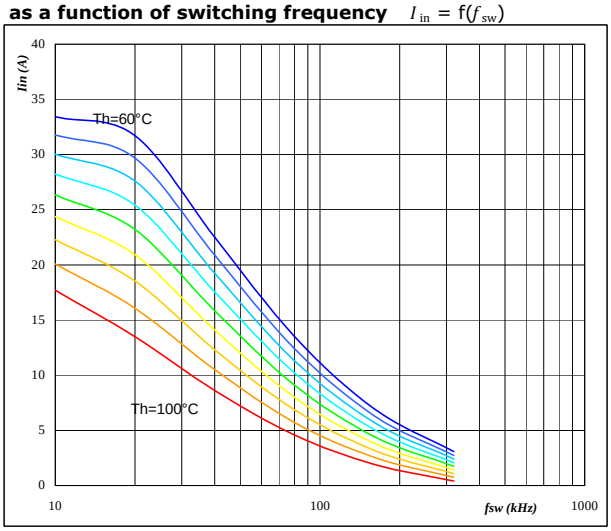


At

T_j = 125 °C
DC-link = 400 V
f_{sw} = 20 kHz
Th from 60 °C to 100 °C in steps of 5 °C

Figure 6 PFC-per leg

Typical available input current as a function of switching frequency I_{in} = f(f_{sw})

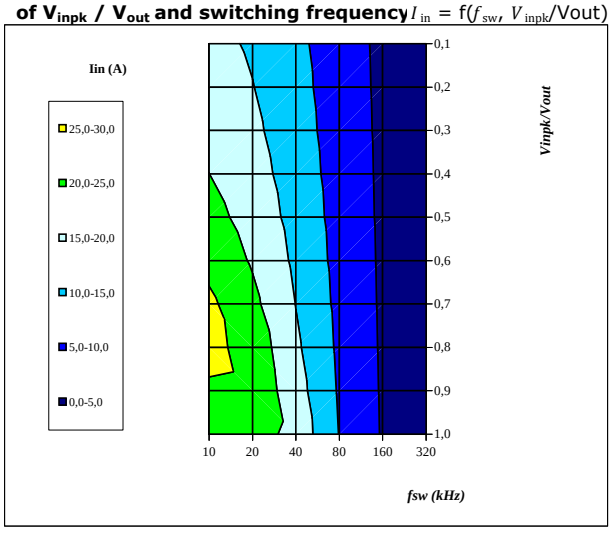


At

T_j = 125 °C
DC-link = 400 V
V_{inpk}/V_{out} = 0,8
Th from 60 °C to 100 °C in steps of 5 °C

Figure 7 PFC-per leg

Typical available input current as a function of V_{inpk} / V_{out} and switching frequency I_{in} = f(f_{sw}, V_{inpk}/Vout)

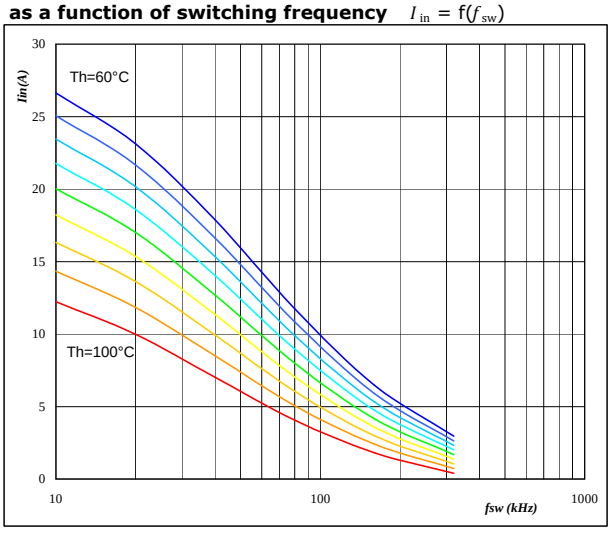


At

T_j = 125 °C
DC-link = 400 V
T_h = 80 °C

Figure 8 PFC-per leg

Typical available input current as a function of switching frequency I_{in} = f(f_{sw})

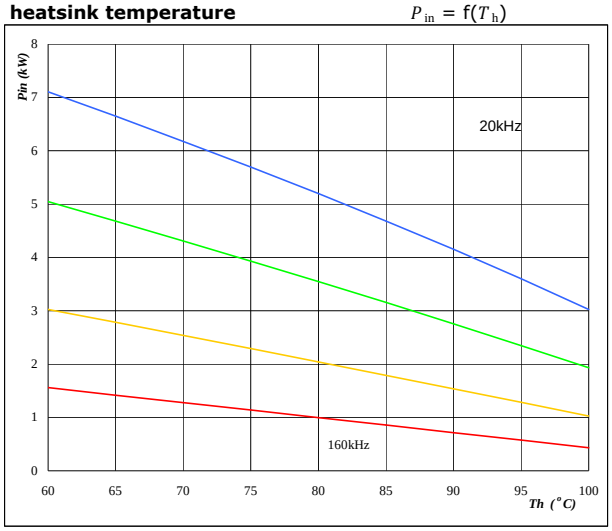


At

T_j = 125 °C
DC-link = 400 V
V_{inpk}/V_{out} = 0,4
Th from 60 °C to 100 °C in steps of 5 °C

Figure 9 PFC-per leg

Typical available electric input power as a function of heatsink temperature $P_{in} = f(T_h)$



At

T_j = 125 °C

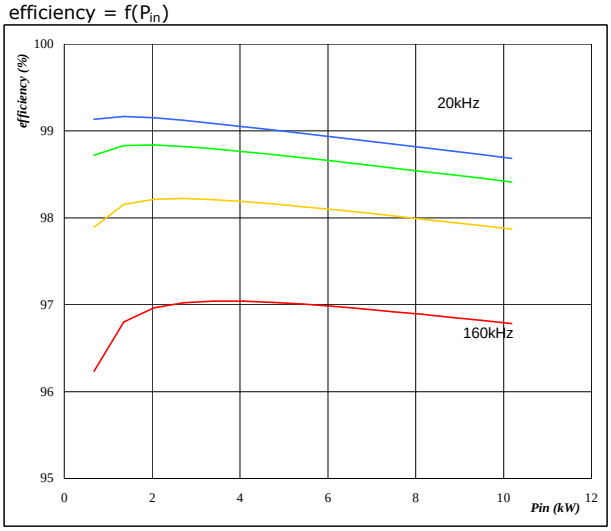
DC-link = 400 V

V_{inpk}/V_{out} = 0,8 kHz

fsw from 20 kHz to 160 kHz in steps of factor 2

Figure 10 PFC-per leg

Typical efficiency as a function of input power efficiency = f(P_{in})



At

T_j = 125 °C

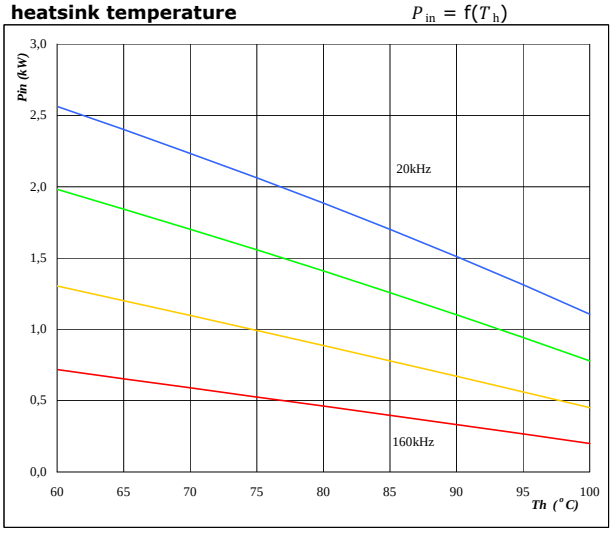
DC-link = 400 V

V_{inpk}/V_{out} = 0,8 kHz

fsw from 20 kHz to 160 kHz in steps of factor 2

Figure 11 PFC-per leg

Typical available electric input power as a function of heatsink temperature $P_{in} = f(T_h)$



At

T_j = 125 °C

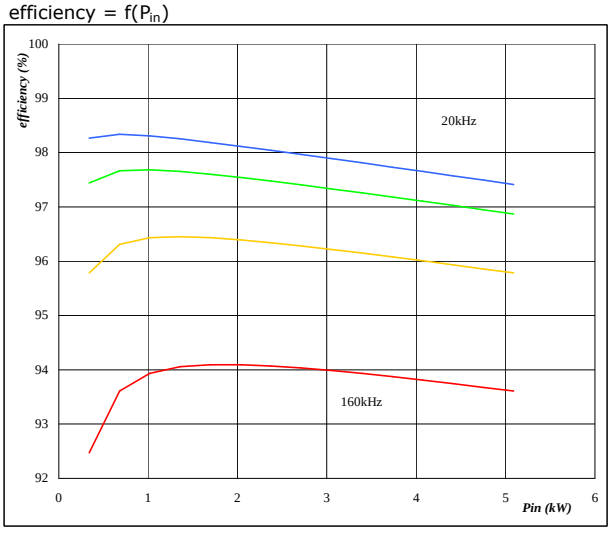
DC-link = 400 V

V_{inpk}/V_{out} = 0,4

fsw from 20 kHz to 160 kHz in steps of factor 2

Figure 12 PFC-per leg

Typical efficiency as a function of input power efficiency = f(P_{in})



At

T_j = 125 °C

DC-link = 400 V

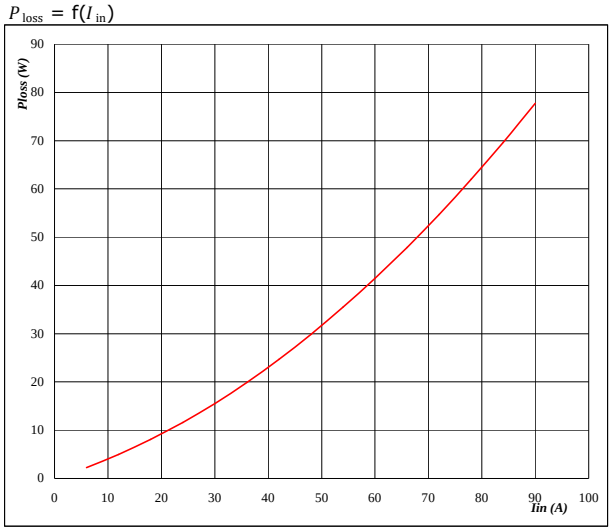
V_{inpk}/V_{out} = 0,4

fsw from 20 kHz to 160 kHz in steps of factor 2

Figure 13 Rectifier

Typical average static loss as a function of input current

P_{loss} = f(I_{in})



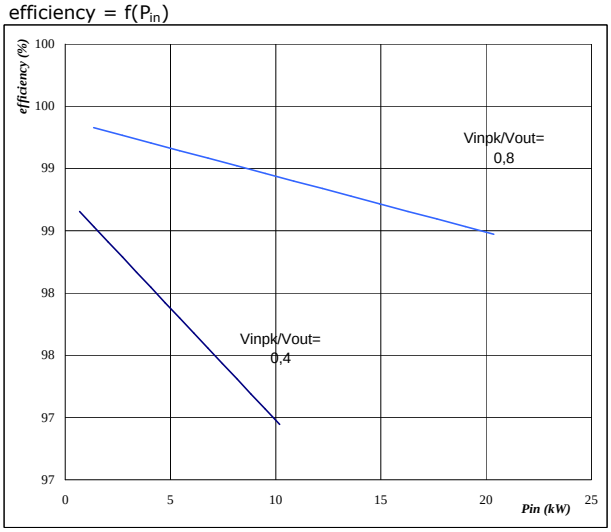
At

T_j = 125 °C

Figure 14 Rectifier Bridge

Typical efficiency as a function of input power

efficiency = f(P_{in})



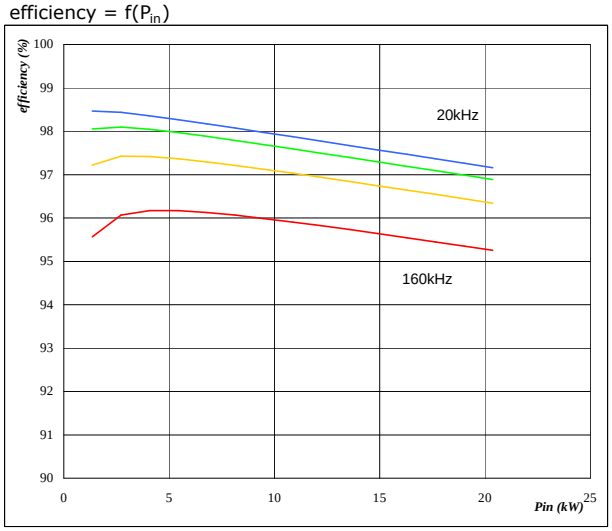
At

T_j = 125 °C

Figure 15 Overall

Typical efficiency as a function of input power

efficiency = f(P_{in})



At

T_j = 125 °C

DC-link = 400 V

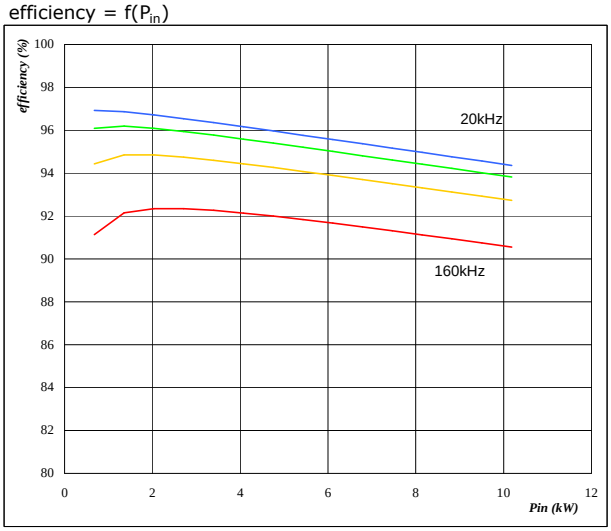
V_{inpk}/V_{out} = 0,8 kHz

fsw from 20 kHz to 160 kHz in steps of factor 2

Figure 16 Overall

Typical efficiency as a function of input power

efficiency = f(P_{in})



At

T_j = °C

DC-link = 400 V

V_{inpk}/V_{out} = 0,4 kHz

fsw from 20 kHz to 160 kHz in steps of factor 2