flow **S-PFC 0** | **HIGH EFF. PFC Application** | **650 V / 50 A**

General conditions

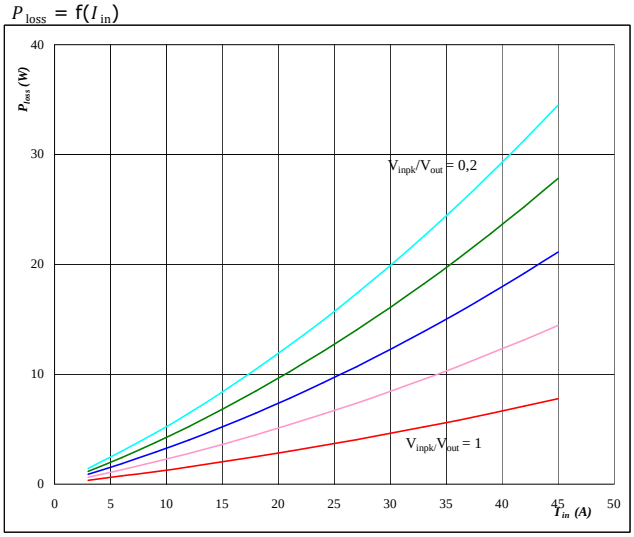
Boost PFC

V_{GEon} = **+15 V**
V_{GEoff} = **-5 V**
R_{gon} = **8 Ω**
R_{goff} = **8 Ω**
V_{in} = V_{inpk}*sinωt

figure 1. **IGBT**

Typical average static loss as a function of input current

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



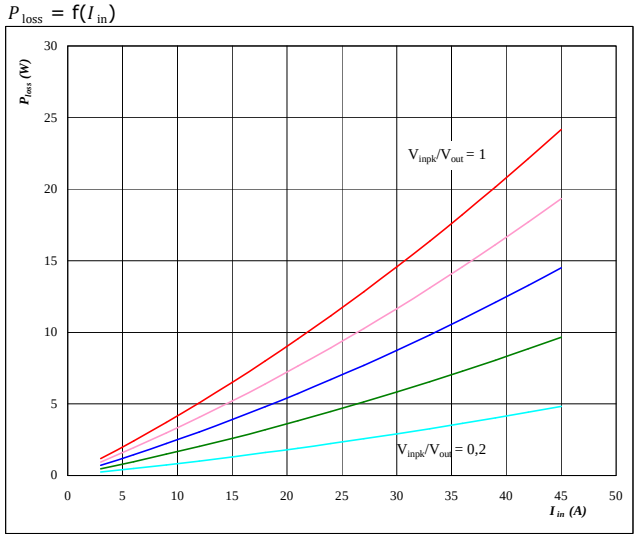
At

T_j = 125 °C
V_{inpk} / V_{out} from 0,1 to 1 in steps of 0,2

figure 2. **FWD**

Typical average static loss as a function of input current

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



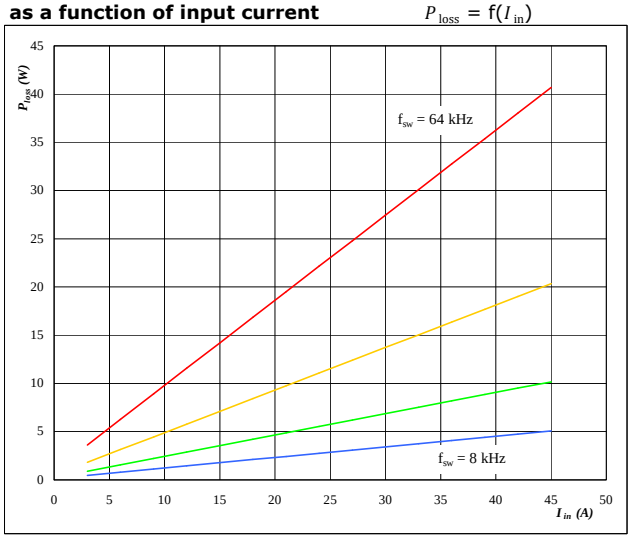
At

T_j = 125 °C
V_{inpk} / V_{out} from 0,1 to 1 in steps of 0,2

figure 3. **IGBT**

Typical average switching loss as a function of input current

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



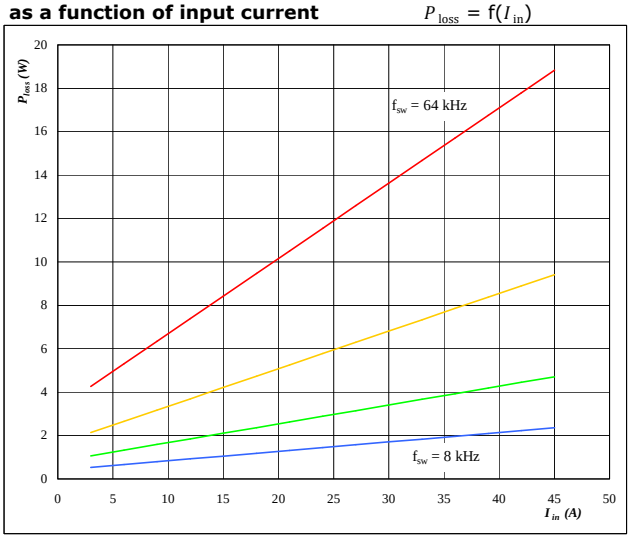
At

T_j = 125 °C
DC-link = 350 V
f_{sw} from 8 kHz to 64 kHz in steps of factor 2

figure 4. **FWD**

Typical average switching loss as a function of input current

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



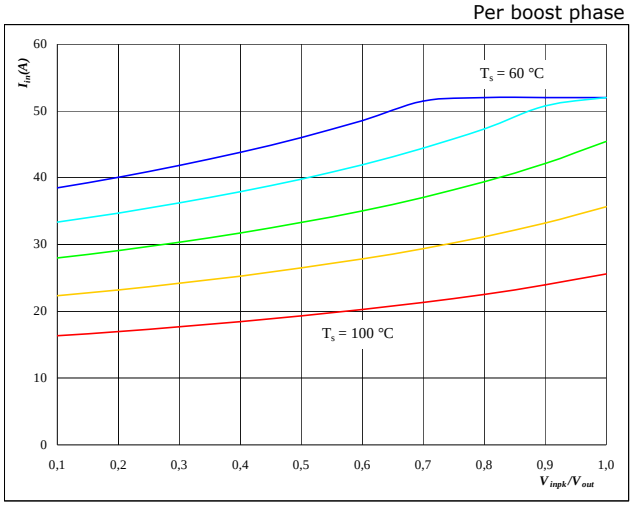
At

T_j = 125 °C
DC-link = 350 V
f_{sw} from 8 kHz to 64 kHz in steps of factor 2

figure 5. **PFC per leg**

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

Per boost phase



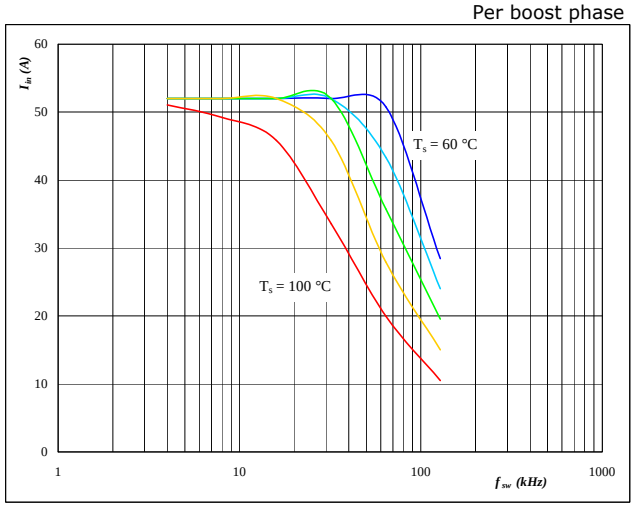
At

T_j =	125	°C
DC-link =	350	V
f_{sw} =	50	kHz
T_s from	60 °C to 100 °C in steps of 10 °C	

figure 6. **PFC per leg**

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

Per boost phase



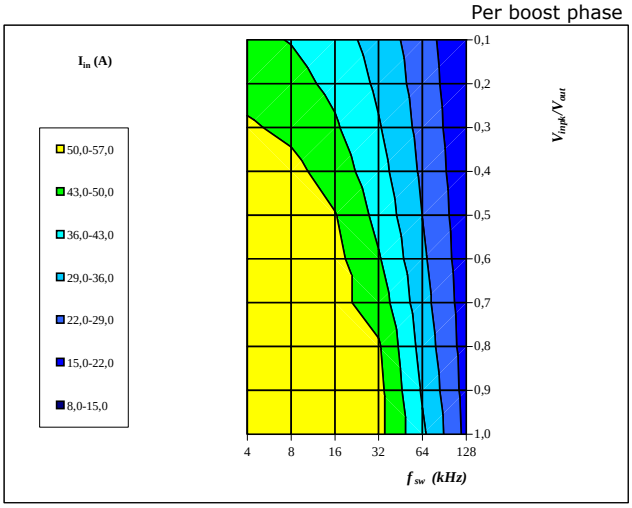
At

T_j =	125	°C
DC-link =	350	V
V_{inpk}/V_{out} =	0,9	
T_s from	60 °C to 100 °C in steps of 10 °C	

figure 7. **PFC per leg**

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

Per boost phase



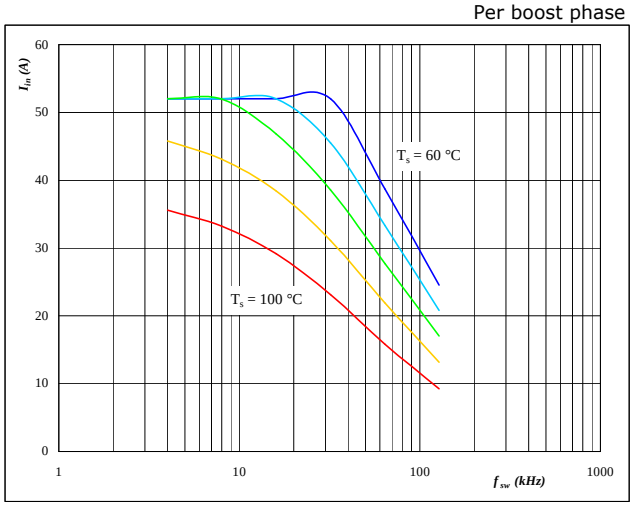
At

T_j =	125	°C
DC-link =	350	V
T_s =	80	°C

figure 8. **PFC per leg**

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

Per boost phase



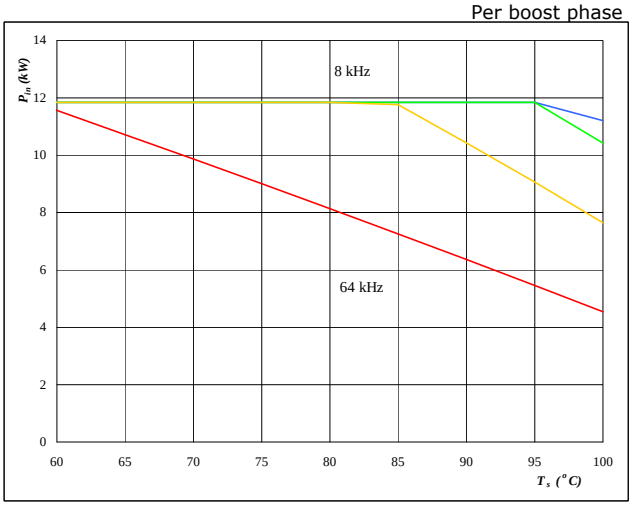
At

T_j =	125	°C
DC-link =	350	V
V_{inpk}/V_{out} =	0,4	
T_s 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 $P_{in} = f(T_s)$

Per boost phase



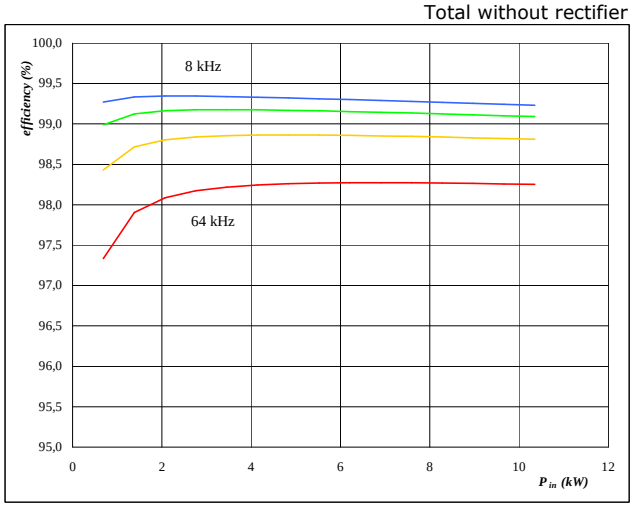
At

T_j = 125 °C
DC-link = 350 V
V_{inpk}/V_{out} = 0,9 kHz
f_{sw} from 8 kHz to 64 kHz in steps of factor 2

figure 10. **PFC**

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

Total without rectifier



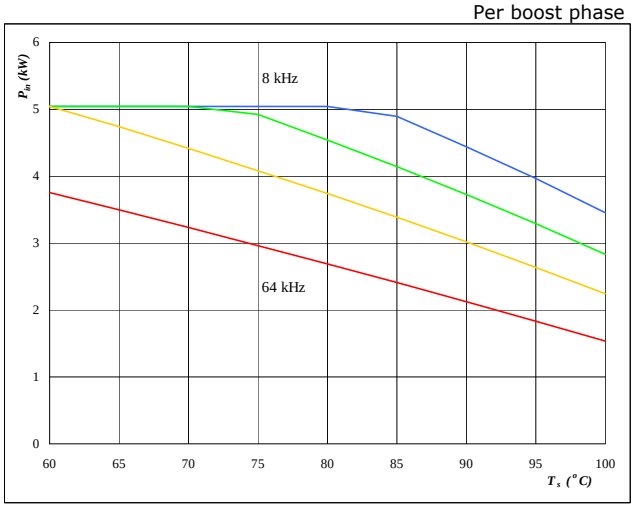
At

T_j = 125 °C
DC-link = 350 V
V_{inpk}/V_{out} = 0,9 kHz
f_{sw} from 8 kHz to 64 kHz in steps of factor 2

figure 11. **PFC per leg**

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

Per boost phase



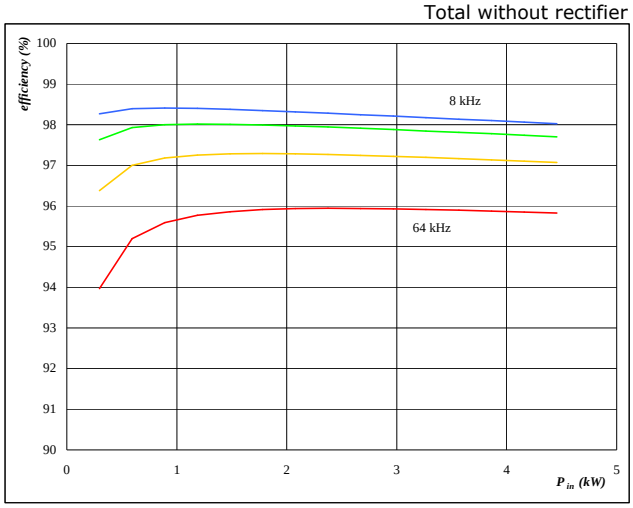
At

T_j = 125 °C
DC-link = 350 V
V_{inpk}/V_{out} = 0,4
f_{sw} from 8 kHz to 64 kHz in steps of factor 2

figure 12. **PFC**

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

Total without rectifier



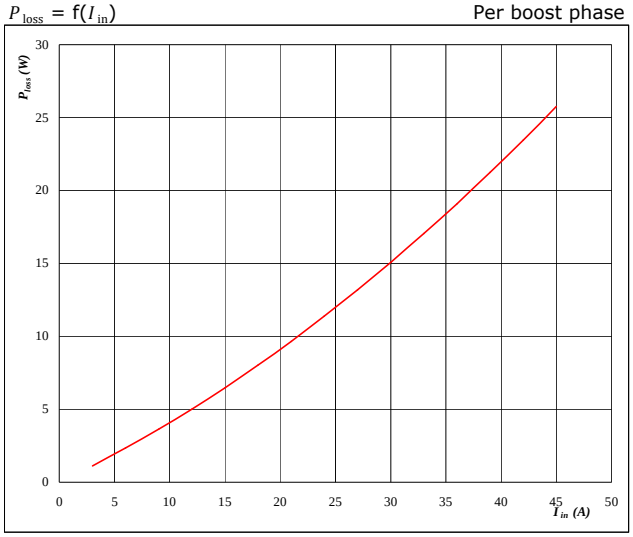
At

T_j = 125 °C
DC-link = 350 V
V_{inpk}/V_{out} = 0,4
f_{sw} from 8 kHz to 64 kHz in steps of factor 2

figure 13. **Rectifier**

Typical average static loss as a function of input current

P_{loss} = f(I_{in}) Per boost phase



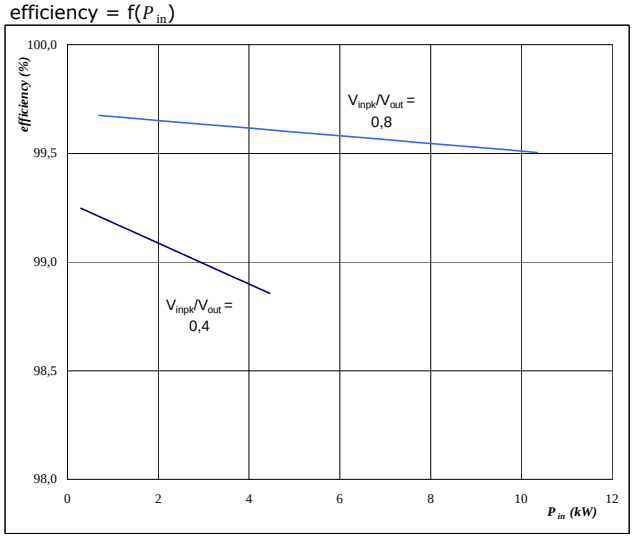
At

T_j = 125 °C

figure 14. **Rectifier Bridge**

Typical efficiency as a function of input power

efficiency = f(P_{in})



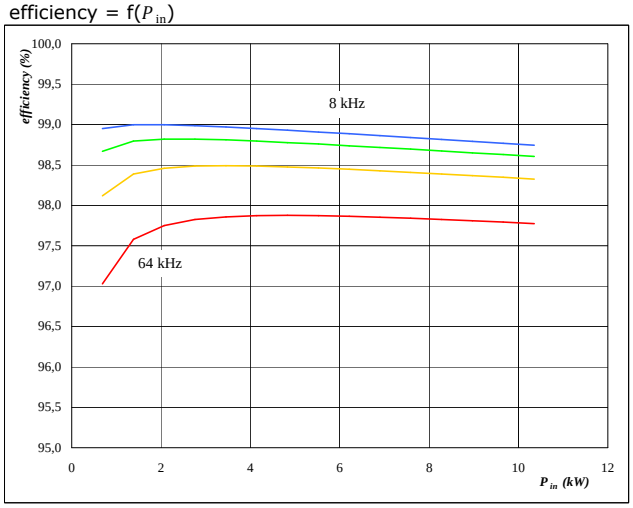
At

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 = 350 V

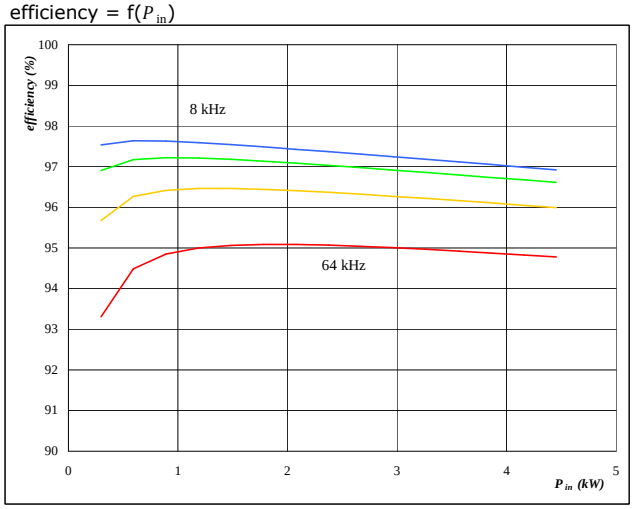
V_{inpk}/V_{out} = 0,9 kHz

f_{sw} from 8 kHz to 64 kHz in steps of factor 2

figure 16. **Overall**

Typical efficiency as a function of input power

efficiency = f(P_{in})



At

T_j = 125 °C

DC-link = 350 V

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

f_{sw} from 8 kHz to 16 kHz in steps of factor 2