***flow* S-PFC 0** | **HIGH EFF. PFC Application** | **650 V / 100 A**

**General conditions**

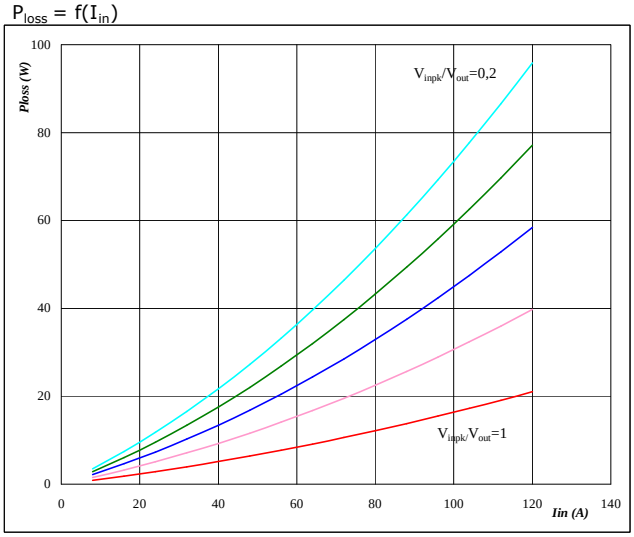
**Boost PFC**

$V_{GEon}$ = +15 V
$V_{GEoff}$ = -5 V
$R_{gon}$ = 4 Ω
$R_{goff}$ = 4 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**

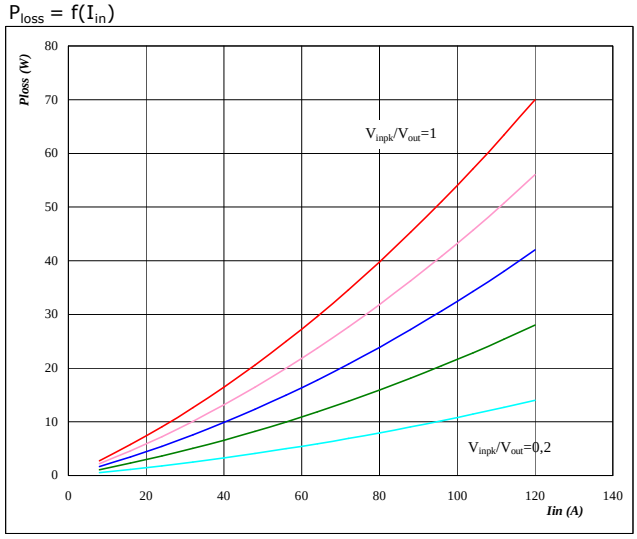
$T_j$ = 125 °C

Vinpk / Vout from 0,1 to 1 in steps of 0,2

**Figure 2** FWD

**Typical average static loss as a function of input current**

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



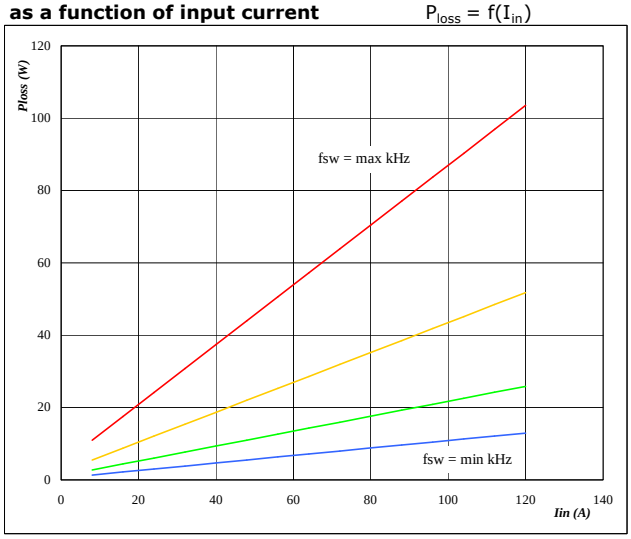

**At**

$T_j$ = 125 °C

Vinpk / Vout from 0,1 to 1 in steps of 0,2

**Figure 3** IGBT

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




**At**

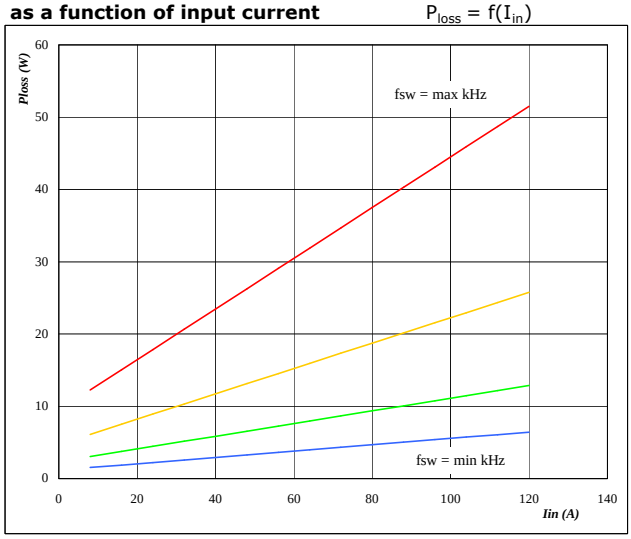
$T_j$ = 125 °C

DC link = 350 V

fsw 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

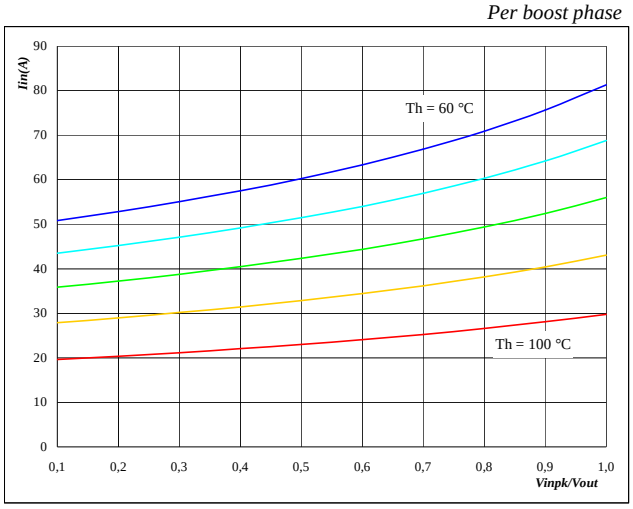
DC link = 350 V

fsw 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*



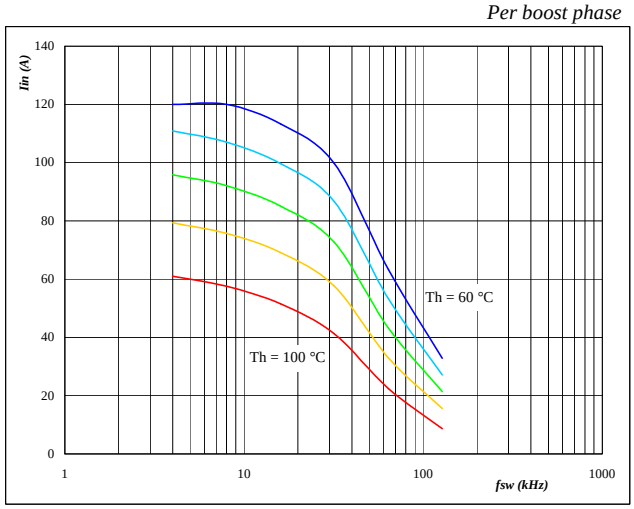

**At**

$T_j$ = 125 °C
DC link = 350 V
fsw = 50 kHz
Th 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*



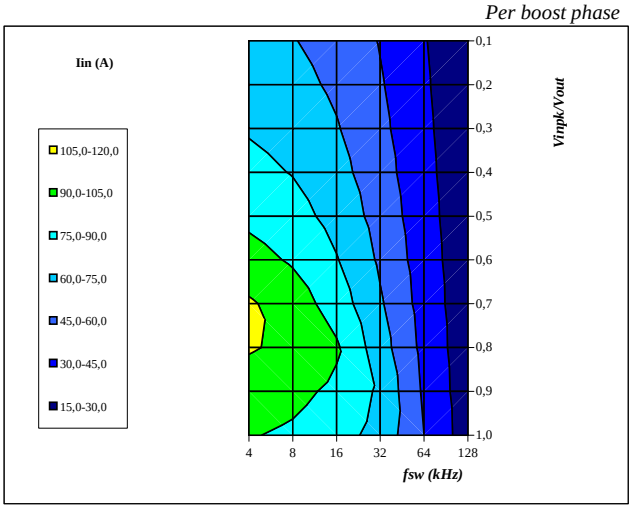

**At**

$T_j$ = 125 °C
DC link = 350 V
$V_{inpk}/V_{out}$ = 0,9
Th 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*



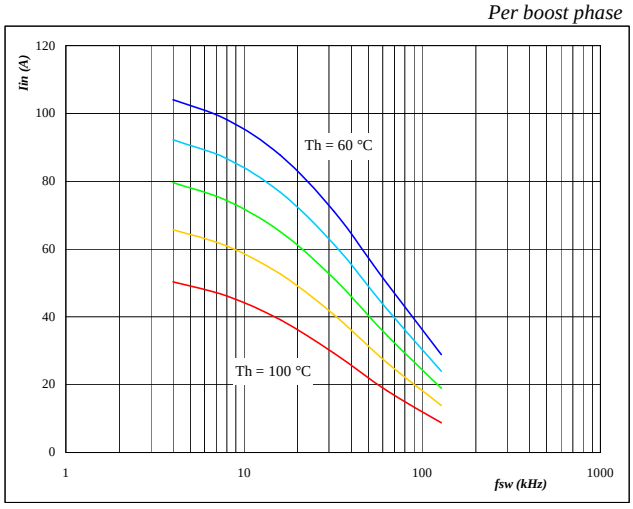

**At**

$T_j$ = 125 °C
DC link = 350 V
$T_h$ = 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**

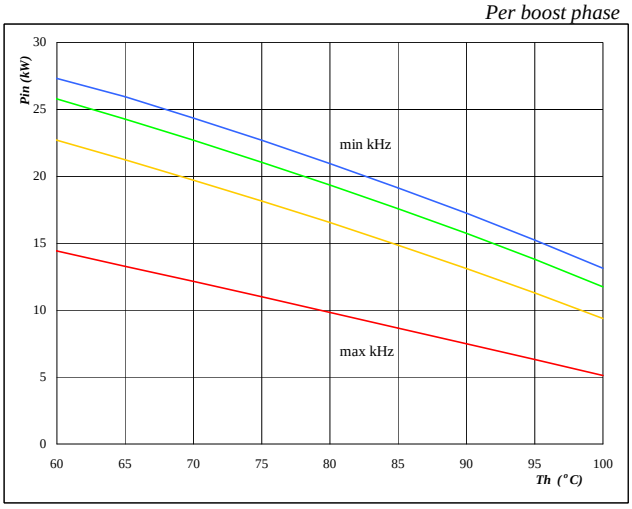
$T_j$ = 125 °C
DC link = 350 V
$V_{inpk}/V_{out}$ = 0,40
Th from 60 °C to 100 °C in steps of 5 °C

*Per boost phase*

**Figure 9** PFC per leg

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

*Per boost phase*



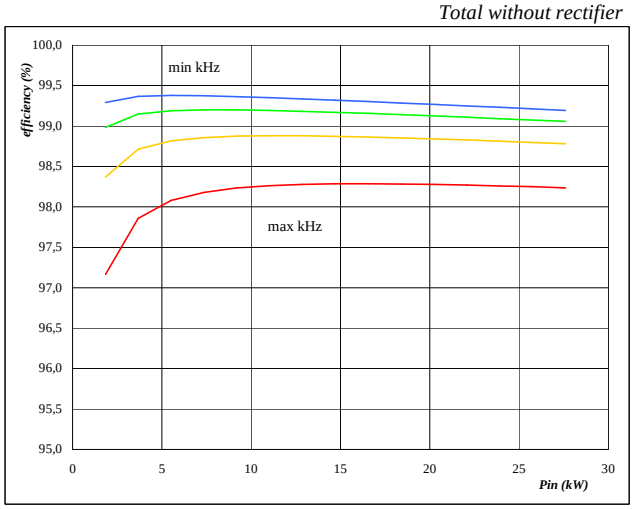

**At**

$T_j$ = 125 °C
DC link = 350 V
$V_{inpk}/V_{out}$ = 0,9 kHz
fsw 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*



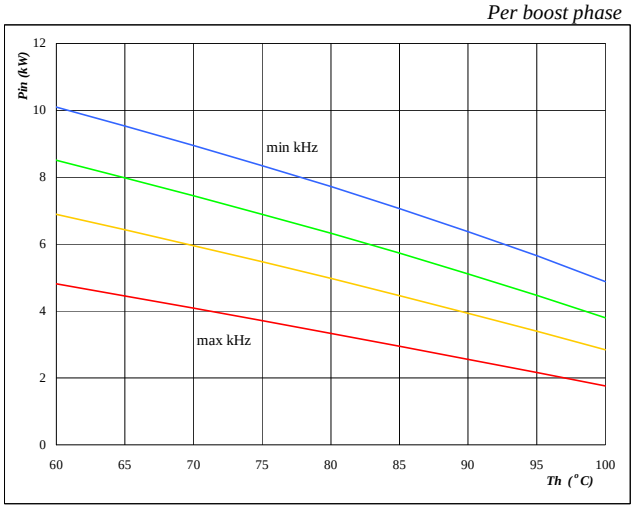

**At**

$T_j$ = 125 °C
DC link = 350 V
$V_{inpk}/V_{out}$ = 0,9 kHz
fsw 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** $P_{in} = f(T_h)$

*Per boost phase*



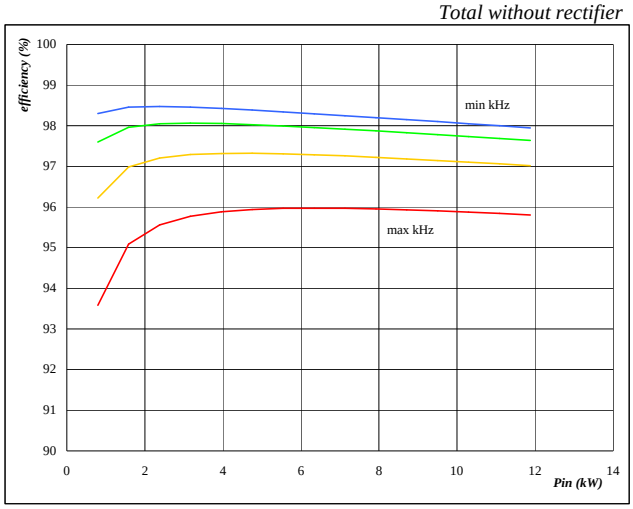

**At**

$T_j$ = 125 °C
DC link = 350 V
$V_{inpk}/V_{out}$ = 0,4
fsw 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*



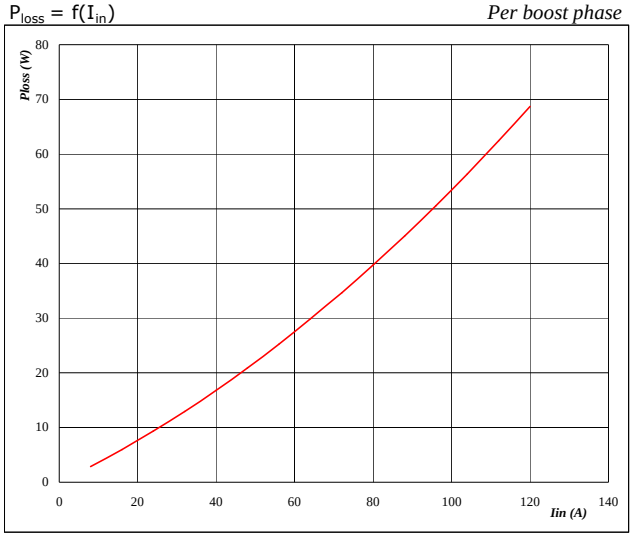

**At**

$T_j$ = 125 °C
DC link = 350 V
$V_{inpk}/V_{out}$ = 0,4
fsw 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*



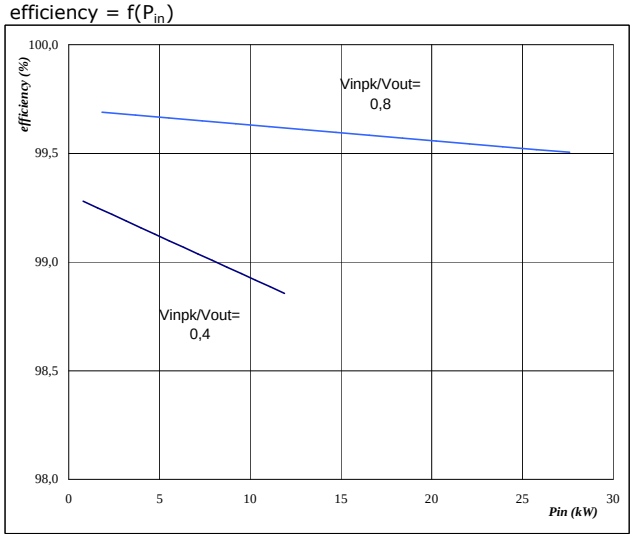

**At**

$T_j$ = 125 °C

**Figure 14** Rectifier Bridge

**Typical efficiency as a function of input power**

efficiency = $f(P_{in})$



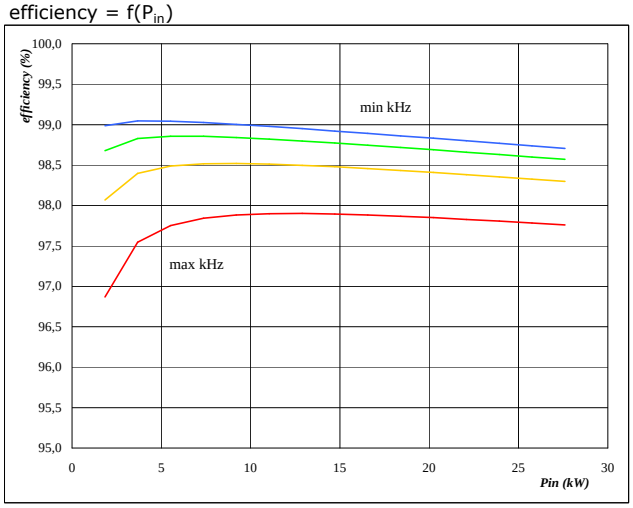

**At**

$T_j$ = 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

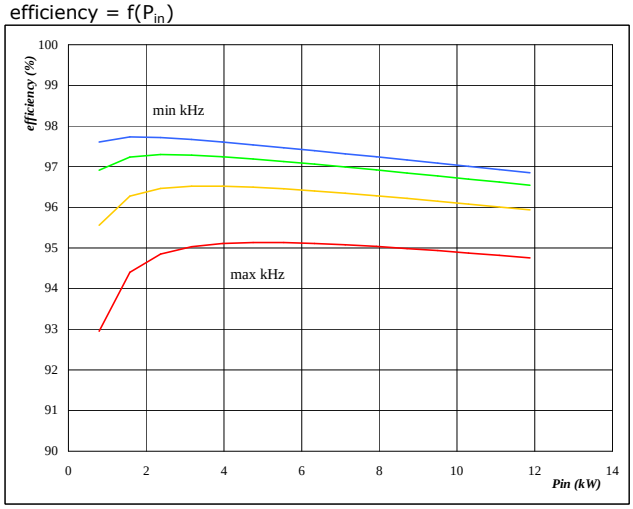
$V_{inpk}/V_{out}$ = 0,9 kHz

fsw 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

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