

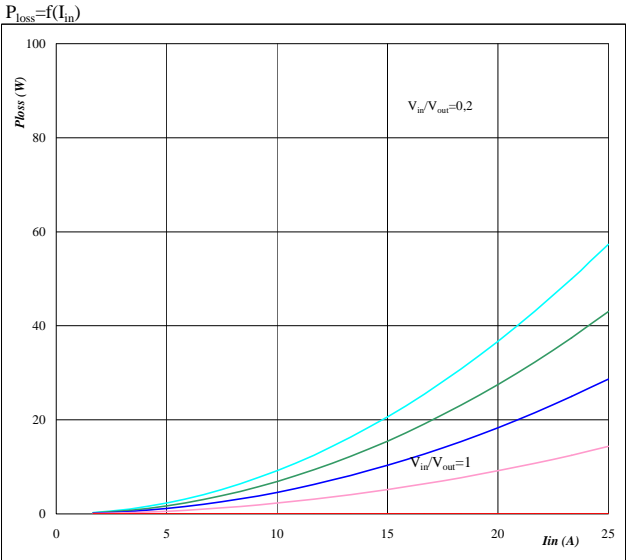
flow3xBOOST0-SiC DC Boost Application 1200V/80mΩ

General conditions

BOOST	
V_{GEon}	= 16 V
V_{GEoff}	= 0 V
R_{gon}	= 4 Ω
R_{goff}	= 4 Ω

Figure 1. MOSFET

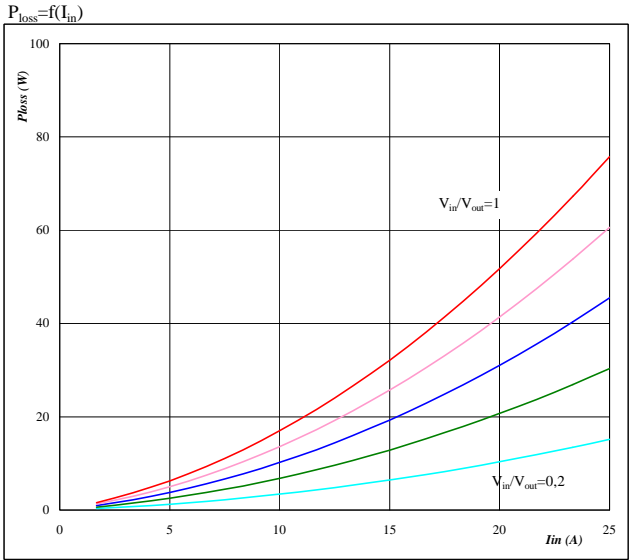
Typical average static loss as a function of input current I_{RMS}



Conditions: $T_j = 125$ °C
 Ratio of input DC voltage to output DC voltage
 parameter: V_{in}/V_{out} from 0,2 to 1,0
 in 0,2 steps

Figure 2. FWD

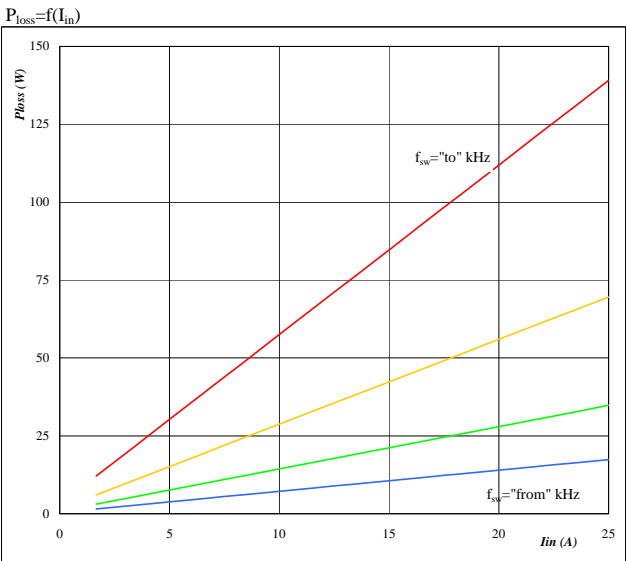
Typical average static loss as a function of input current I_{RMS}



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Figure 3. MOSFET

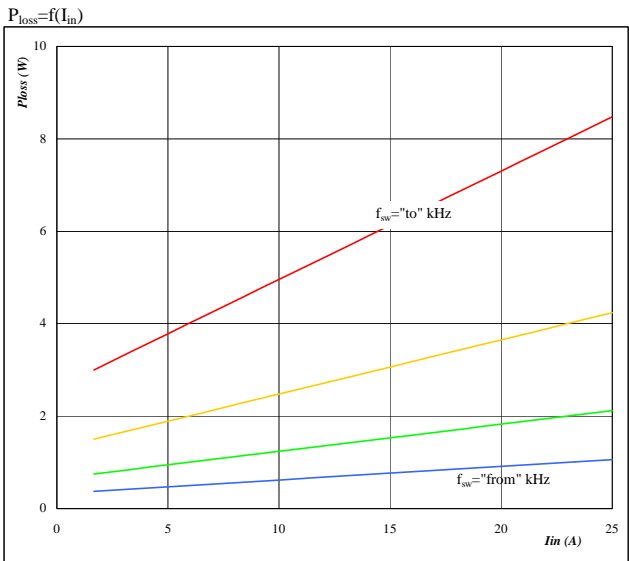
Typical average switching loss as a function of input current



Conditions: $T_j = 125$ °C
 $V_{out} = 800$ V
 Sw. freq. fsw from 16 kHz to 128 kHz
 in steps of factor 2

Figure 4. FWD

Typical average switching loss as a function of input current



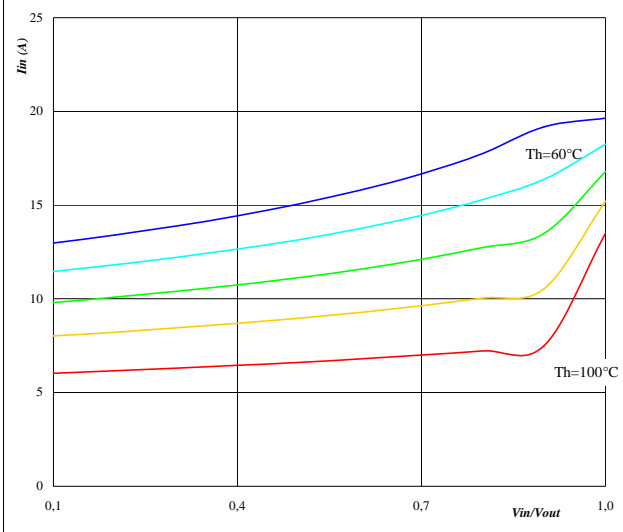
Conditions: $T_j = 125$ °C
 $V_{out} = 800$ V
 Sw. freq. fsw from 16 kHz to 128 kHz
 in steps of factor 2

Figure 5. per PHASE

Typical available input current as a function of

V_{in}/V_{out}

$I_{in}=f(V_{in}/V_{out})$

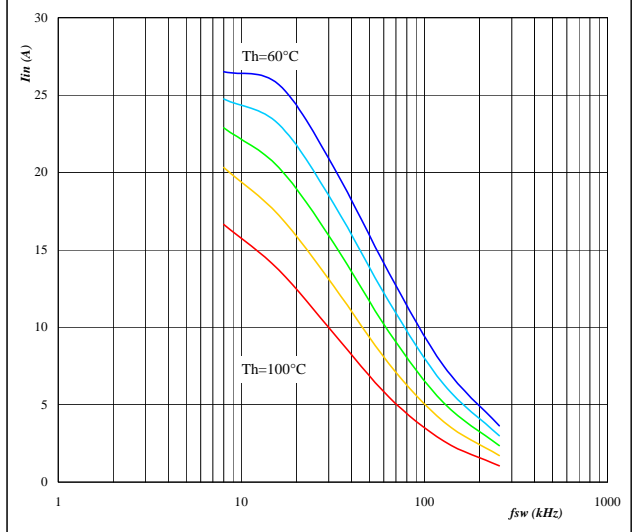


Conditions: $T_j = T_{jmax} - 25^\circ\text{C}$
 DC link= 800 V $f_{sw} = 50$ kHz
 parameter: Heatsink temp.
 Th from 60 °C to 100 °C
 in 10 °C steps

Figure 6. per PHASE

Typical available input current as a function of switching frequency

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



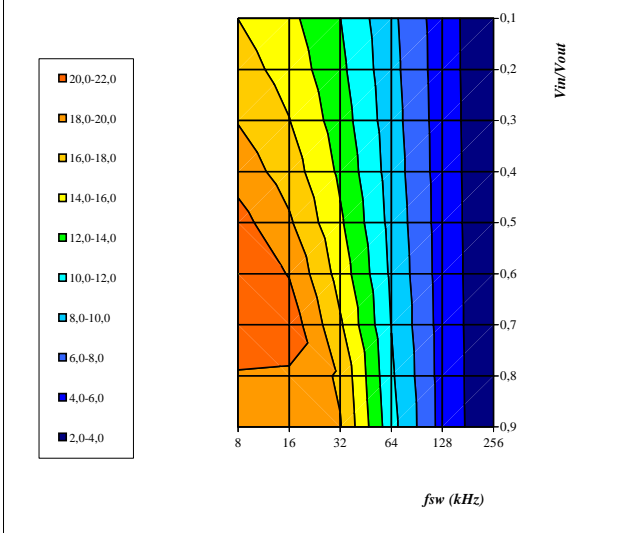
Conditions: $T_j = T_{jmax} - 25^\circ\text{C}$
 DC link= 800 V $V_{in} = 500$ V
 parameter: Heatsink temp.
 Th from 60 °C to 100 °C
 in 10 °C steps

Figure 7. per PHASE

Typical available input current as a function of

f_{sw} and V_{in}/V_{out}

$I_{in}=f(f_{sw}, V_{in}/V_{out})$

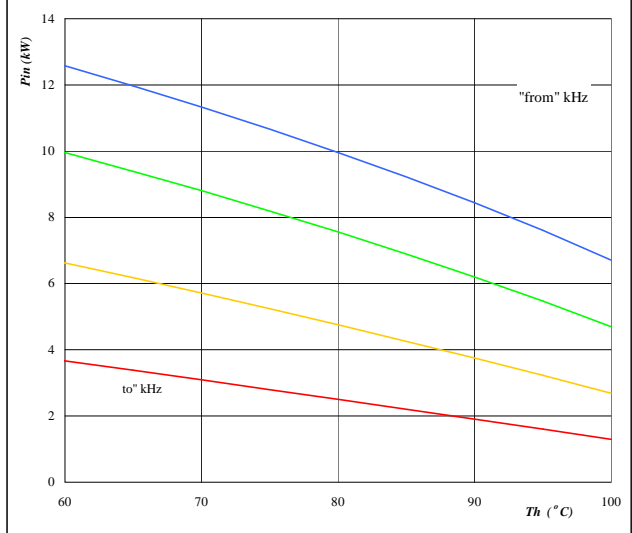


Conditions: $T_j = T_{jmax} - 25^\circ\text{C}$
 DC link= 800 V
 Th= 80 °C

Figure 8. per PHASE

Typical available electric input power as a function of heatsink temperature

$P_{in}=f(T_h)$

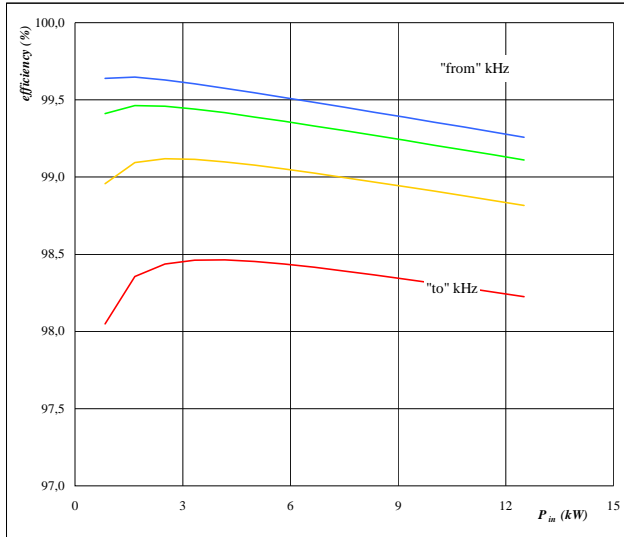


Conditions: $T_j = T_{jmax} - 25^\circ\text{C}$
 $V_{in} = 500$ V DC link= 800 V
 Sw. freq. f_{sw} from 16 kHz to 128 kHz

Figure 9. per PHASE

Typical efficiency as a function of input power

$$\eta = f(P_{in})$$


Conditions: $T_j = T_{jmax} - 25^\circ\text{C}$
parameter: $V_{in} = 500\text{ V}$ **DC link=** 800 V
Sw. freq. **fsw from** 16 kHz **to** 128 kHz