# Vincotech

| flowBOOST | DC Boost Application | 1200V/40A |

**General conditions**

| BOOST | | |
|---|---|---|
| $V_{GEon}$ | = | 15 V |
| $V_{GEoff}$ | = | 0 V |
| $R_{gon}$ | = | 4 Ω |
| $R_{goff}$ | = | 4 Ω |

| Figure 1. | IGBT |

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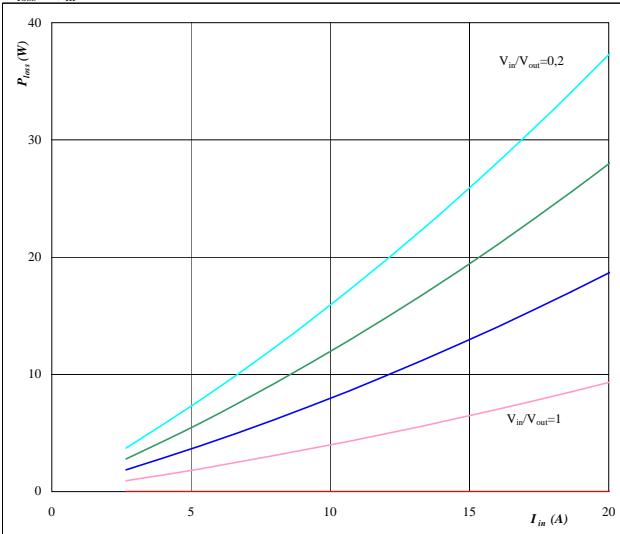
$P_{loss}=f(I_{in})$



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 $Ii_{RMS}$**
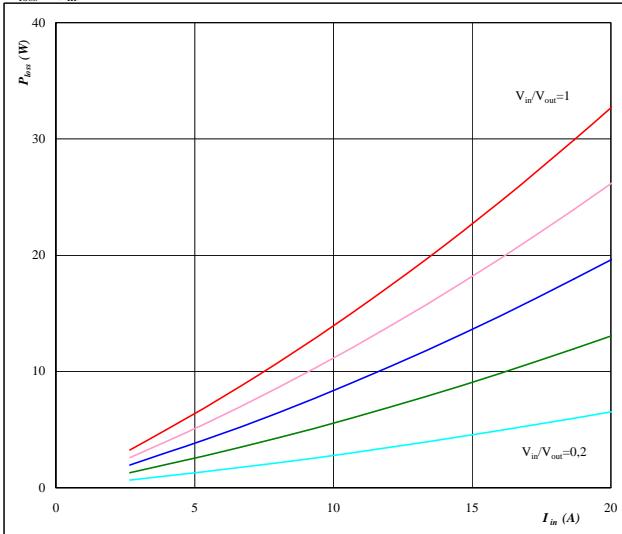
$P_{loss}=f(I_{in})$



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 3. | IGBT |

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

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



Conditions:    Tj=       125       °C
                  $V_{out}$ =       700       V
Sw. freq.    fsw from       4       kHz to       32       kHz
                  in steps of factor 2

| Figure 4. | FWD |

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

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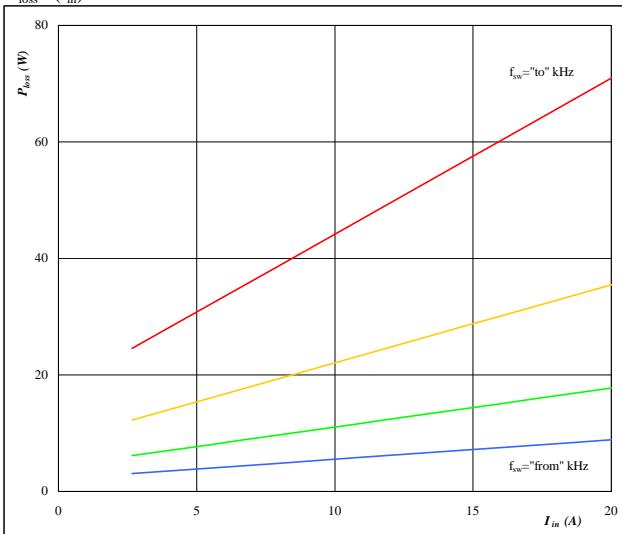


Conditions:    Tj=       125       °C
                  $V_{out}$ =       700       V
Sw. freq.    fsw from       4       kHz to       32       kHz
                  in steps of factor 2

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**Figure 5.** | **per PHASE**

**Typical available input current as a function of $V_{in}/V_{out}$**

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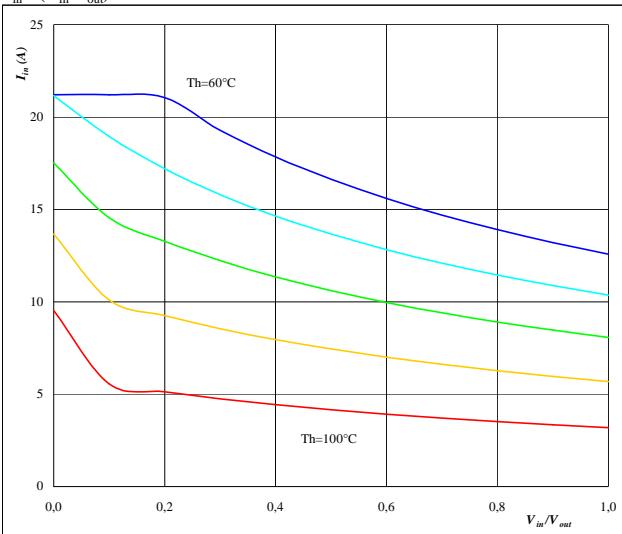


Conditions: $T_j = T_{jmax}-25°C$

| | | | | | |
|---|---|---|---|---|---|
| DC link= | 700 | V | $f_{sw}=$ | 16 | 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**

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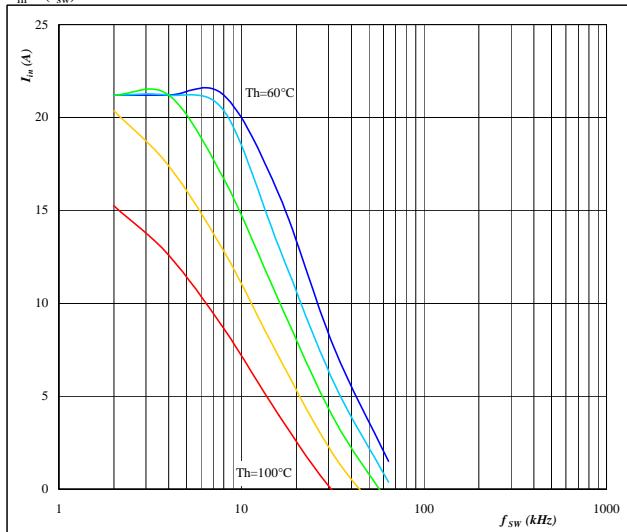


Conditions: $T_j = T_{jmax}-25°C$

| | | | | | |
|---|---|---|---|---|---|
| DC link= | 700 | V | Vin | 400 | 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: Tj= $T_{jmax}-25°C$

| | | |
|---|---|---|
| DC link= | 700 V | |
| Th= | 80 °C | |

**Figure 8.** | **per PHASE**

**Typical available electric input power as a function of heatsink temperature**

$P_{in}=f(T_h)$
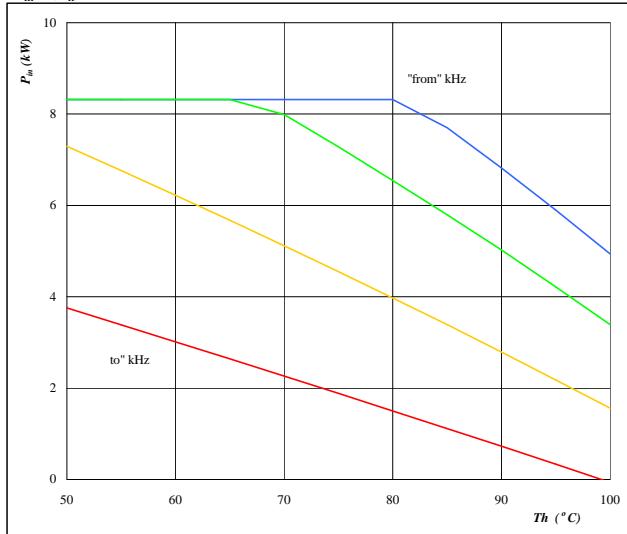


Conditions: Tj= $T_{jmax}-25°C$

| | | | | | |
|---|---|---|---|---|---|
| | Vin | 400 V | DC link= | 700 V | |
| Sw. freq. | fsw from | 4 | kHz to | 32 | kHz |

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**Figure 9.**      **per PHASE**

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

η=f(Pin)
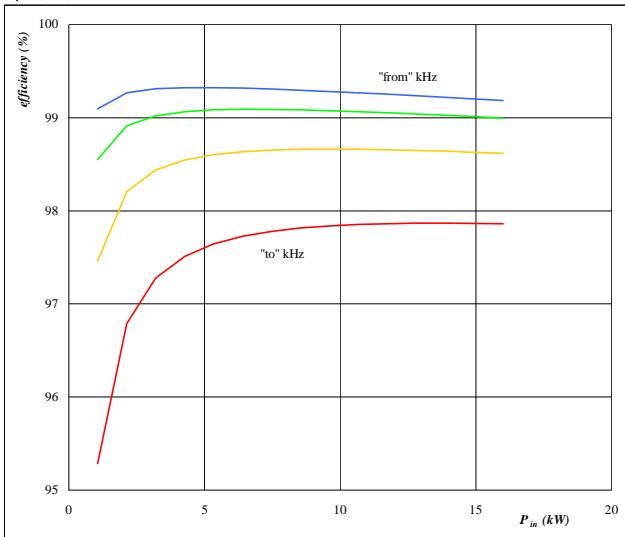


Conditions:      Tj= $T_{jmax}$-25°C

     Vin      400 V      DC link=      700 V

parameter:

Sw. freq.      fsw from      4      kHz to      32 kHz