# flow1 — Output Inverter Application — 600V/75A

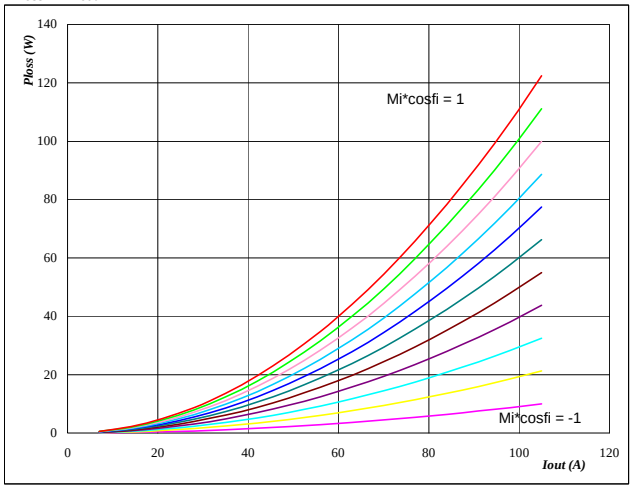
**General conditions**

| 3phase SPWM | | |
|---|---|---|
| $V_{GEon}$ | = | 15 V |
| $V_{GEoff}$ | = | -15 V |
| $R_{gon}$ | = | 8 Ω |
| $R_{goff}$ | = | 8 Ω |

## Figure 1 — IGBT

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

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




**At**

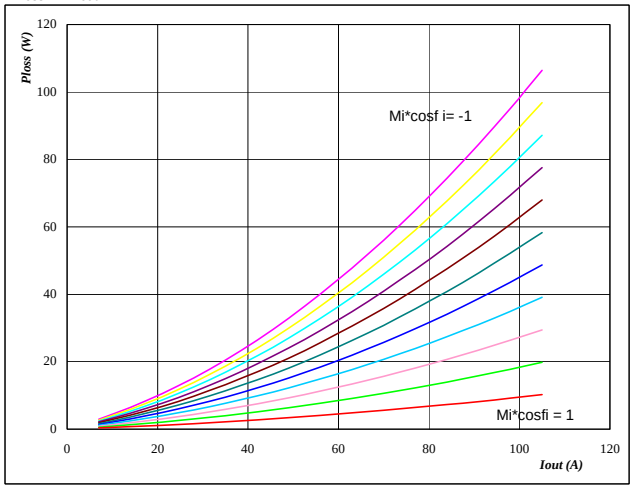
$T_j$ = 125 ℃

Mi*cosφ from -1 to 1 in steps of 0,2

## Figure 2 — FWD

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

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



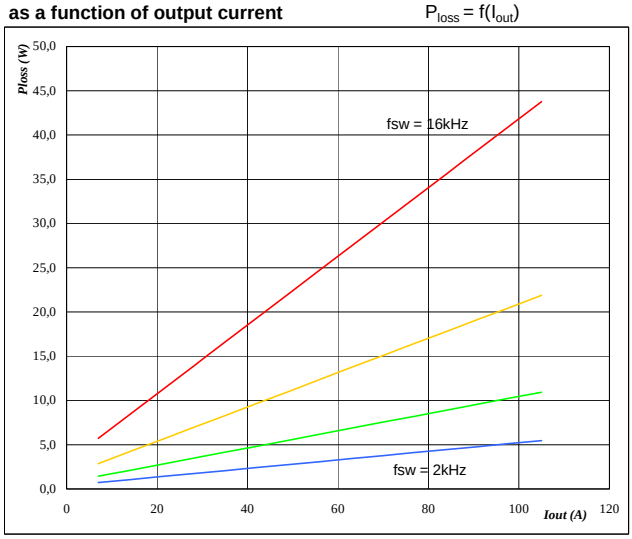

**At**

$T_j$ = 125 ℃

Mi*cosφ from -1 to 1 in steps of 0,2

## Figure 3 — IGBT

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




**At**

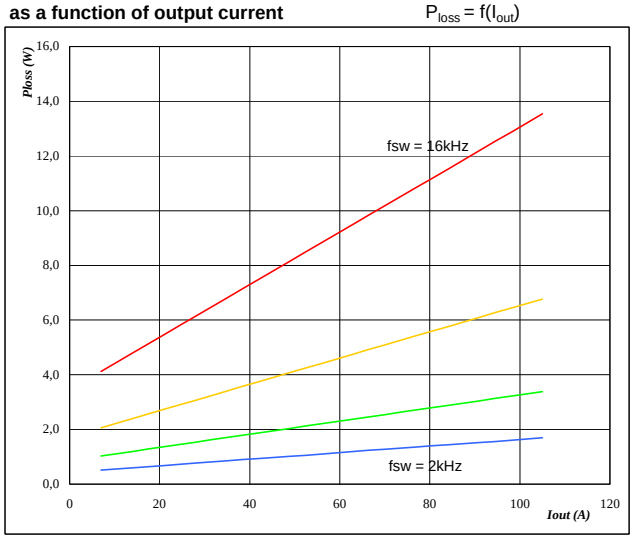
$T_j$ = 125 ℃

DC link = 320 V

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

## Figure 4 — FWD

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




**At**

$T_j$ = 125 ℃

DC link = 320 V

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

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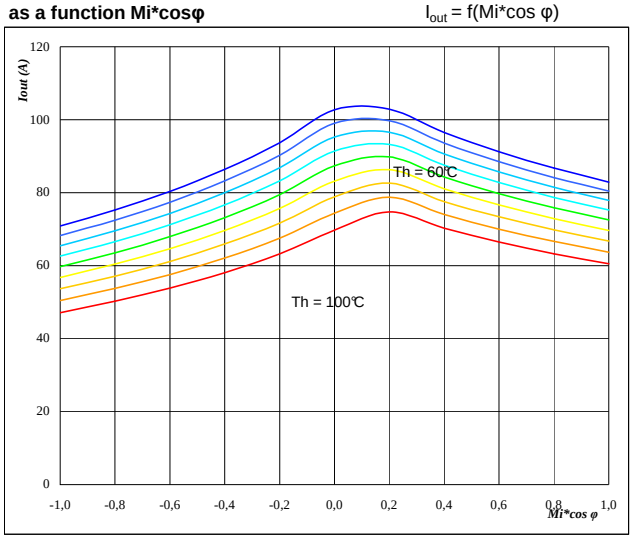
**Figure 5** Phase

**Typical available 50Hz output current as a function Mi*cosφ** $I_{out} = f(Mi*\cos\varphi)$

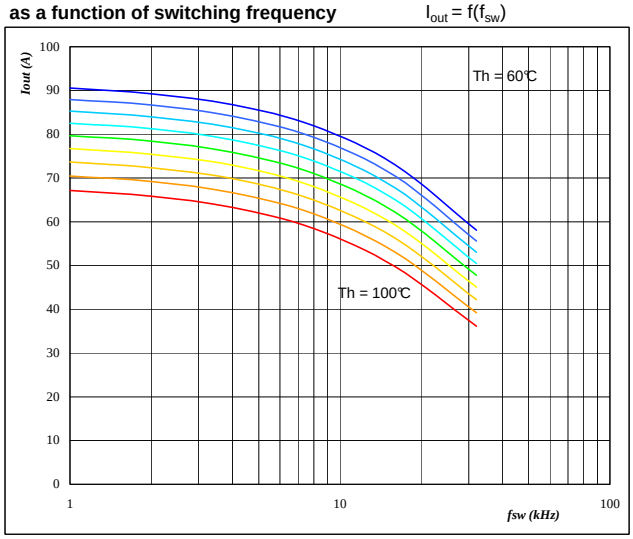



**At**

| | | |
|---|---|---|
| $T_j$ = | 125 | ℃ |
| DC link = | 320 | V |
| $f_{sw}$ = | 4 | kHz |
| $T_h$ from | 60 ℃ to 100 ℃ in steps of 5 ℃ | |

**Figure 6** Phase

**Typical available 50Hz output current as a function of switching frequency** $I_{out} = f(f_{sw})$

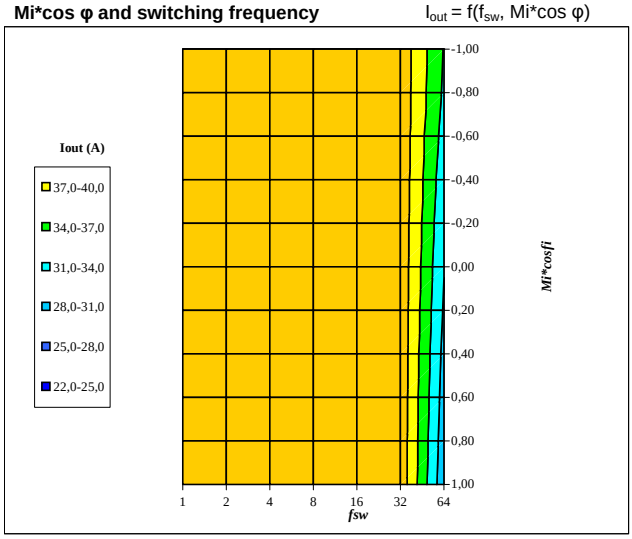



**At**

| | | |
|---|---|---|
| $T_j$ = | 125 | ℃ |
| DC link = | 320 | V |
| Mi*cos φ = | 0,8 | |
| $T_h$ from | 60 ℃ to 100 ℃ in steps of 5 ℃ | |

**Figure 7** Phase

**Typical available 50Hz output current as a function of Mi*cos φ and switching frequency** $I_{out} = f(f_{sw}, Mi*\cos\varphi)$

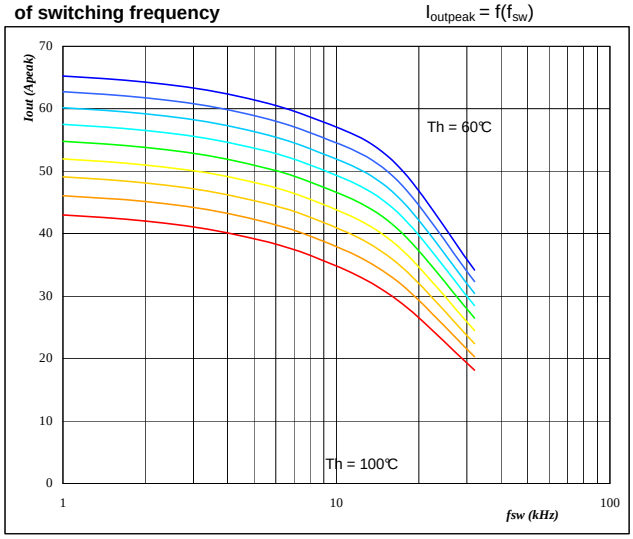



**At**

| | | |
|---|---|---|
| $T_j$ = | 125 | ℃ |
| DC link = | 320 | V |
| $T_h$ = | 80 | ℃ |

**Figure 8** Phase

**Typical available 0Hz output current as a function of switching frequency** $I_{outpeak} = f(f_{sw})$




**At**

| | | |
|---|---|---|
| $T_j$ = | 125 | ℃ |
| DC link = | 320 | V |
| $T_h$ from | 60 ℃ to 100 ℃ in steps of 5 ℃ | |
| Mi = | 0 | |

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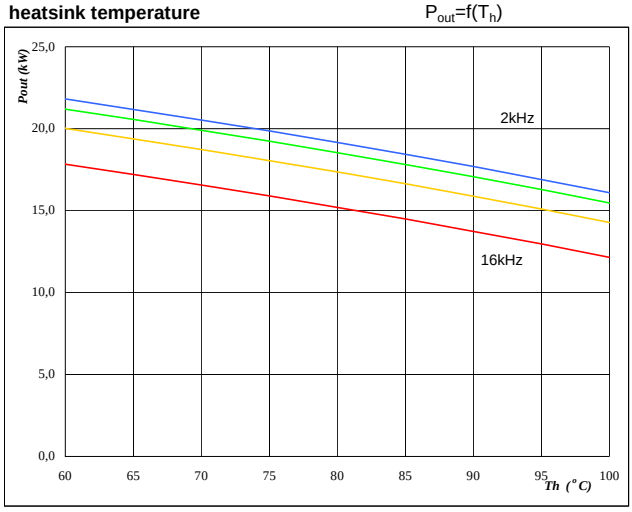
**Figure 9** Inverter

**Typical available peak output power as a function of heatsink temperature** $P_{out}=f(T_h)$

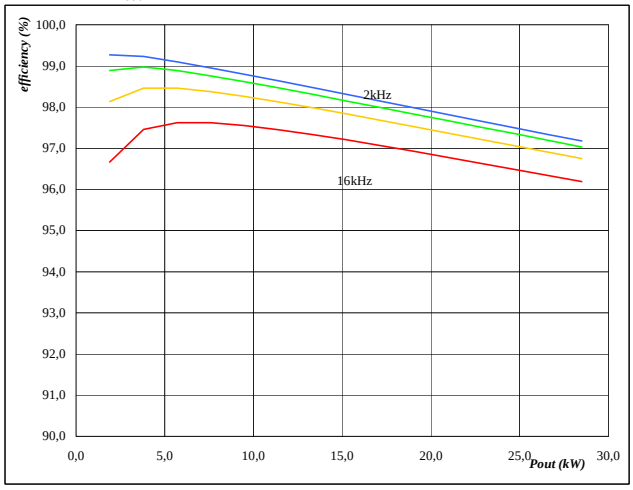



**At**

| | | |
|---|---|---|
| $T_j$ = | 125 | ℃ |
| DC link = | 320 | V |
| Mi = | 1 | |
| cos φ= | 0,80 | |
| $f_{sw}$ from | 2 kHz to 16 kHz in steps of factor 2 | |

**Figure 10** Inverter

**Typical efficiency as a function of output power** efficiency=f($P_{out}$)

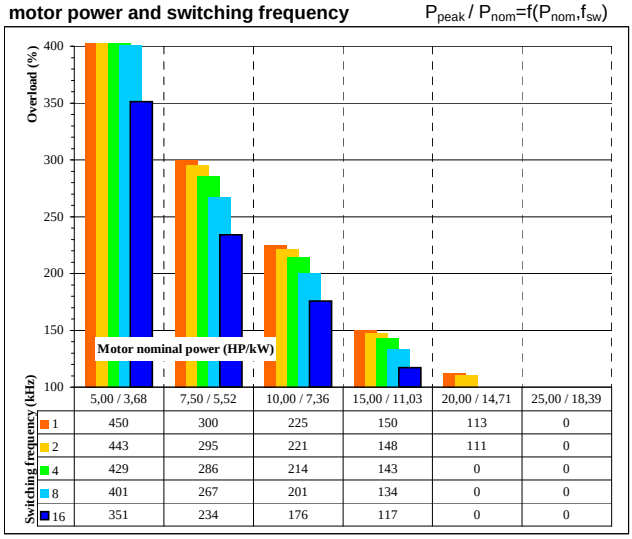



**At**

| | | |
|---|---|---|
| $T_j$ = | 125 | ℃ |
| DC link = | 320 | V |
| Mi = | 1 | |
| cos φ= | 0,80 | |
| $f_{sw}$ from | 2 kHz to 16 kHz in steps of factor 2 | |

**Figure 11** Inverter

**Typical available overload factor as a function of motor power and switching frequency** $P_{peak} / P_{nom}=f(P_{nom},f_{sw})$




| Switching frequency (kHz) | 5,00 / 3,68 | 7,50 / 5,52 | 10,00 / 7,36 | 15,00 / 11,03 | 20,00 / 14,71 | 25,00 / 18,39 |
|---|---|---|---|---|---|---|
| 1 | 450 | 300 | 225 | 150 | 113 | 0 |
| 2 | 443 | 295 | 221 | 148 | 111 | 0 |
| 4 | 429 | 286 | 214 | 143 | 0 | 0 |
| 8 | 401 | 267 | 201 | 134 | 0 | 0 |
| 16 | 351 | 234 | 176 | 117 | 0 | 0 |

**At**

| | | |
|---|---|---|
| $T_j$ = | 125 | ℃ |
| DC link = | 320 | V |
| Mi = | 1 | |
| cos φ= | 0,8 | |
| $f_{sw}$ from | 1 kHz to 16kHz in steps of factor 2 | |
| $T_h$ = | 80 | ℃ |
| Motor eff = | 0,85 | |