# SKiiP 30 NAB 12

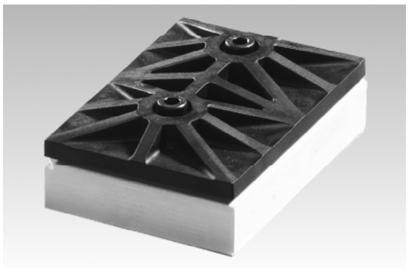
| Absolute Maximum Ratings | | | |
|---|---|---|---|
| **Symbol** | **Conditions** [1] | **Values** | **Units** |
| Inverter | (Chopper see SKiiP 22 NAB 12) | | |
| $V_{CES}$ | | 1200 | V |
| $V_{GES}$ | | ± 20 | V |
| $I_C$ | $T_{heatsink}$ = 25 / 80 °C | 33 / 22 | A |
| $I_{CM}$ | $t_p$ < 1 ms; $T_{heatsink}$ = 25 / 80 °C | 66 / 44 | A |
| $I_F = -I_C$ | $T_{heatsink}$ = 25 / 80 °C | 38 / 26 | A |
| $I_{FM} = -I_{CM}$ | $t_p$ < 1 ms; $T_{heatsink}$ = 25 / 80 °C | 76 / 52 | A |
| Bridge Rectifier | | | |
| $V_{RRM}$ | | 1500 | V |
| $I_D$ | $T_{heatsink}$ = 80 °C | 35 | A |
| $I_{FSM}$ | $t_p$ = 10 ms; sin. 180 °, $T_j$ = 25 °C | 700 | A |
| $I^2t$ | $t_p$ = 10 ms; sin. 180 °, $T_j$ = 25 °C | 2400 | $A^2s$ |
| $T_j$ | | – 40 . . . + 150 | °C |
| $T_{stg}$ | | – 40 . . . + 125 | °C |
| $V_{isol}$ | AC, 1 min. | 2500 | V |

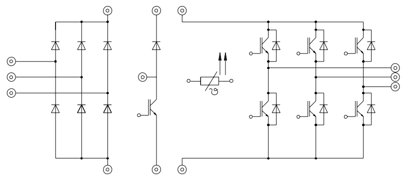
| Characteristics | | | | | |
|---|---|---|---|---|---|
| **Symbol** | **Conditions** [1] | **min.** | **typ.** | **max.** | **Units** |
| IGBT - Inverter | | | | | |
| $V_{CEsat}$ | $I_C$ = 25 A $T_j$ = 25 (125) °C | – | 2,5(3,1) | 3,0(3,7) | V |
| $t_{d(on)}$ | $V_{CC}$ = 600 V; $V_{GE}$ = ± 15 V | – | 75 | 150 | ns |
| $t_r$ | $I_C$ = 25 A; $T_j$ = 125 °C | – | 65 | 130 | ns |
| $t_{d(off)}$ | $R_{gon} = R_{goff}$ = 47 Ω | – | 400 | 600 | ns |
| $t_f$ | inductive load | – | 50 | 100 | ns |
| $E_{on} + E_{off}$ | | – | 6,2 | – | mJ |
| $C_{ies}$ | $V_{CE}$ = 25 V; $V_{GE}$ = 0 V, 1 MHz | – | 1,65 | – | nF |
| $R_{thjh}$ | per IGBT | – | – | 1,0 | K/W |
| IGBT - Chopper * | | | | | |
| $V_{CEsat}$ | $I_C$ = 15 A $T_j$ = 25 (125) °C | – | 2,5(3,1) | 3,0(3,7) | V |
| $t_{d(on)}$ | $V_{CC}$ = 600 V; $V_{GE}$ = ± 15 V | – | 55 | 110 | ns |
| $t_r$ | $I_C$ = 15 A; $T_j$ = 125 °C | – | 45 | 90 | ns |
| $t_{d(off)}$ | $R_{gon} = R_{goff}$ = 82 Ω | – | 400 | 600 | ns |
| $t_f$ | inductive load | – | 70 | 100 | ns |
| $E_{on} + E_{off}$ | | – | 4,0 | – | mJ |
| $C_{ies}$ | $V_{CE}$ = 25 V; $V_{GE}$ = 0 V, 1 MHz | – | 1,0 | – | nF |
| $R_{thjh}$ | per IGBT | – | – | 1,4 | K/W |
| Diode [2] - Inverter (Diode [2] - Chopper see SKiiP 22 NAB 12) | | | | | |
| $V_F = V_{EC}$ | $I_F$ = 25 A $T_j$ = 25 (125) °C | – | 2,0(1,8) | 2,5(2,3) | V |
| $V_{TO}$ | $T_j$ = 125 °C | – | 1,0 | 1,2 | V |
| $r_T$ | $T_j$ = 125 °C | – | 32 | 44 | mΩ |
| $I_{RRM}$ | $I_F$ = 25 A, $V_R$ = – 600 V | – | 25 | – | A |
| $Q_{rr}$ | $di_F/dt$ = – 500 A/µs | – | 4,5 | – | µC |
| $E_{off}$ | $V_{GE}$ = 0 V, $T_j$ = 125 °C | – | 1,0 | – | mJ |
| $R_{thjh}$ | per diode | – | – | 1,2 | K/W |
| Diode - Rectifier | | | | | |
| $V_F$ | $I_F$ = 35 A, $T_j$ = 25 °C | – | 1,2 | – | V |
| $R_{thjh}$ | per diode | – | – | 1,6 | K/W |
| Temperature Sensor | | | | | |
| $R_{TS}$ | T = 25 / 100 °C | | 1000 / 1670 | | Ω |
| Mechanical Data | | | | | |
| $M_1$ | case to heatsink, SI Units | 2 | – | 2,5 | Nm |
| Case | mechanical outline see page B 16 – 9 | | M3 | | |

* For diagrams of the Chopper IGBT please refer to SKiiP 22 NAB 12

## MiniSKiiP 3
## SEMIKRON integrated intelligent Power
## SKiiP 30 NAB 12
## 3-phase bridge rectifier + braking chopper + 3-phase bridge inverter

Case M3





UL recognized file no. E63532

- specification of temperature sensor see part A
- common characteristics B 16 – 4

**Options**
- also available with powerful chopper. For characteristics please refer to Inverter IGBT

[1] $T_{heatsink}$ = 25 °C, unless otherwise specified

[2] CAL = Controlled Axial Lifetime Technology (soft and fast recovery)

**MiniSKiiP 3**

| | |
|---|---|
| SKiiP 30 NAB 06 | Circuit |
| SKiiP 31 NAB 06 | Case M3 |
| SKiiP 32 NAB 06 | Layout and connections for the |
| SKiiP 30 NAB 12 | customer's printed circuit board |
| SKiiP 31 NAB 12 | |
| SKiiP 32 NAB 12 | |