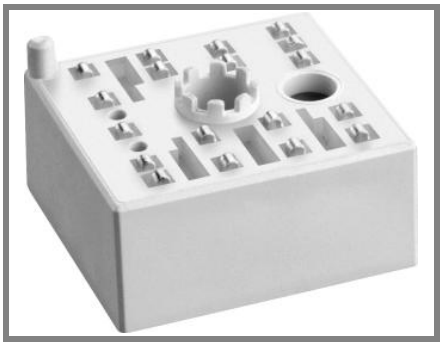
# SKiiP 03NAC066V1



**MiniSKiiP® 0**

3-phase bridge rectifier +
3-phase bridge inverter

**SKiiP 03NAC066V1**

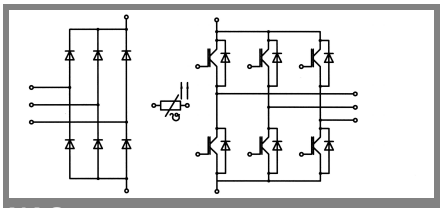
Target Data

## Features

- Trench IGBTs
- Robust and soft freewheeling diodes in CAL technology
- Highly reliable spring contacts for electrical connections
- UL recognised file no. E63532

## Typical Applications

- Inverter up to 5,6 kVA
- Typical motor power 3,0 kW



**NAC**

| **Absolute Maximum Ratings** | | $T_s$ = 25 °C, unless otherwise specified | |
|---|---|---|---|
| **Symbol** | **Conditions** | **Values** | **Units** |
| **IGBT - Inverter, Chopper** | | | |
| $V_{CES}$ | | 600 | V |
| $I_C$ | $T_s$ = 25 (70) °C | 22 (17) | A |
| $I_{CRM}$ | $T_s$ = 25 (70) °C, $t_p \leq$ 1 ms | 23 (19) | A |
| $V_{GES}$ | | ± 20 | V |
| $T_j$ | | - 40 ... + 175 | °C |
| **Diode - Inverter, Chopper** | | | |
| $I_F$ | $T_s$ = 25 (70) °C | 20 (15) | A |
| $I_{FRM}$ | $T_s$ = 25 (70) °C, $t_p \leq$ 1 ms | 22 (18) | A |
| $T_j$ | | - 40 ... + 175 | °C |
| **Diode - Rectifier** | | | |
| $V_{RRM}$ | | 800 | V |
| $I_F$ | $T_s$ = 70 °C | 35 | A |
| $I_{FSM}$ | $t_p$ = 10 ms, sin 180 °, $T_j$ = 25 °C | 220 | A |
| $i^2t$ | $t_p$ = 10 ms, sin 180 °, $T_j$ = 25 °C | 240 | $A^2s$ |
| $T_j$ | | - 40 ... + 150 | °C |
| $I_{tRMS}$ | per power terminal (20 A / spring) | 20 | A |
| $T_{stg}$ | $T_{op} \leq T_{stg}$ | - 40 ... + 125 | °C |
| $V_{isol}$ | AC, 1 min. | 2500 | V |

| **Characteristics** | | $T_s$ = 25 °C, unless otherwise specified | | | |
|---|---|---|---|---|---|
| **Symbol** | **Conditions** | **min.** | **typ.** | **max.** | **Units** |
| **IGBT - Inverter, Chopper** | | | | | |
| $V_{CEsat}$ | $I_C$ = 15 A, $T_j$ = 25 (125) °C | 1,1 | 1,45 (1,65) | 1,85 (2,05) | V |
| $V_{GE(th)}$ | $V_{GE} = V_{CE}$, $I_C$ = 1 mA | | 5,8 | | V |
| $V_{CE(TO)}$ | $T_j$ = 25 (150) °C | | 0,9 (0,85) | 1 (0,9) | V |
| $r_T$ | $T_j$ = 25 (150) °C | | 40 (57) | 60 (80) | mΩ |
| $C_{ies}$ | $V_{CE}$ = 25 V, $V_{GE}$ = 0 V, f = 1 MHz | | 0,86 | | nF |
| $C_{oes}$ | $V_{CE}$ = 25 V, $V_{GE}$ = 0 V, f = 1 MHz | | 0,18 | | nF |
| $C_{res}$ | $V_{CE}$ = 25 V, $V_{GE}$ = 0 V, f = 1 MHz | | 0,12 | | nF |
| $R_{th(j-s)}$ | per IGBT | | 1,78 | | K/W |
| $t_{d(on)}$ | under following conditions | | 20 | | ns |
| $t_r$ | $V_{CC}$ = 300 V, $V_{GE}$ = ± 15 V | | 30 | | ns |
| $t_{d(off)}$ | $I_C$ = 15 A, $T_j$ = 125 °C | | 155 | | ns |
| $t_f$ | $R_{Gon} = R_{Goff}$ = 22 Ω | | 40 | | ns |
| $E_{on}$ | inductive load | | 0,55 | | mJ |
| $E_{off}$ | | | 0,24 | | mJ |
| **Diode - Inverter, Chopper** | | | | | |
| $V_F = V_{EC}$ | $I_F$ = 15 A, $T_j$ = 25 (125) °C | | 1,4 (1,4) | 1,7 (1,7) | V |
| $V_{(TO)}$ | $T_j$ = 25 (150) °C | | 1 (0,9) | 1,1 (1) | V |
| $r_T$ | $T_j$ = 25 (150) °C | | 27 (33) | 40 (47) | mΩ |
| $R_{th(j-s)}$ | per diode | | 2,46 | | K/W |
| $I_{RRM}$ | under following conditions | | 20 | | A |
| $Q_{rr}$ | $I_F$ = 15 A, $V_R$ = 300 V | | 1,8 | | µC |
| $E_{rr}$ | $V_{GE}$ = 0 V, $T_j$ = 125 °C | | 0,45 | | mJ |
| | $di_F/dt$ = 930 A/µs | | | | |
| **Diode - Rectifier** | | | | | |
| $V_F$ | $I_F$ = 15 A, $T_j$ = 25 °C | | 1,1 | | V |
| $V_{(TO)}$ | $T_j$ = 150 °C | | 0,8 | | V |
| $r_T$ | $T_j$ = 150 °C | | 20 | | mΩ |
| $R_{th(j-s)}$ | per diode | | 1,5 | | K/W |
| **Temperature Sensor** | | | | | |
| $R_{ts}$ | 3 %, $T_r$ = 25 (100) °C | | 1000(1670) | | Ω |
| **Mechanical Data** | | | | | |
| w | | | 35 | | g |
| $M_s$ | Mounting torque | 2 | | 2,5 | Nm |

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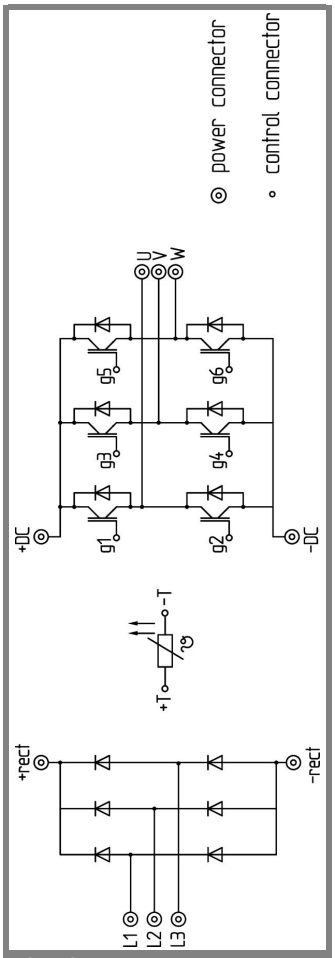
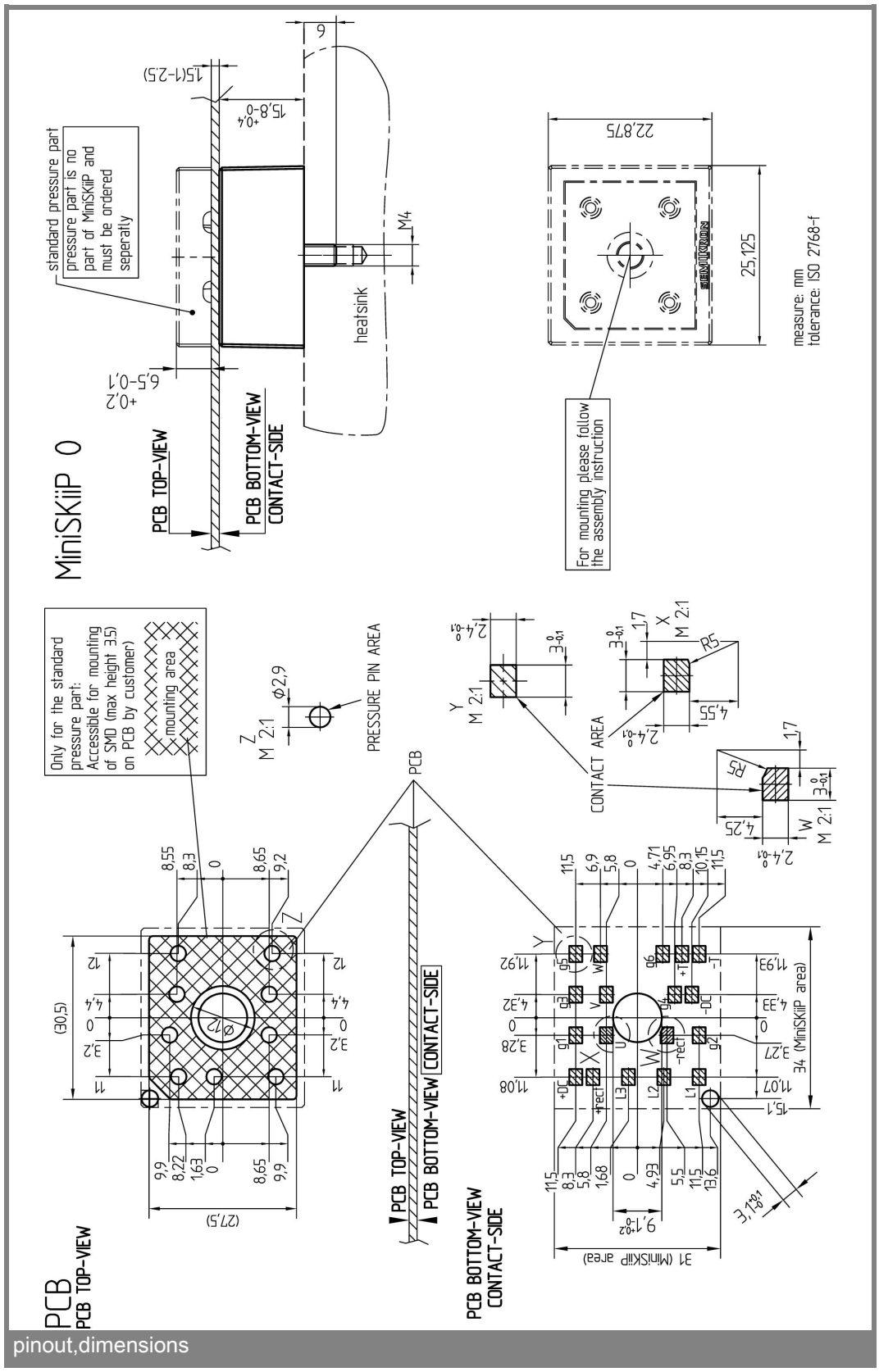



circuit




pinout,dimensions

This is an electrostatic discharge sensitive device (ESDS), international standard IEC 60747-1, Chapter IX.

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