

# SKiiP 28ANB16V1



MiniSKiiP® 2

## 3-phase bridge rectifier + brake chopper

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### Features

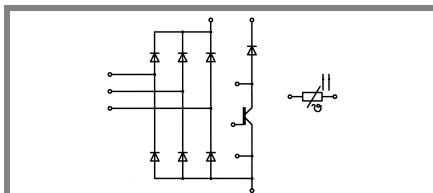
- Fast Trench IGBTs
- Robust and soft freewheeling diodes in CAL technology
- Highly reliable spring contacts for electrical connections
- UL recognised file no. E63532

### Typical Applications

- Input bridge for Inverter up to 39 kVA

### Remarks

- $V_{CEsat}$ ,  $V_F$  = chip level value



ANB

| Absolute Maximum Ratings |   | $T_s = 25\text{ °C}$ , unless otherwise specified            |       |                  |
|--------------------------|---|--|-------|------------------|
| Symbol                   | Conditions  | Values   | Units |                  |
| <b>IGBT - Chopper</b>    |   |  |       |                  |
| $V_{CES}$                | $T_s = 25\text{ (70) °C}$<br>$t_p \leq 1\text{ ms}$ | 1200   | V     |                  |
| $I_C$                    |   | 118 (88)   | A     |                  |
| $I_{CRM}$                |   | 210  | A     |                  |
| $V_{GES}$                |   | $\pm 20$   | V     |                  |
| $T_j$                    |   | - 40 ... + 150   | °C    |                  |
| <b>Diode - Chopper</b>   |   |  |       |                  |
| $I_F$                    | $T_s = 25\text{ (70) °C}$<br>$t_p \leq 1\text{ ms}$ | 118 (88)   | A     |                  |
| $I_{FRM}$                |   | 210  | A     |                  |
| $T_j$                    |   | - 40 ... + 150   | °C    |                  |
| <b>Diode - Rectifier</b> |   |  |       |                  |
| $V_{RRM}$                | $T_s = 70\text{ °C}$                                | 1600   | V     |                  |
| $I_F$                    |   | 83   | A     |                  |
| $I_{FSM}$                |   | $t_p = 10\text{ ms, sin } 180\text{ °, } T_j = 25\text{ °C}$ | 1000  | A                |
| $i^2t$                   |   | $t_p = 10\text{ ms, sin } 180\text{ °, } T_j = 25\text{ °C}$ | 6600  | A <sup>2</sup> s |
| $T_j$                    |   | - 40 ... + 150   | °C    |                  |
| $I_{tRMS}$               | per power terminal (20 A / spring)                  | 120  | A     |                  |
| $T_{stg}$                | $T_{op} \leq T_{stg}$                               | - 40 ... + 125   | °C    |                  |
| $V_{isol}$               | AC, 1 min.  | 2500   | V     |                  |

| Characteristics           |   | $T_s = 25\text{ °C}$ , unless otherwise specified |            |           |       |
|---------------------------|---|---|------------|-----------|-------|
| Symbol                    | Conditions  | min.  | typ.       | max.      | Units |
| <b>IGBT - Chopper</b>     |   |   |            |           |       |
| $V_{CEsat}$               | $I_{Cnom} = 105\text{ A, } T_j = 25\text{ (125) °C}$            |   | 1,7 (2)    | 2,1 (2,4) | V     |
| $V_{GE(th)}$              | $V_{GE} = V_{CE}, I_C = 3\text{ mA}$                            | 5   | 5,8        | 6,5       | V     |
| $V_{CE(TO)}$              | $T_j = 25\text{ (125) °C}$                                      |   | 1 (0,9)    | 1,2 (1,1) | V     |
| $r_T$                     | $T_j = 25\text{ (125) °C}$                                      |   | 6,7 (10)   | 8,6 (12)  | mΩ    |
| $C_{ies}$                 | $V_{CE} = 25\text{ V, } V_{GE} = 0\text{ V, } f = 1\text{ MHz}$ |   | 8,4        |           | nF    |
| $C_{oes}$                 | $V_{CE} = 25\text{ V, } V_{GE} = 0\text{ V, } f = 1\text{ MHz}$ |   | 1,5        |           | nF    |
| $C_{res}$                 | $V_{CE} = 25\text{ V, } V_{GE} = 0\text{ V, } f = 1\text{ MHz}$ |   | 1,1        |           | nF    |
| $R_{th(j-s)}$             | per IGBT  |   | 0,4        |           | K/W   |
| $t_{d(on)}$               | under following conditions                                      |   | 75         |           | ns    |
| $t_r$                     | $V_{CC} = 600\text{ V, } V_{GE} = \pm 15\text{ V}$              |   | 35         |           | ns    |
| $t_{d(off)}$              | $I_{Cnom} = 105\text{ A, } T_j = 125\text{ °C}$                 |   | 465        |           | ns    |
| $t_f$                     | $R_{Gon} = R_{Goff} = 5\text{ Ω}$                               |   | 90         |           | ns    |
| $E_{on}$                  | inductive load  |   | 13,1       |           | mJ    |
| $E_{off}$                 |   |   | 13         |           | mJ    |
| <b>Diode - Chopper</b>    |   |   |            |           |       |
| $V_F = V_{EC}$            | $I_{Fnom} = 105\text{ A, } T_j = 25\text{ (125) °C}$            |   | 1,6 (1,6)  | 1,8 (1,8) | V     |
| $V_{(TO)}$                | $T_j = 25\text{ (125) °C}$                                      |   | 1 (0,8)    | 1,1 (0,9) | V     |
| $r_T$                     | $T_j = 25\text{ (125) °C}$                                      |   | 5,7 (7,6)  | 6,7 (8,6) | mΩ    |
| $R_{th(j-s)}$             | per diode   |   | 0,55       |           | K/W   |
| $I_{RRM}$                 | under following conditions                                      |   | 175        |           | A     |
| $Q_{rr}$                  | $I_{Fnom} = 105\text{ A, } V_R = 600\text{ V}$                  |   | 26         |           | μC    |
| $E_{rr}$                  | $V_{GE} = 0\text{ V, } T_j = 125\text{ °C}$                     |   | 11,2       |           | mJ    |
|                           | $di_F/dt = 4000\text{ A/μs}$                                    |   |            |           |       |
| <b>Diode - Rectifier</b>  |   |   |            |           |       |
| $V_F$                     | $I_{Fnom} = 75\text{ A, } T_j = 25\text{ °C}$                   |   | 1,2        |           | V     |
| $V_{(TO)}$                | $T_j = 150\text{ °C}$   |   | 0,8        |           | V     |
| $r_T$                     | $T_j = 150\text{ °C}$   |   | 7          |           | mΩ    |
| $R_{th(j-s)}$             | per diode   |   | 0,7        |           | K/W   |
| <b>Temperature Sensor</b> |   |   |            |           |       |
| $R_{ts}$                  | 3 %, $T_r = 25\text{ (100) °C}$                                 |   | 1000(1670) |           | Ω     |
| <b>Mechanical Data</b>    |   |   |            |           |       |
| w                         |   |   | 65         |           | g     |
| $M_s$                     | Mounting torque   | 2   |            | 2,5       | Nm    |

