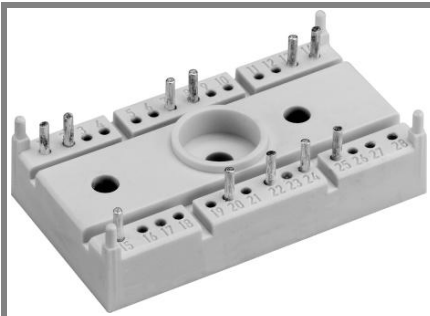


# SK 74 DGL 063



**SEMITOP<sup>®</sup> 3**

## 3-phase bridge rectifier + brake chopper

**SK 74 DGL 063**

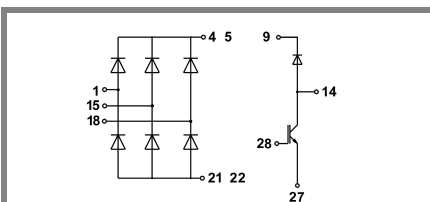
Target Data

### Features

- Compact design
- One screw mounting
- Heat transfer and isolation through direct copper bonded aluminum oxide ceramic (DCB)
- Ultrafast NPT technology IGBT
- CAL Technology FW

### Typical Applications

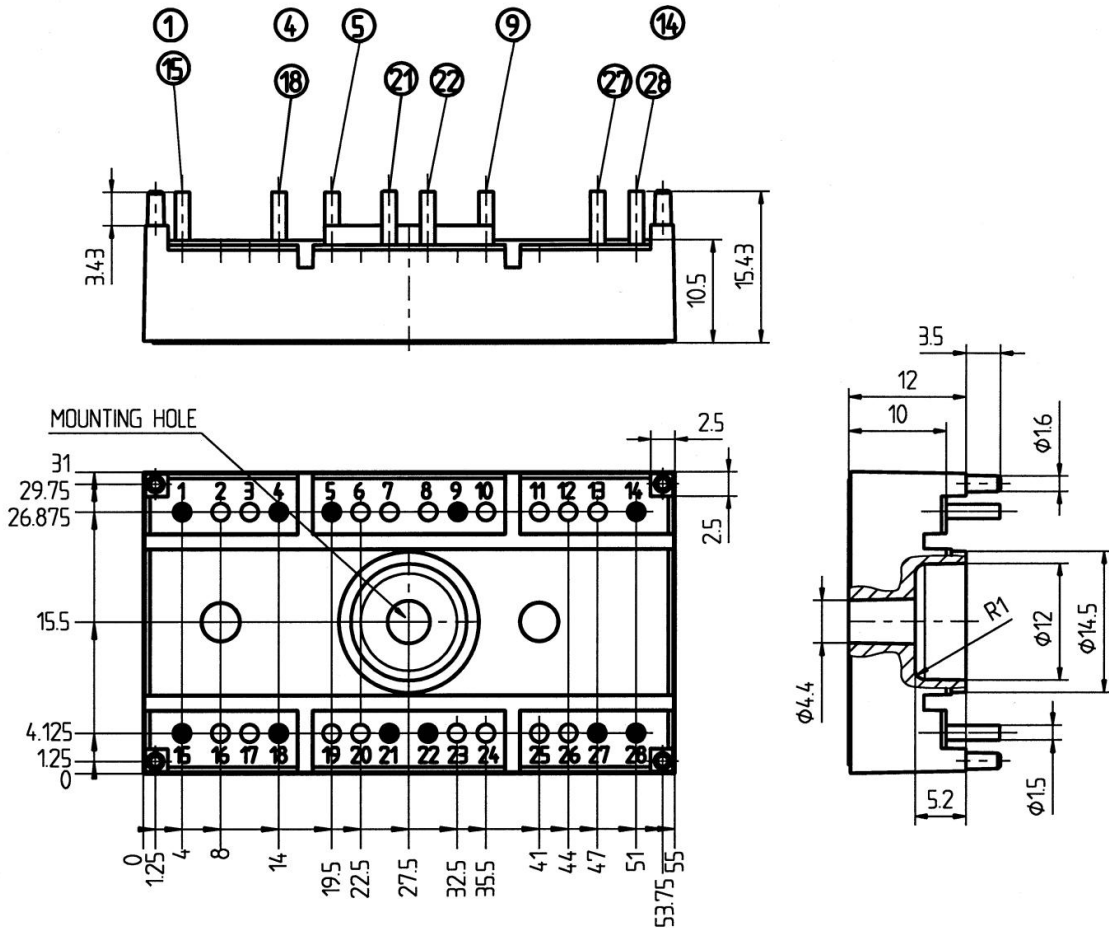
- Rectifier



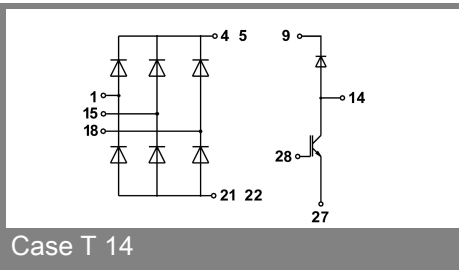
**DGL**

| Absolute Maximum Ratings |   | $T_s = 25^\circ\text{C}$ , unless otherwise specified |                      |
|--------------------------|---|---|----------------------|
| Symbol                   | Conditions  | Values  | Units                |
| <b>IGBT - Chopper</b>    |   |   |                      |
| $V_{CES}$                |   | 600   | V                    |
| $I_C$                    | $T_s = 25 (80)^\circ\text{C}$                                       | 45 (32)   | A                    |
| $I_{CM}$                 | $T_s = 25 (80)^\circ\text{C}$ , $t_p \leq 1 \text{ ms}$             | 90 (64)   | A                    |
| $V_{GES}$                |   | $\pm 20$  | V                    |
| $T_j$                    |   | -40 ... +150  | $^\circ\text{C}$     |
| <b>Diode - Chopper</b>   |   |   |                      |
| $I_F$                    | $T_s = 25 (80)^\circ\text{C}$                                       | 36 (24)   | A                    |
| $I_{FM} = -I_{CM}$       | $T_s = 25 (70)^\circ\text{C}$ , $t_p \leq 1 \text{ ms}$             | 72 (48)   | A                    |
| $T_j$                    |   | -40 ... +150  | $^\circ\text{C}$     |
| <b>Rectifier</b>         |   |   |                      |
| $V_{RRM}$                |   | 800   | V                    |
| $I_{FAV} / I_{TAV}$      | $T_s = 80^\circ\text{C}$  | 29  | A                    |
| $I_{FSM} / I_{TSM}$      | $t_p = 10 \text{ ms}$ , $\sin 180^\circ$ , $T_j = 25^\circ\text{C}$ | 370   | A                    |
| $I_t^2$                  | $t_p = 10 \text{ ms}$ , $\sin 180^\circ$ , $T_j = 25^\circ\text{C}$ | 685   | $\text{A}^2\text{s}$ |
| $T_j$                    |   | -40 ... +150  | $^\circ\text{C}$     |
| $T_{sol}$                | Terminals, 10s  | 260   | $^\circ\text{C}$     |
| $T_{stg}$                |   | -40 ... +125  | $^\circ\text{C}$     |
| $V_{isol}$               | AC, 1 min. / 1s   | 2500 / 3000   | V                    |

| Characteristics          |  | $T_s = 25^\circ\text{C}$ , unless otherwise specified |            |            |                  |
|--------------------------|--|---|------------|------------|------------------|
| Symbol                   | Conditions   | min.  | typ.       | max.       | Units            |
| <b>IGBT - Chopper</b>    |  |   |            |            |                  |
| $V_{CEsat}$              | $I_C = 30 \text{ A}$ , $T_j = 25 (125)^\circ\text{C}$                  |   | 1,8 (2)    | 2,1 (2,3)  | V                |
| $V_{GE(th)}$             | $V_{GE} = V_{CE}$ , $I_C = 0,5 \text{ mA}$                             | 3   | 4          | 5          | V                |
| $V_{CE(TO)}$             | $T_j = 25^\circ\text{C} (125)^\circ\text{C}$                           |   | 0,85 (0,9) |            | V                |
| $r_T$                    | $T_j = ^\circ\text{C} ( )^\circ\text{C}$                               |   |            |            | $\text{m}\Omega$ |
| $C_{ies}$                | $V_{CE} = 25 \text{ V}$ , $V_{GE} = 0 \text{ V}$ , $f = 1 \text{ MHz}$ |   | 2,6        |            | nF               |
| $C_{oes}$                | $V_{CE} = V_{GE} = 0 \text{ V}$ , $f = 1 \text{ MHz}$                  |   | -          |            | nF               |
| $C_{res}$                | $V_{CE} = V_{GE} = 0 \text{ V}$ , $f = 1 \text{ MHz}$                  |   | -          |            | nF               |
| $R_{th(j-s)}$            | per IGBT   |   |            | 1          | K/W              |
| $t_{d(on)}$              | under following conditions   |   | 45         |            | ns               |
| $t_r$                    | $V_{CC} = 300 \text{ V}$ , $V_{GE} = \pm 15 \text{ V}$                 |   | 40         |            | ns               |
| $t_{d(off)}$             | $I_C = 30 \text{ A}$ , $T_j = 125^\circ\text{C}$                       |   | 250        |            | ns               |
| $t_f$                    | $R_{Gon} = R_{Goff} = 22 \Omega$                                       |   | 30         |            | ns               |
| $E_{on}$                 | inductive load   |   | 1,45       |            | mJ               |
| $E_{off}$                |  |   | 1,2        |            | mJ               |
| <b>Diode - Chopper</b>   |  |   |            |            |                  |
| $V_F = V_{EC}$           | $I_F = 25 \text{ A}$ , $T_j = 25 (125)^\circ\text{C}$                  |   | 1,45 (1,4) | 1,7 (1,75) | V                |
| $V_{(TO)}$               | $T_j = ^\circ\text{C} (125)^\circ\text{C}$                             |   | (0,85)     | (0,9)      | V                |
| $r_T$                    | $T_j = ^\circ\text{C} (125)^\circ\text{C}$                             |   | (22)       | (16)       | $\text{m}\Omega$ |
| $R_{th(j-s)}$            | per diode  |   |            | 1,7        | K/W              |
| $I_{RRM}$                | under following conditions   |   | 16         |            | A                |
| $Q_{rr}$                 | $I_F = 25 \text{ A}$ , $V_R = 300 \text{ V}$                           |   | 2          |            | $\mu\text{C}$    |
| $E_{rr}$                 | $V_{GE} = 0 \text{ V}$ , $T_j = 125^\circ\text{C}$                     |   | 25         |            | mJ               |
|                          | $di_F/dt = 500 \text{ A}/\mu\text{s}$                                  |   |            |            |                  |
| <b>Diode rectifier</b>   |  |   |            |            |                  |
| $V_F$                    | $I_F = 25 \text{ A}$ , $T_j = 25^\circ\text{C}$                        |   | 1,25       |            | V                |
| $V_{(TO)}$               | $T_j = 150^\circ\text{C}$  |   | 0,8        |            | V                |
| $r_T$                    | $T_j = 150^\circ\text{C}$  |   | 13         |            | $\text{m}\Omega$ |
| $R_{th(j-s)}$            | per diode  |   |            | 1,7        | K/W              |
| <b>Temperatur sensor</b> |  |   |            |            |                  |
| $R_{ts}$                 | %, $T_r = ( )^\circ\text{C}$   |   | ( )        |            | $\Omega$         |
| <b>Mechanical data</b>   |  |   |            |            |                  |
| w                        |  |   | 30         |            | g                |
| $M_s$                    | Mounting torque  |   |            | 2,5        | Nm               |



Case T 14 (Suggested hole diameter, in the PCB, for solder pins and plastic mounting pins: 2mm)



Case T 14

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

This technical information specifies semiconductor devices but promises no characteristics. No warranty or guarantee expressed or implied is made regarding delivery, performance or suitability.