



**SEMITOP® 2**

**1-phase bridge rectifier  
with one diode arm and  
one thyristor arm  
SK 35 BZ**

Target Data

## Features

- Compact design
- One screw mounting
- Heat transfer and isolation through direct copper bonded aluminium oxide ceramic (DBC)
- Glass passivated thyristor chips
- Reverse voltage up to 1600 V
- High surge currents

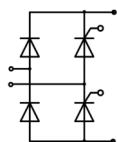
## Typical Applications\*

- Field regulator

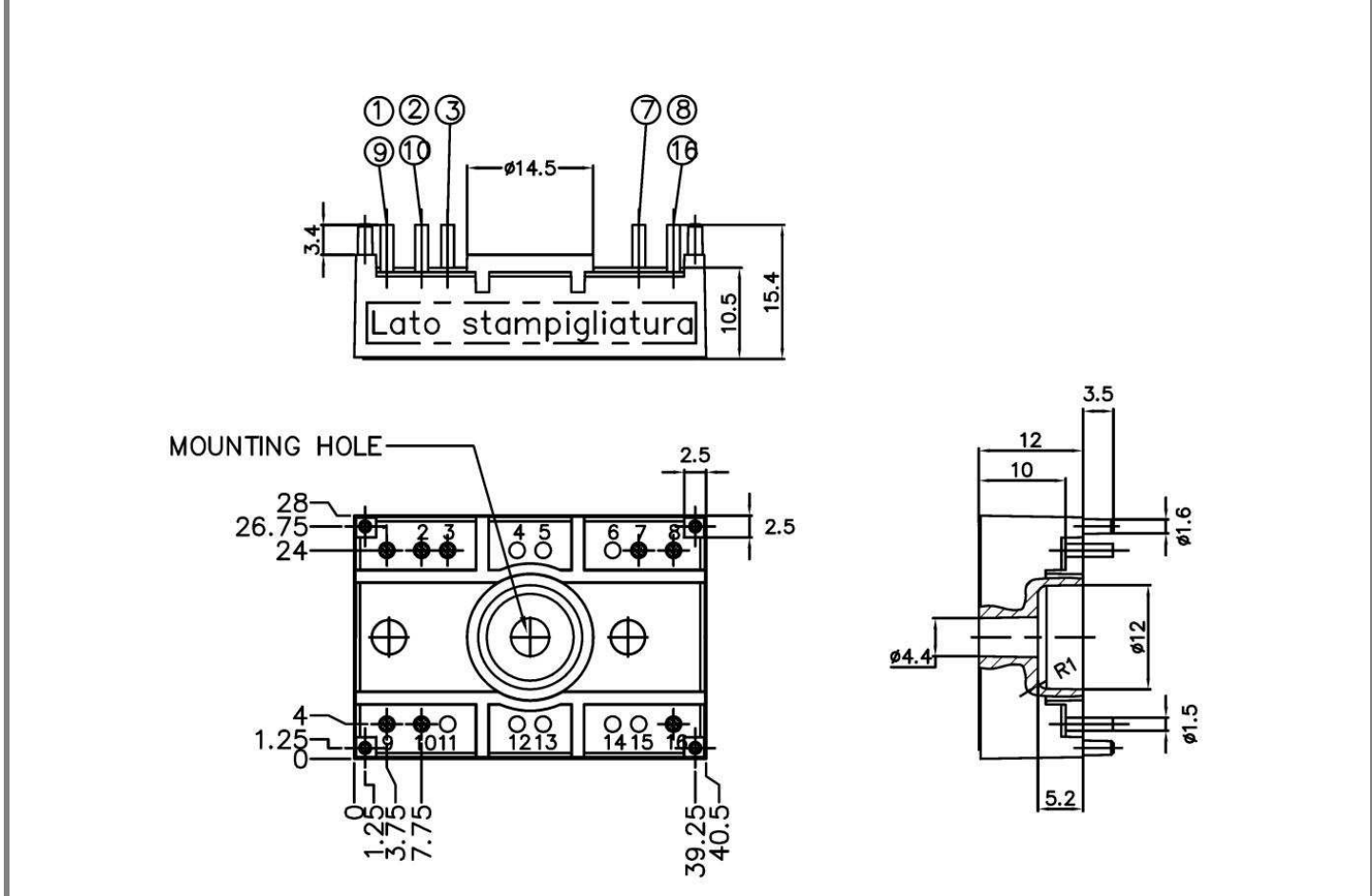
1)  $V_F$ ,  $V_T$ ,  $V_{T(0)}$ ,  $V_{T(T0)}$ ,  $r_{diode}$ ,  $r_{hty}$  = chip level value

| $V_{RSM}$<br>V | $V_{RRM}$ , $V_{DRM}$<br>V | $I_F = 35$ A<br>( $T_s = 80$ °C) |
|----------------|----------------------------|----------------------------------|
| 900            | 800                        | SK35BZ08                         |
| 1300           | 1200                       | SK35BZ12                         |
| 1700           | 1600                       | SK35BZ16                         |

| Characteristics <span style="float: right;"><math>T_s = 25</math> °C unless otherwise specified</span> |                                                            |                |       |
|--------------------------------------------------------------------------------------------------------|------------------------------------------------------------|----------------|-------|
| Symbol                                                                                                 | Conditions                                                 | Values         | Units |
| $I_F$                                                                                                  | $T_s = 80$ °C per diode                                    | 35             | A     |
| $I_T$                                                                                                  | $T_s = 80$ °C per thyristor                                | 25             | A     |
| $I_{FAV}$                                                                                              | sin. 180°; $T_s = 25$ (80) °C per diode                    | 35 (25)        | A     |
| $I_{TSM}/I_{FSM}$                                                                                      | $T_{vj} = 25$ (125) °C; 10 ms                              | 370 (270)      | A     |
| $I^2t$                                                                                                 | $T_{vj} = 25$ (125) °C; 8,3 ... 10 ms                      | 685 (365)      | A²s   |
| $T_{stg}$                                                                                              |                                                            | -40,...+125    | °C    |
| $T_{solder}$                                                                                           | terminals, 10 s                                            | 260            | °C    |
| Thyristor                                                                                              |                                                            |                |       |
| $(dv/dt)_{cr}$                                                                                         | $T_{vj} = 125$ °C                                          | 1000           | V/μs  |
| $(di/dt)_{cr}$                                                                                         | $T_{vj} = 125$ °C; $f = f = 50$ ... 60 Hz                  | 50             | A/μs  |
| $t_q$                                                                                                  | $T_{vj} = 125$ °C; typ.                                    | 150            | μs    |
| $I_H$                                                                                                  | $T_{vj} = 25$ °C; typ. / max.                              | 80 / 165       | mA    |
| $I_L$                                                                                                  | $T_{vj} = 25$ °C; $R_G = 33$ Ω; typ. / max.                | 150 / 330      | mA    |
| $V_T$                                                                                                  | $T_{vj} = 125$ °C; ( $I_T = 25$ A); max.                   | 1,2            | V     |
| $V_{T(T0)}$                                                                                            | $T_{vj} = 125$ °C                                          | max. 0,85      | V     |
| $r_T$                                                                                                  | $T_{vj} = 125$ °C                                          | max. 14        | mΩ    |
| $I_{DD}$ , $I_{RD}$                                                                                    | $T_{vj} = 125$ °C; $V_{DD} = V_{DRM}$ ; $V_{RD} = V_{RRM}$ | max. 8         | mA    |
| $R_{th(j-s)}$                                                                                          | Cont. per thyristor                                        | 1,7            | K/W   |
| $T_{vj}$                                                                                               |                                                            | - 40 ... + 125 | °C    |
| $V_{GT}$                                                                                               | $T_{vj} = 25$ °C; d.c.                                     | 2              | V     |
| $I_{GT}$                                                                                               | $T_{vj} = 25$ °C; d.c.                                     | 100            | mA    |
| $V_{GD}$                                                                                               | $T_{vj} = 125$ °C; d.c.                                    | 0,25           | V     |
| $I_{GD}$                                                                                               | $T_{vj} = 125$ °C; d.c.                                    | 3              | mA    |
| Diode                                                                                                  |                                                            |                |       |
| $V_F$                                                                                                  | $T_{vj} = 125$ °C; ( $I_F = 15$ A); max.                   | 1,1            | V     |
| $V_{T(0)}$                                                                                             | $T_{vj} = 125$ °C                                          | 0,83           | V     |
| $r_T$                                                                                                  | $T_{vj} = 125$ °C                                          | 13             | mΩ    |
| $I_{RD}$                                                                                               | $T_{vj} = 150$ °C; $V_{RD} = V_{RRM}$                      | 4              | mA    |
| $R_{th(j-s)}$                                                                                          | per diode                                                  | 1,7            | K/W   |
| $T_{vj}$                                                                                               |                                                            | -40...+150     | °C    |
| Mechanical data                                                                                        |                                                            |                |       |
| $V_{isol}$                                                                                             | a. c. 50 Hz; r.m.s.; 1 s / 1 min                           | 3000 (2500)    | V     |
| $M_1$                                                                                                  | mounting torque                                            | 2              | Nm    |
| $w$                                                                                                    |                                                            | 19             | g     |
| Case                                                                                                   | SEMITOP® 2                                                 | T 91           |       |

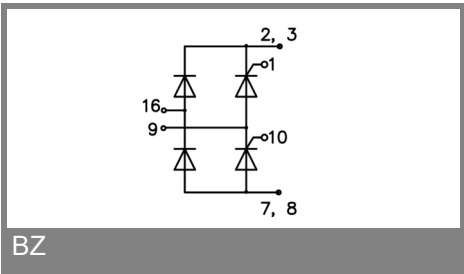


**BZ**



SUGGESTED HOLEDIAMETER FOR THE SOLDER PINS AND THE MOUNTING PINS IN THE PCB: 2 mm

Case T91 (Suggested hole diameter, in the PCB, for solder pins and plastic mounting pins: 2mm)



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

\* The specifications of our components may not be considered as an assurance of component characteristics. Components have to be tested for the respective application. Adjustments may be necessary. The use of SEMIKRON products in life support appliances and systems is subject to prior specification and written approval by SEMIKRON. We therefore strongly recommend prior consultation of our personal.