



Stud Thyristor

## Line Thyristor

### SKT 100

#### Features

- Hermetic metal case with glass insulator
- Threaded stud ISO M12 or UNF 1/2-20
- Interchangeable with international standard case

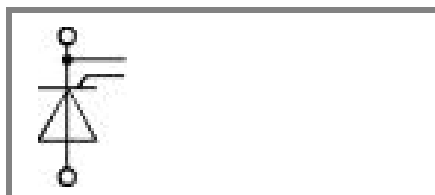
#### Typical Applications\*

- DC motor control (e. g. for machines tools)
- Controlled rectifiers (e. g. for battery charging)
- AC controllers (e. g. for temperature control)
- Recommended snubber network e. g. for  $V_{VRMS} \leq 400$  V:  
 $R = 47 \Omega / 10$  W,  $C = 0,22 \mu F$

1) Available with UNF thread 1/2-20 UNF2A, e. g. SKT 100/08D UNF

| $V_{RSM}$<br>V | $V_{RRM}, V_{DRM}$<br>V | $I_{TRMS} = 175$ A (maximum value for continuous operation)<br>$I_{TAV} = 100$ A (sin. 180; $T_c = 85$ °C) |  |  |
|----------------|-------------------------|------------------------------------------------------------------------------------------------------------|--|--|
| 500            | 400                     | SKT 100/04D                                                                                                |  |  |
| 900            | 800                     | SKT 100/08D <sup>1)</sup>                                                                                  |  |  |
| 1300           | 1200                    | SKT 100/12E <sup>1)</sup>                                                                                  |  |  |
| 1500           | 1400                    | SKT 100/14E <sup>1)</sup>                                                                                  |  |  |
| 1700           | 1600                    | SKT 100/16E <sup>1)</sup>                                                                                  |  |  |
| 1900           | 1800                    | SKT 100/18E                                                                                                |  |  |

| Symbol           | Conditions                                              | Values          | Units |
|------------------|---------------------------------------------------------|-----------------|-------|
| $I_{TAV}$        | sin. 180; $T_c = 100$ (85) °C;                          | 74 (100 )       | A     |
| $I_D$            | K1,1; $T_a = 45$ °C; B2 / B6                            | 90 / 125        | A     |
|                  | K0,55; $T_a = 45$ °C; B2 / B6                           | 130 / 180       | A     |
| $I_{RMS}$        | K1,1; $T_a = 45$ °C; W1C                                | 100             | A     |
| $I_{TSM}$        | $T_{vj} = 25$ °C; 10 ms                                 | 2000            | A     |
|                  | $T_{vj} = 130$ °C; 10 ms                                | 1750            | A     |
| $i^2t$           | $T_{vj} = 25$ °C; 8,35 ... 10 ms                        | 20000           | A²s   |
|                  | $T_{vj} = 130$ °C; 8,35 ... 10 ms                       | 15000           | A²s   |
| $V_T$            | $T_{vj} = 25$ °C; $I_T = 300$ A                         | max. 1,75       | V     |
| $V_{T(TO)}$      | $T_{vj} = 130$ °C                                       | max. 1          | V     |
| $r_T$            | $T_{vj} = 130$ °C                                       | max. 2,4        | mΩ    |
| $I_{DD}, I_{RD}$ | $T_{vj} = 130$ °C; $V_{RD} = V_{RRM}, V_{DD} = V_{DRM}$ | max. 30         | mA    |
| $t_{gd}$         | $T_{vj} = 25$ °C; $I_G = 1$ A; $di_G/dt = 1$ A/μs       | 1               | μs    |
| $t_{gr}$         | $V_D = 0,67 * V_{DRM}$                                  | 2               | μs    |
| $(di/dt)_{cr}$   | $T_{vj} = 130$ °C                                       | max. 50         | A/μs  |
| $(dv/dt)_{cr}$   | $T_{vj} = 130$ °C; SKT ...D / SKT ...E                  | max. 500 / 1000 | V/μs  |
| $t_q$            | $T_{vj} = 130$ °C ;                                     | 100             | μs    |
| $I_H$            | $T_{vj} = 25$ °C; typ. / max.                           | 150 / 250       | mA    |
| $I_L$            | $T_{vj} = 25$ °C; typ. / max.                           | 300 / 600       | mA    |
| $V_{GT}$         | $T_{vj} = 25$ °C; d.c.                                  | min. 3          | V     |
| $I_{GT}$         | $T_{vj} = 25$ °C; d.c.                                  | min. 150        | mA    |
| $V_{GD}$         | $T_{vj} = 130$ °C; d.c.                                 | max. 0,25       | V     |
| $I_{GD}$         | $T_{vj} = 130$ °C; d.c.                                 | max. 10         | mA    |
| $R_{th(j-c)}$    | cont.                                                   | 0,25            | K/W   |
| $R_{th(j-c)}$    | sin. 180                                                | 0,28            | K/W   |
| $R_{th(j-c)}$    | rec. 120                                                | 0,31            | K/W   |
| $R_{th(c-s)}$    |                                                         | 0,08            | K/W   |
| $T_{vj}$         |                                                         | - 40 ... + 130  | °C    |
| $T_{stg}$        |                                                         | - 55 ... + 150  | °C    |
| $V_{isol}$       |                                                         | -               | V~    |
| $M_s$            | to heatsink                                             | 16              | Nm    |
| $a$              |                                                         | 5 * 9,81        | m/s²  |
| $m$              | approx.                                                 | 100             | g     |
| Case             |                                                         | B 5             |       |



SKT

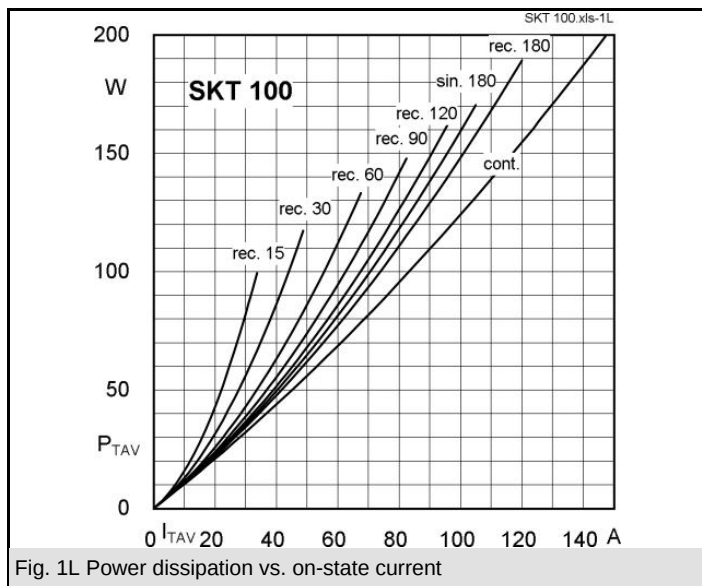


Fig. 1L Power dissipation vs. on-state current

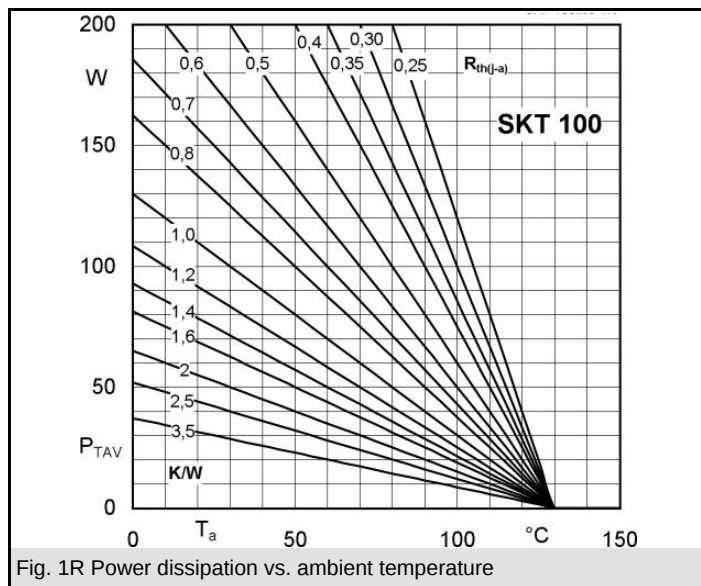


Fig. 1R Power dissipation vs. ambient temperature

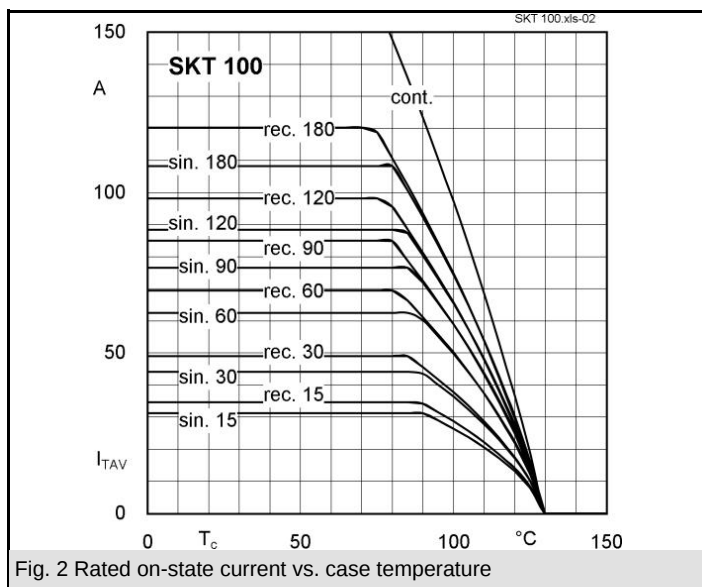


Fig. 2 Rated on-state current vs. case temperature

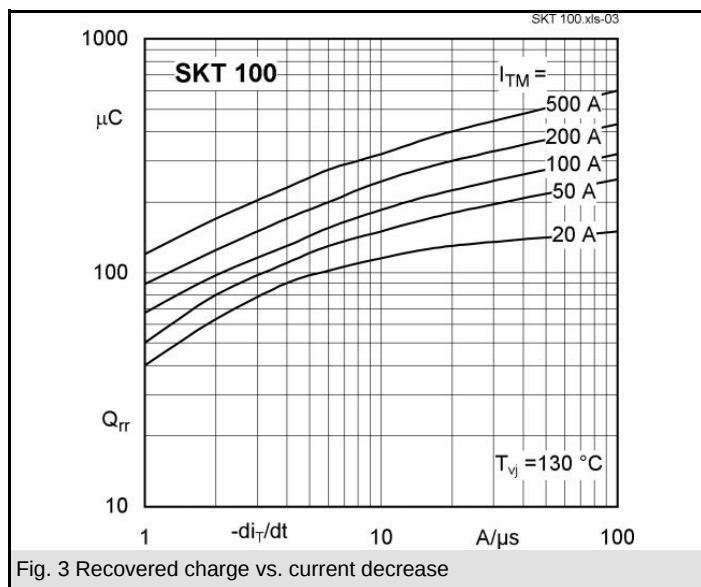


Fig. 3 Recovered charge vs. current decrease

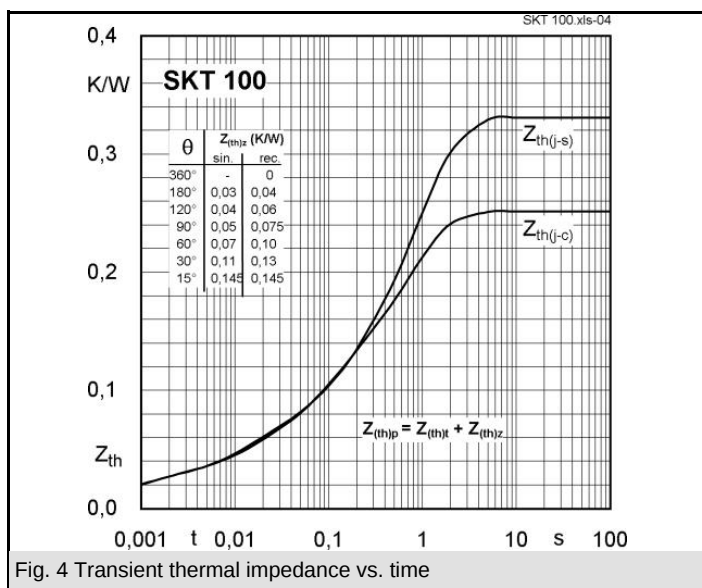


Fig. 4 Transient thermal impedance vs. time

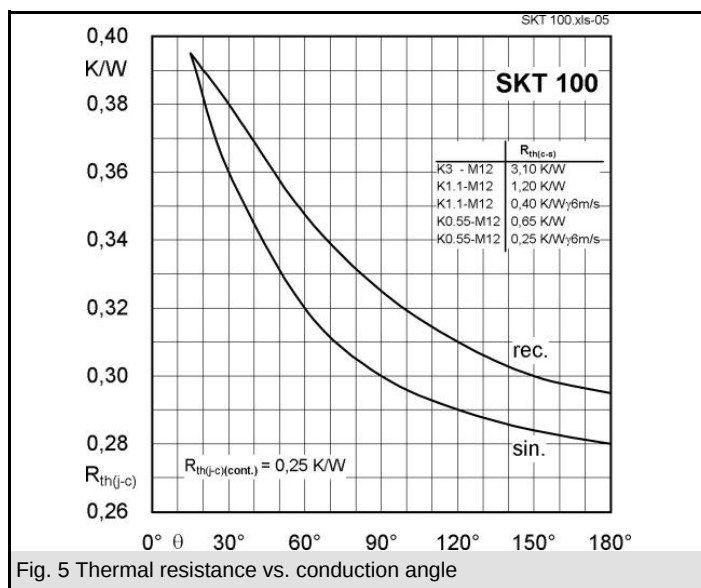
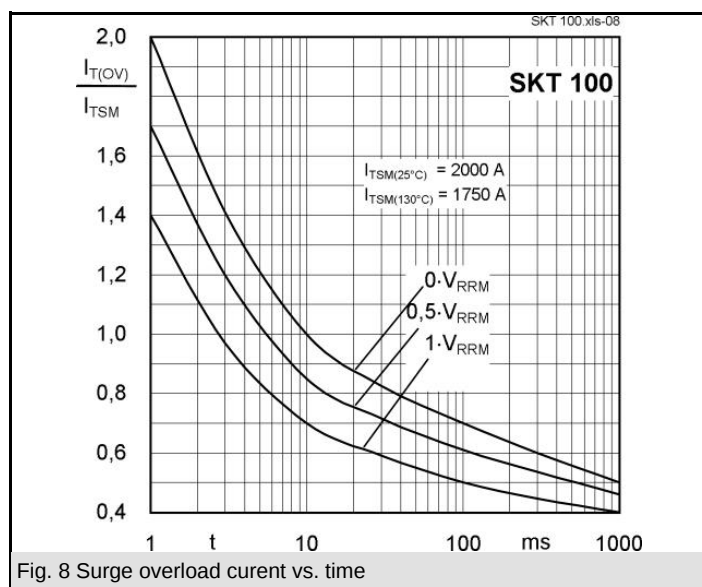
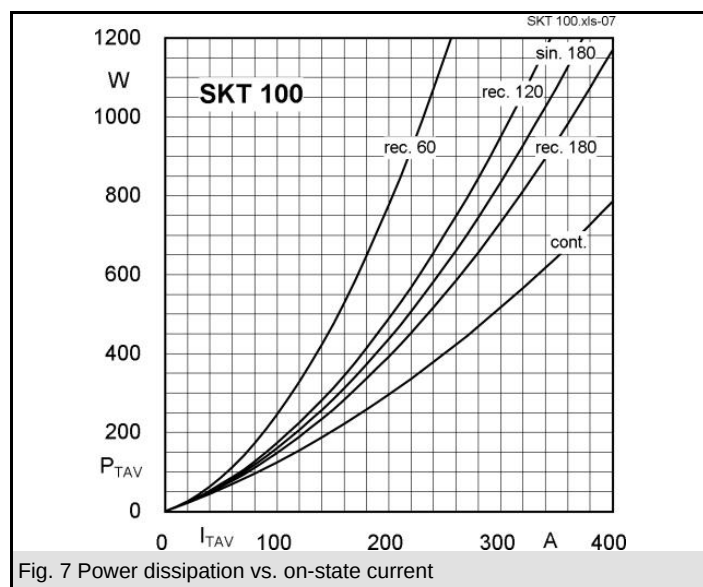
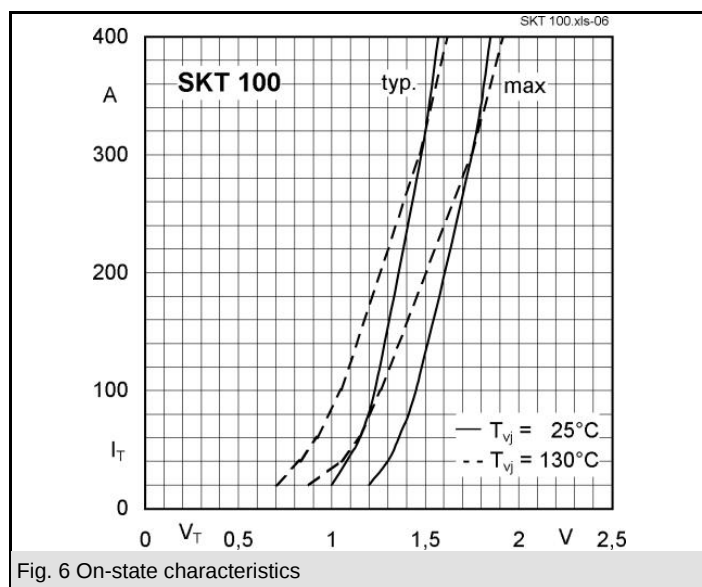
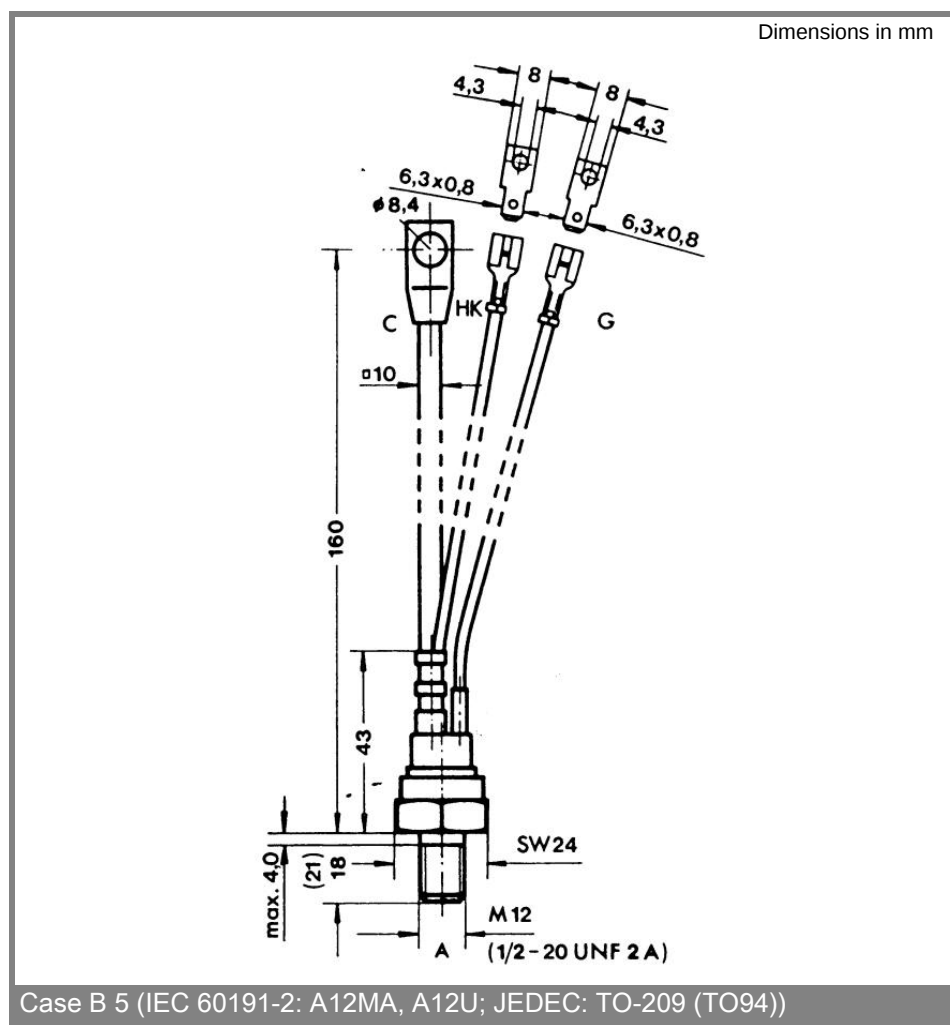
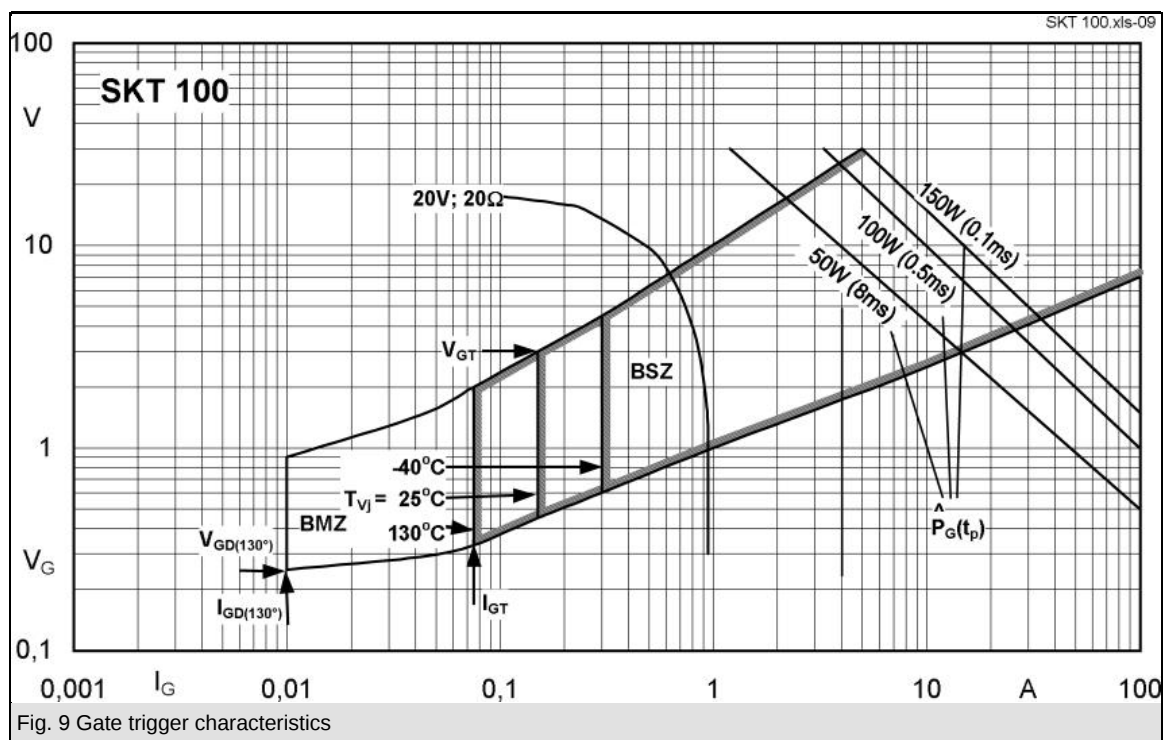


Fig. 5 Thermal resistance vs. conduction angle





\* 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.