

# SKKT 250, SKKH 250



**SEMIPACK® 3**

## Thyristor / Diode Modules

**SKKH 250**

**SKKT 250**

### Features

- Heat transfer through aluminium nitride ceramic isolated metal baseplate
- Precious metal pressure contacts for high reliability
- Thyristor with amplifying gate
- UL recognized, file no. E 63 532

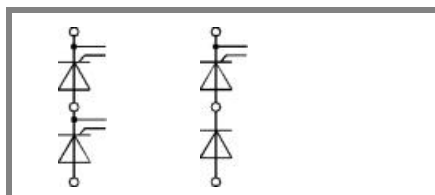
### Typical Applications\*

- DC motor control (e. g. for machine tools)
- AC motor starters
- Temperature control (e. g. for ovens, chemical processes)
- Professional light dimming (studios, theaters)

<sup>1)</sup> See the assembly instructions

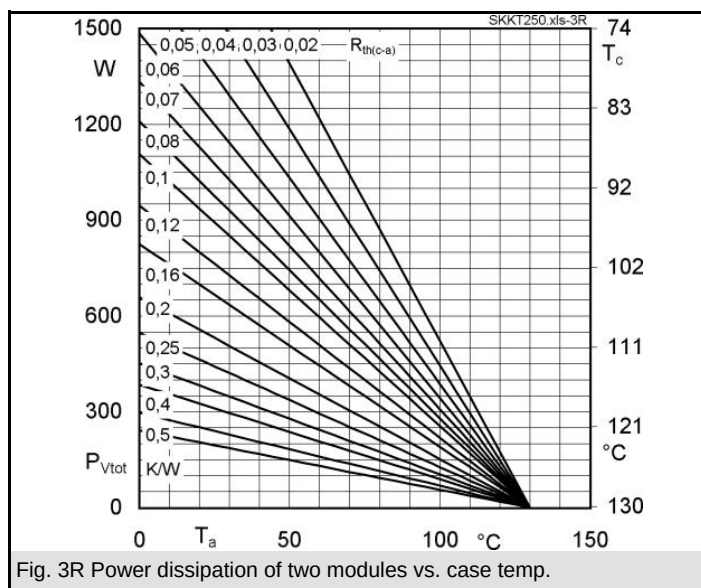
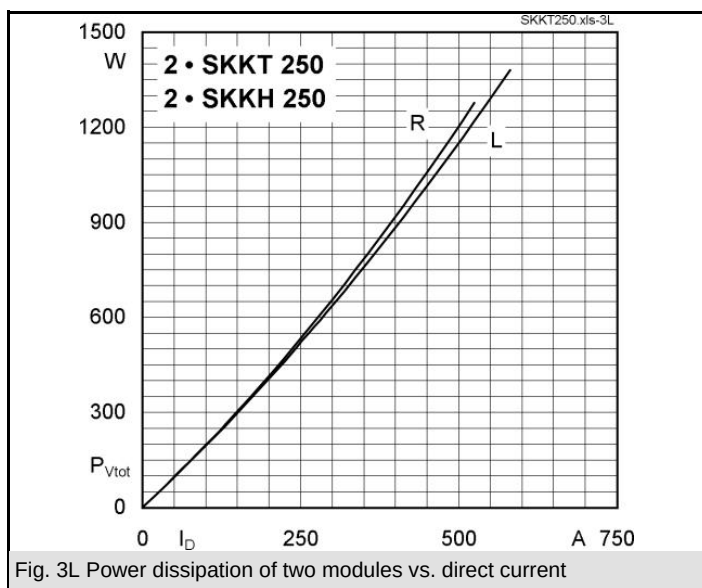
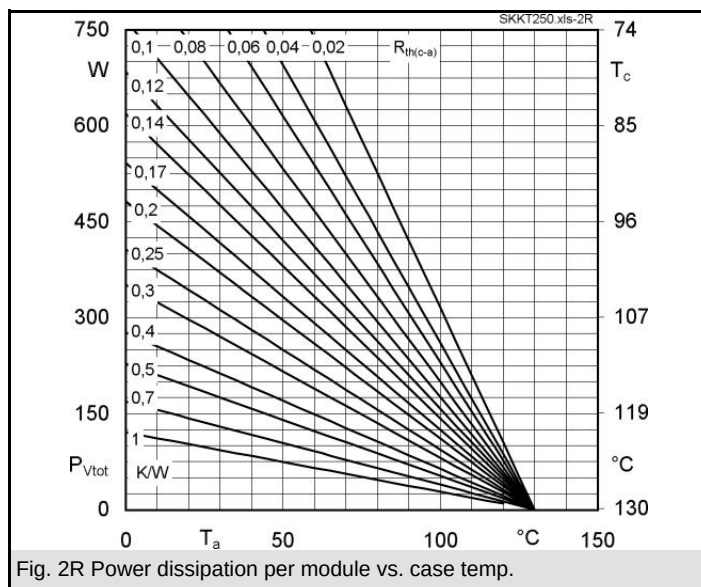
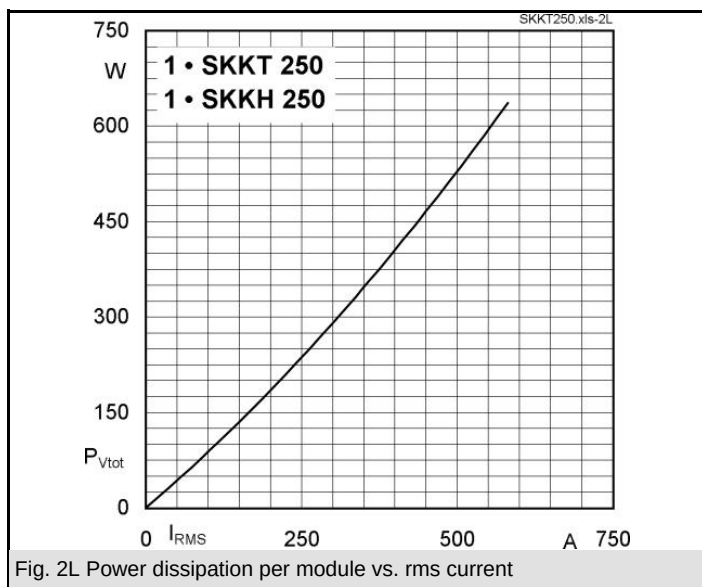
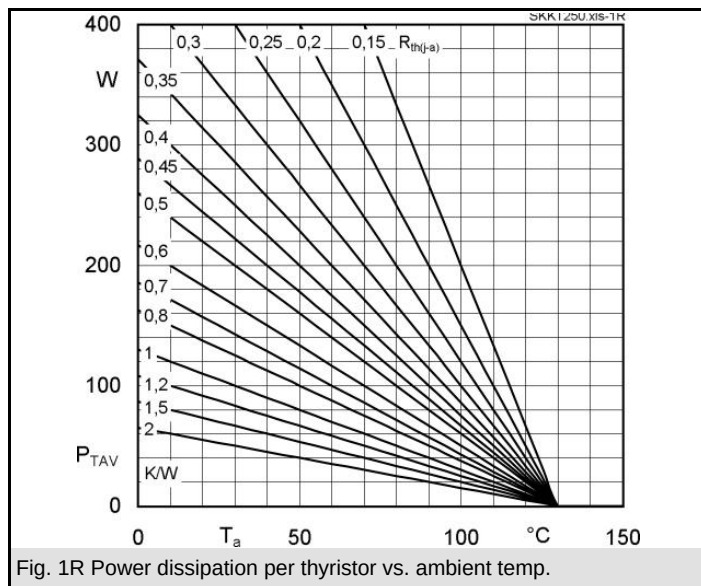
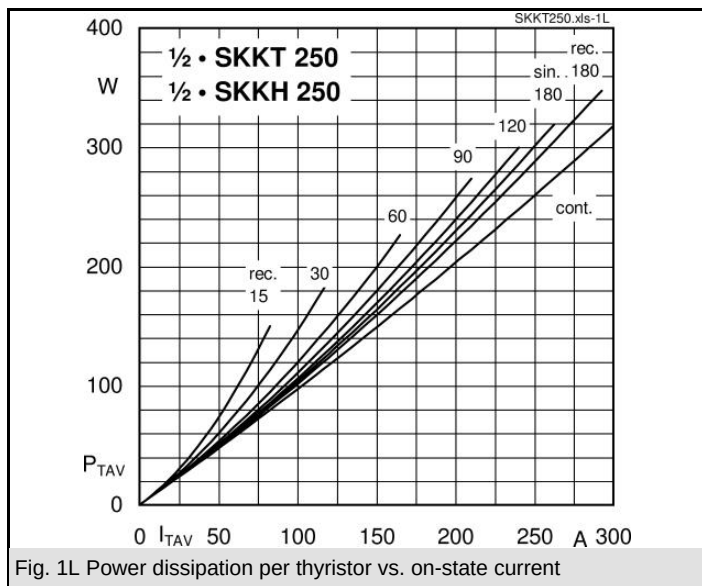
| $V_{RSM}$<br>V | $V_{RRM}, V_{DRM}$<br>V | $I_{TRMS} = 420$ A (maximum value for continuous operation)<br>$I_{TAV} = 250$ A (sin. 180; $T_c = 85$ °C) |              |  |
|----------------|-------------------------|------------------------------------------------------------------------------------------------------------|--------------|--|
| 900            | 800                     | SKKT 250/08E                                                                                               |              |  |
| 1300           | 1200                    | SKKT 250/12E                                                                                               | SKKH 250/12E |  |
| 1700           | 1600                    | SKKT 250/16E                                                                                               | SKKH 250/16E |  |
| 1900           | 1800                    | SKKT 250/18E                                                                                               | SKKH 250/18E |  |

| Symbol           | Conditions                                                 | Values                 | Units |
|------------------|------------------------------------------------------------|------------------------|-------|
| $I_{TAV}$        | sin. 180; $T_c = 85$ (100) °C;                             | 250 (178 )             | A     |
| $I_D$            | P16/200F; $T_a = 35$ °C; B2/B6                             | 450 / 585              | A     |
| $I_{RMS}$        | P16/200F; $T_a = 35$ °C; W1 / W3                           | 566 / 3 * 471          | A     |
| $I_{TSM}$        | $T_{vj} = 25$ °C; 10 ms                                    | 9000                   | A     |
|                  | $T_{vj} = 130$ °C; 10 ms                                   | 8000                   | A     |
| $i^2t$           | $T_{vj} = 25$ °C; 8,3 ... 10 ms                            | 405000                 | A²s   |
|                  | $T_{vj} = 130$ °C; 8,3 ... 10 ms                           | 320000                 | A²s   |
| $V_T$            | $T_{vj} = 25$ °C; $I_T = 750$ A                            | max. 1,4               | V     |
| $V_{T(TO)}$      | $T_{vj} = 130$ °C                                          | max. 0,925             | V     |
| $r_T$            | $T_{vj} = 130$ °C                                          | max. 0,45              | mΩ    |
| $I_{DD}, I_{RD}$ | $T_{vj} = 130$ °C; $V_{RD} = V_{RRM}$ ; $V_{DD} = V_{DRM}$ | max. 85                | 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. 250               | A/μs  |
| $(dv/dt)_{cr}$   | $T_{vj} = 130$ °C                                          | max. 1000              | V/μs  |
| $t_q$            | $T_{vj} = 130$ °C                                          | 50 ... 150             | μs    |
| $I_H$            | $T_{vj} = 25$ °C; typ. / max.                              | 150 / 500              | mA    |
| $I_L$            | $T_{vj} = 25$ °C; $R_G = 33$ Ω; typ. / max.                | 300 / 2000             | mA    |
| $V_{GT}$         | $T_{vj} = 25$ °C; d.c.                                     | min. 3                 | V     |
| $I_{GT}$         | $T_{vj} = 25$ °C; d.c.                                     | min. 200               | 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.; per thyristor / per module                          | 0,14 / 0,07            | K/W   |
| $R_{th(f-c)}$    | sin. 180; per thyristor / per module                       | 0,15 / 0,075           | K/W   |
| $R_{th(j-c)}$    | rec. 120; per thyristor / per module                       | 0,165 / 0,083          | K/W   |
| $R_{th(c-s)}$    | per thyristor / per module                                 | 0,04 / 0,02            | K/W   |
| $T_{vj}$         |                                                            | - 40 ... + 130         | °C    |
| $T_{stg}$        |                                                            | - 40 ... + 130         | °C    |
| $V_{isol}$       | a. c. 50 Hz; r.m.s.; 1 s / 1 min.                          | 3600 / 3000            | V~    |
| $M_s$            | to heatsink                                                | 5 ± 15 % <sup>1)</sup> | Nm    |
| $M_t$            | to terminals                                               | 9 ± 15 %               | Nm    |
| $a$              |                                                            | 5 * 9,81               | m/s²  |
| $m$              | approx.                                                    | 600                    | g     |
| Case             | SKKT                                                       | A 73b                  |       |
|                  | SKKH                                                       | A 76b                  |       |



**SKKT**

**SKKH**



# SKKT 250, SKKH 250

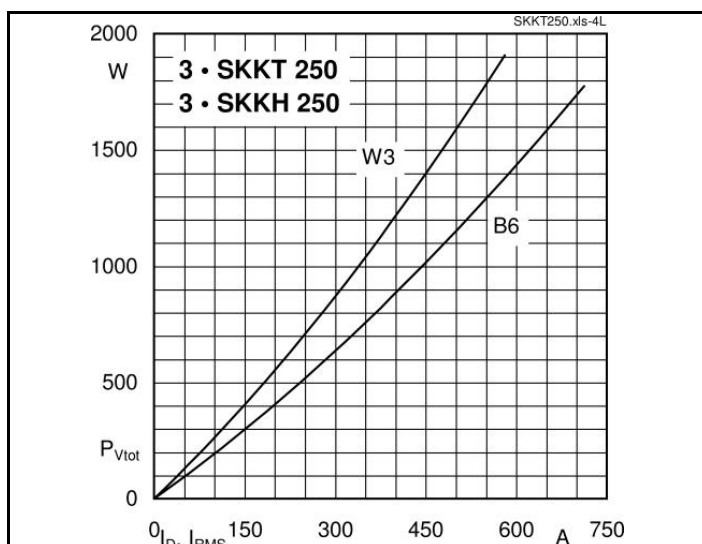


Fig. 4L Power dissipation of three modules vs. direct and rms current

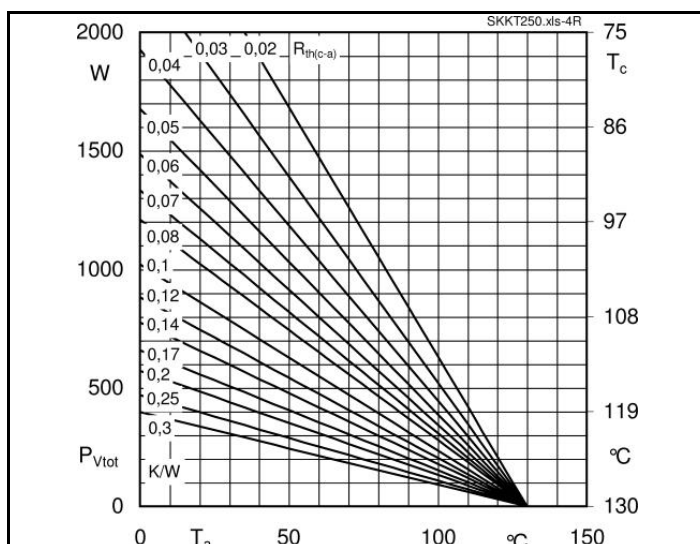


Fig. 4R Power dissipation of three modules vs. case temp.

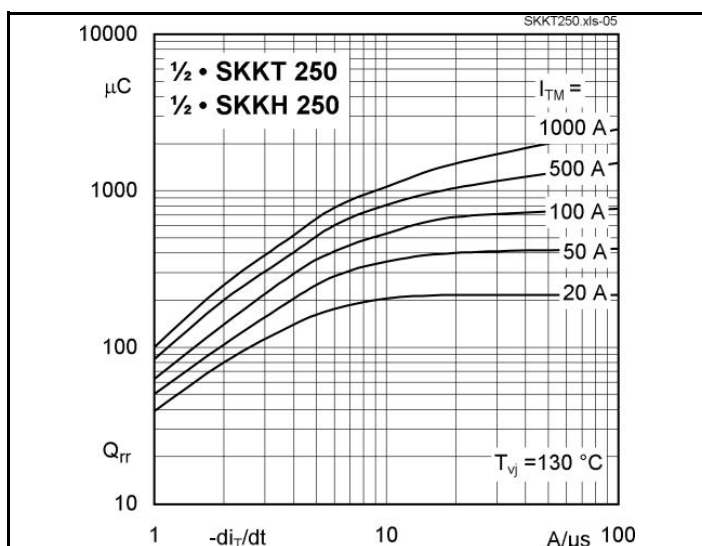


Fig. 5 Recovered charge vs. current decrease

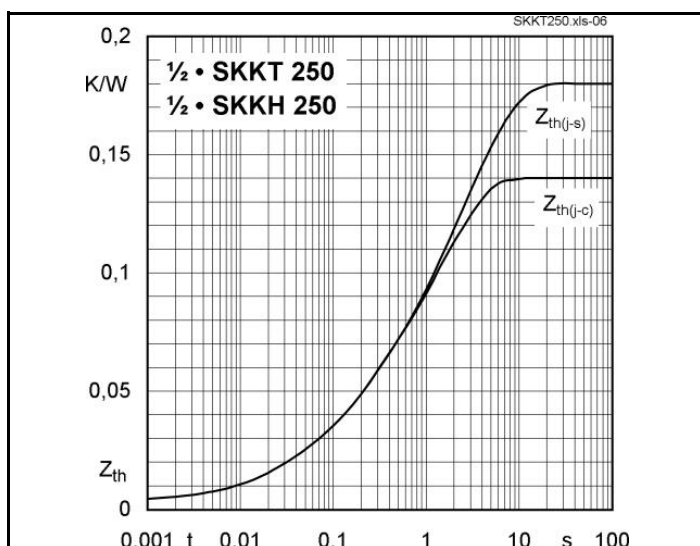


Fig. 6 Transient thermal impedance vs. time

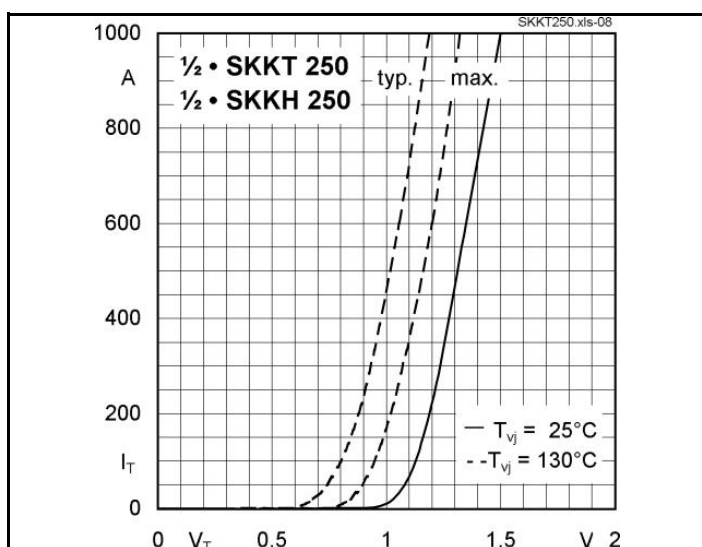


Fig. 7 On-state characteristics

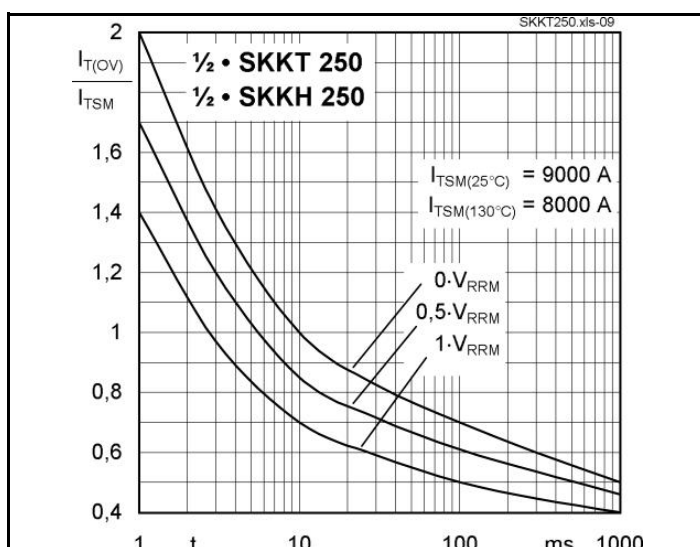
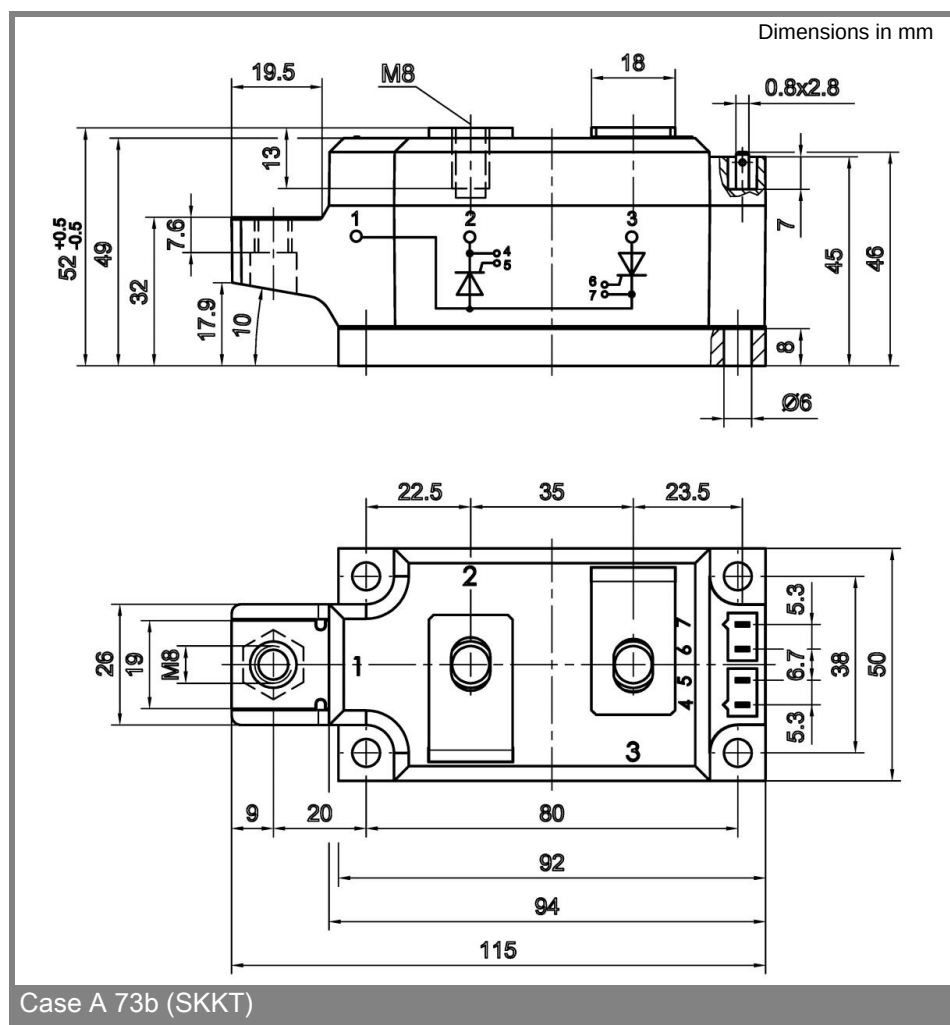
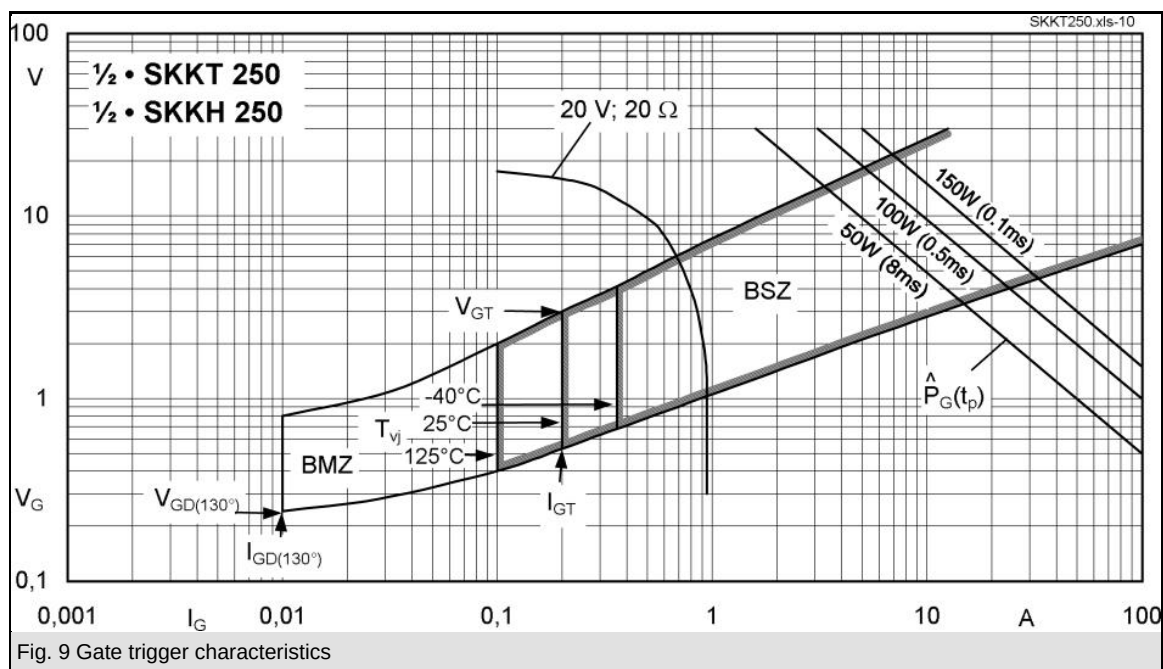


Fig. 8 Surge overload current vs. time



\* 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 staff.