



## SEMIPACK® 4

### Thyristor Modules

#### SKET 330

#### 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)
- Temperature control (e. g. for ovens, chemical processes)
- Professional light dimming (studios, theaters)

1) See the assembly instructions

| $V_{RSM}$<br>V | $V_{RRM}, V_{DRM}$<br>V | $I_{TRMS} = 600$ A (maximum value for continuous operation)<br>$I_{TAV} = 330$ A (sin. 180; $T_c = 78$ °C) |  |  |
|----------------|-------------------------|------------------------------------------------------------------------------------------------------------|--|--|
| 1300           | 1200                    | SKET 330/12E                                                                                               |  |  |
| 1500           | 1400                    | SKET 330/14E                                                                                               |  |  |
| 1700           | 1600                    | SKET 330/16E                                                                                               |  |  |
| 1900           | 1800                    | SKET 330/18E                                                                                               |  |  |
| 2300           | 2200                    | SKET 330/22E                                                                                               |  |  |

| Symbol           | Conditions                                              | Values                 | Units |
|------------------|---------------------------------------------------------|------------------------|-------|
| $I_{TAV}$        | sin. 180; $T_c = 85$ (100) °C;                          | 295 (210)              | A     |
| $I_D$            | P16/300F; $T_a = 35$ °C; B2 / B6                        | 530 / 665              | A     |
| $I_{RMS}$        | P16/400F; $T_a = 35$ °C; W1 / W3                        | 685 / 3 * 550          | 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; $I_T = 1500$ A                        | max. 2,05              | V     |
| $V_{T(TO)}$      | $T_{vj} = 130$ °C                                       | max. 1,2               | V     |
| $r_T$            | $T_{vj} = 130$ °C                                       | max. 0,55              | mΩ    |
| $I_{DD}, I_{RD}$ | $T_{vj} = 130$ °C; $V_{RD} = V_{RRM}, V_{DD} = V_{DRM}$ | max. 200               | 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. 125               | A/μs  |
| $(dv/dt)_{cr}$   | $T_{vj} = 130$ °C                                       | max. 1000              | V/μs  |
| $t_q$            | $T_{vj} = 130$ °C                                       | 150 ... 200            | μs    |
| $I_H$            | $T_{vj} = 25$ °C; typ. / max.                           | 150 / 500              | mA    |
| $I_L$            | $T_{vj} = 25$ °C; $R_G = 33$ Ω; typ. / max.             | 500 / 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.                                                   | 0,09                   | K/W   |
| $R_{th(j-c)}$    | sin. 180                                                | 0,095                  | K/W   |
| $R_{th(j-c)}$    | rec. 120                                                | 0,11                   | K/W   |
| $R_{th(c-s)}$    |                                                         | 0,02                   | K/W   |
| $T_{vj}$         |                                                         | - 40 ... + 130         | °C    |
| $T_{stg}$        |                                                         | - 40 ... + 130         | °C    |
| $V_{isol}$       | a. c. 50 Hz; r.m.s.; 1s / 1 min.                        | 3600 / 3000            | V~    |
| $M_s$            | to heatsink                                             | 5 ± 15 % <sup>1)</sup> | Nm    |
| $M_t$            | to terminal                                             | 17 ± 15 %              | Nm    |
| $a$              |                                                         | 5 * 9,81               | m/s²  |
| $m$              | approx.                                                 | 840                    | g     |
| Case             |                                                         | A 36                   |       |



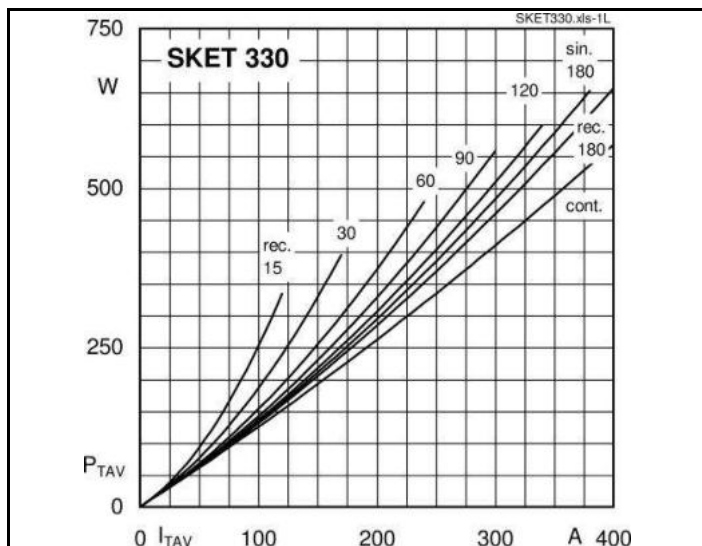


Fig. 1L Power dissipation per thyristor vs. on-state current

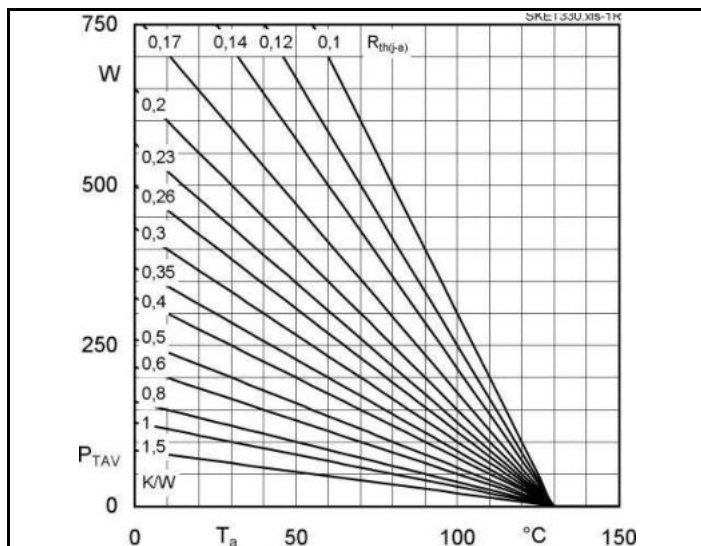


Fig. 1R Power dissipation per thyristor vs. ambient temp.

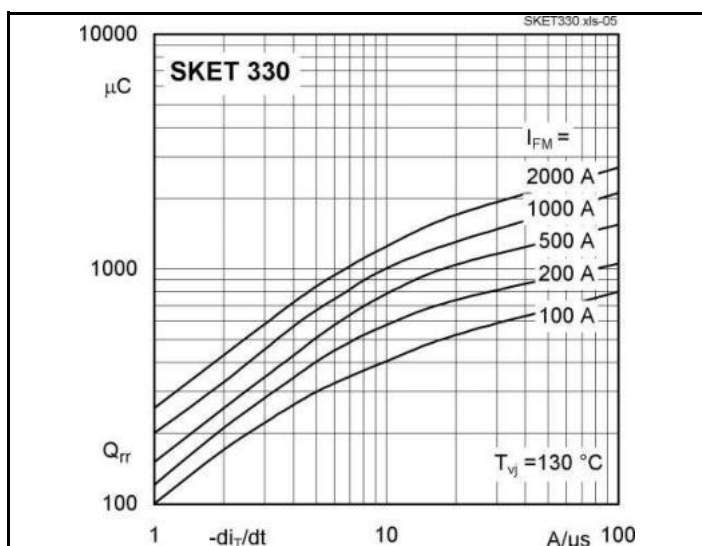


Fig. 5 Recovered charge vs. current decrease

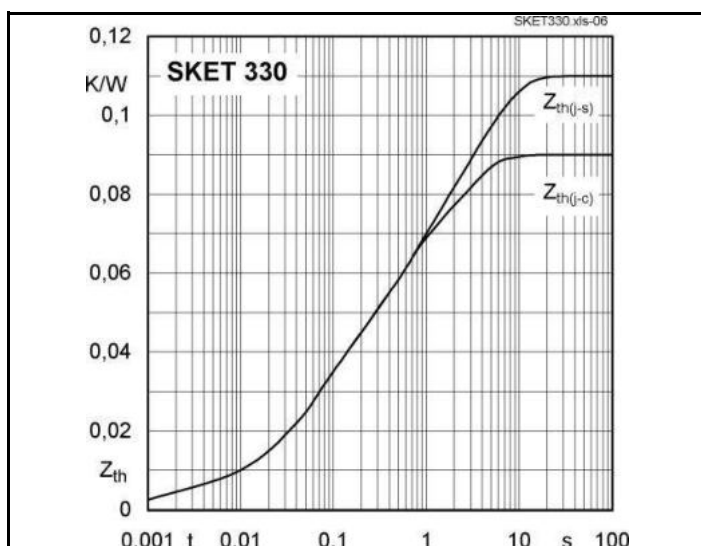


Fig. 6 Transient thermal impedance vs. time.

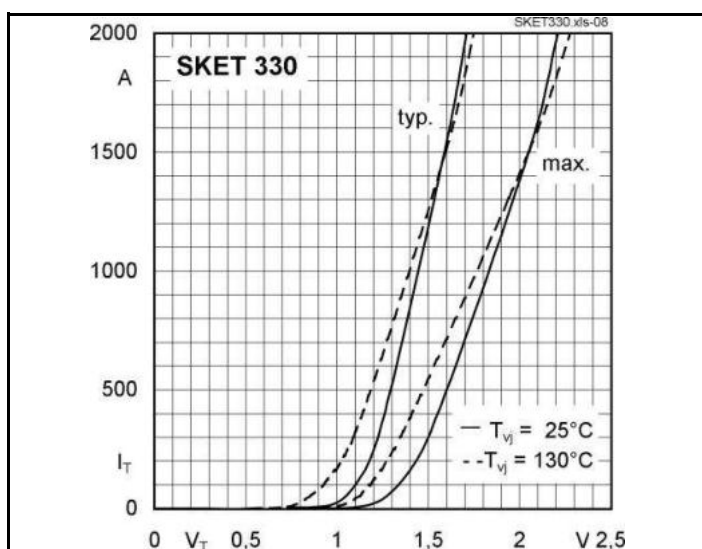


Fig. 7 On-state characteristics

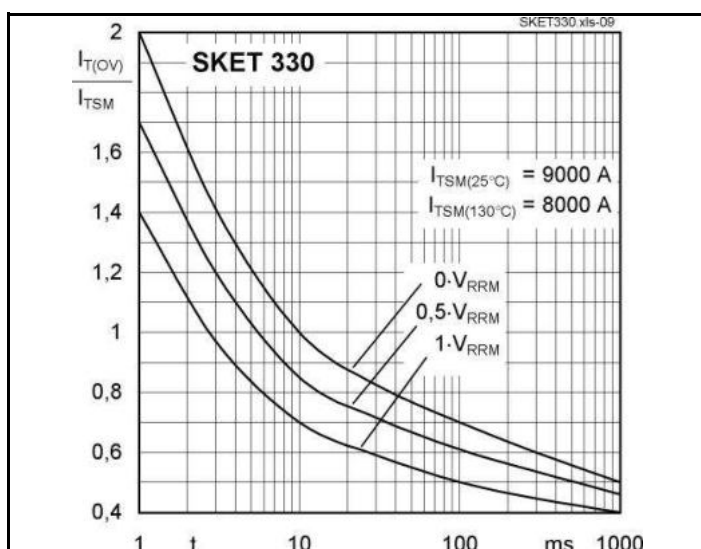
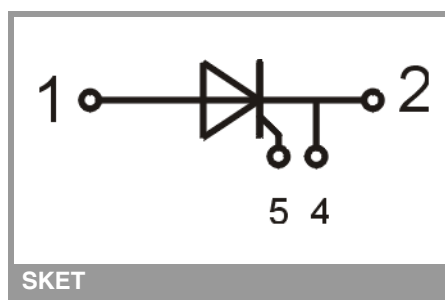
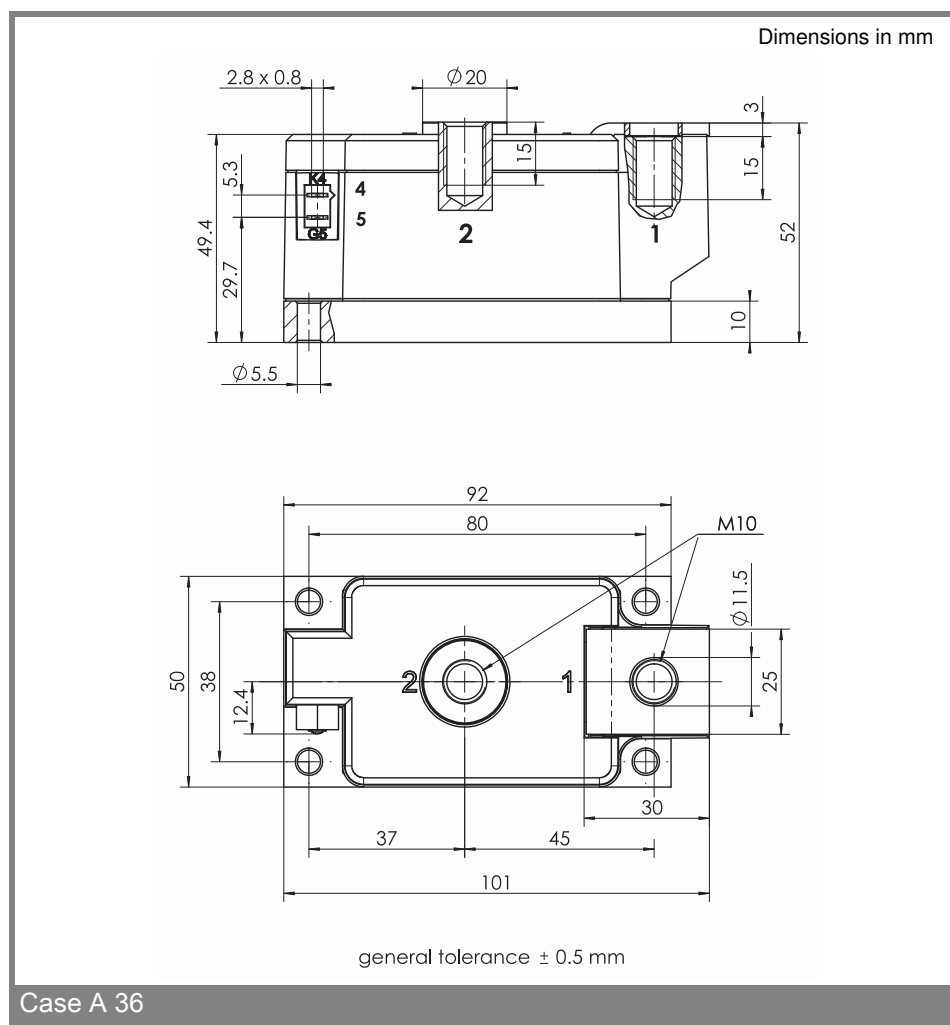
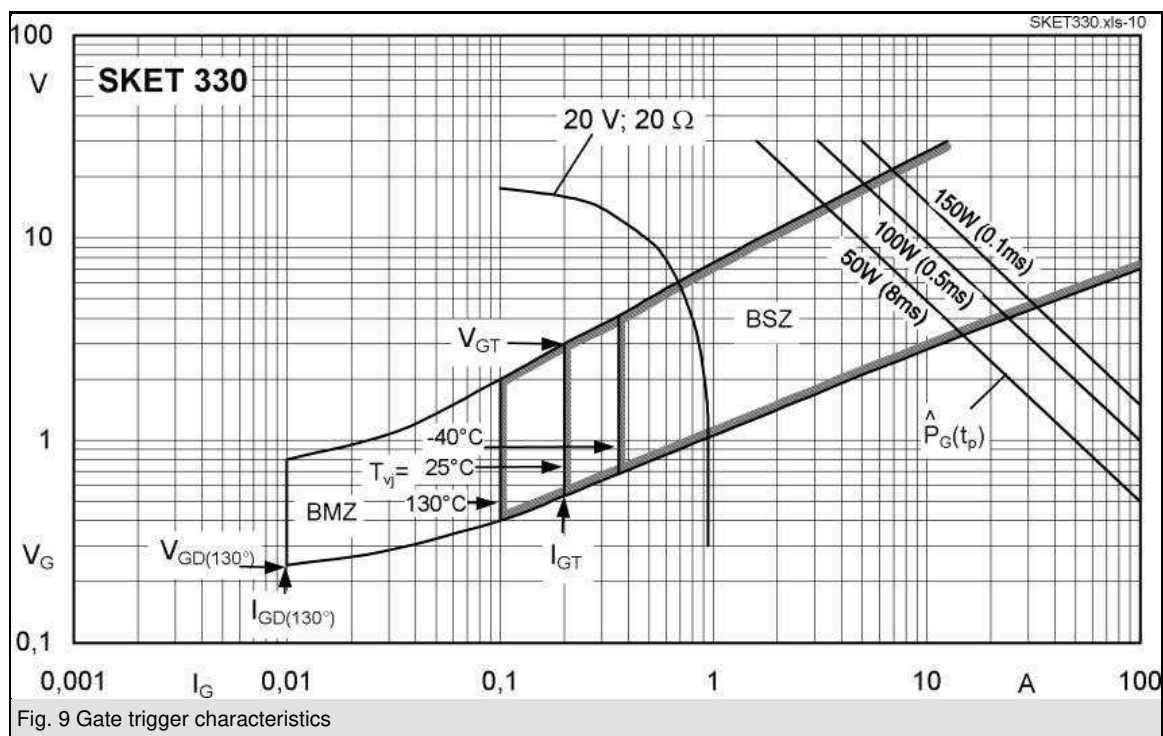


Fig. 8 Surge overload current vs. time



This is an electrostatic discharge sensitive device (ESDS) due to international standard IEC 61340.

**\*IMPORTANT INFORMATION AND WARNINGS**

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