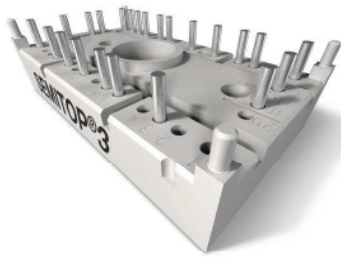


# SK 45 STA



**SEMITOP® 3**

## Six Separated Thyristors Module

### SK 45 STA

Preliminary Data

### Features

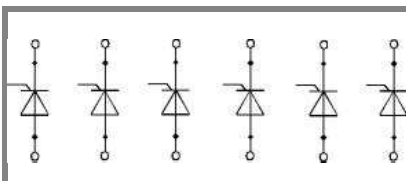
- Compact design
- One screw mounting
- Heat transfer and isolation through direct copper bonded aluminium oxide ceramic (DCB)
- Glass passivated thyristor chips
- Up to 1600 V reverse voltage

### Typical Applications\*

- Soft starters
- Light control (studios, theatres...)
- Temperature control

| $V_{RSM}$<br>V | $V_{RRM}, V_{DRM}$<br>V | $I_{TRMS} = 41$ A<br>( $T_s = 75$ °C) |
|----------------|-------------------------|---------------------------------------|
| 900            | 800                     | SK 45 STA 08                          |
| 1300           | 1200                    | SK 45 STA 12                          |
| 1700           | 1600                    | SK 45 STA 16                          |

| Characteristics   |                                                            | $T_h = 25$ °C, unless otherwise specified |       |
|-------------------|------------------------------------------------------------|-------------------------------------------|-------|
| Symbol            | Conditions                                                 | Values                                    | Units |
| $I_{rms}$ (W1C)   | sin. 180°; $T_s = 100$ °C                                  | 33                                        | A     |
| $I_{rms}$ (W1C)   | sin. 180°; $T_s = 85$ °C                                   | 47                                        | A     |
|                   |                                                            |                                           | A     |
| $I_{TSM}/I_{FSM}$ | $T_{vj} = 25$ (125) °C; 10 ms                              | 450 (380)                                 | A     |
| $I^2t$            | $T_{vj} = 25$ (125) °C; 8,3 ... 10 ms ms                   | 1000 (720)                                | 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; $f = 50$ ... 60 Hz                      | 50                                        | A/μs  |
| $t_q$             | $T_{vj} = 125$ °C; typ.                                    | 80                                        | μs    |
| $I_H$             | $T_{vj} = 25$ °C; typ. / max.                              | 80 / 150                                  | mA    |
| $I_L$             | $T_{vj} = 25$ °C; $R_G = 33$ Ω; typ. / max.                | 150 / 300                                 | mA    |
| $V_T$             | $T_{vj} = 25$ °C; ( $I_T = 75$ A); max.                    | 1,9                                       | V     |
| $V_{T(TO)}$       | $T_{vj} = 125$ °C                                          | max. 1                                    | V     |
| $r_T$             | $T_{vj} = 125$ °C                                          | max. 10                                   | mΩ    |
| $I_{DD}, I_{RD}$  | $T_{vj} = 125$ °C; $V_{DD} = V_{DRM}$ ; $V_{RD} = V_{RRM}$ | max. 10                                   | mA    |
| $R_{th(j-s)}$     |                                                            | 1,2                                       | K/W   |
| $T_{vj}$          |                                                            | - 40 ... + 125                            | °C    |
| $V_{GT}$          | $T_{vj} = 25$ °C; d.c.                                     | 3                                         | 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             |                                                            |                                           |       |
| $V_F$             | $T_{vj} =$ °C; ( $I_F = A$ ); max.                         |                                           | V     |
| $V_{(TO)}$        | $T_{vj} =$ °C                                              |                                           | V     |
| $r_T$             | $T_{vj} =$ °C                                              |                                           | mΩ    |
| $I_{RD}$          | $T_{vj} =$ °C; $V_{RD} = V_{RRM}$                          |                                           | mA    |
| $R_{th(j-s)}$     |                                                            |                                           | K/W   |
| $T_{vj}$          |                                                            |                                           | °C    |
| Mechanical data   |                                                            |                                           |       |
| $V_{isol}$        | a.c. 50 Hz; r.m.s.; 1 min / 1 s                            | 2500 (3000)                               | V     |
| $M_1$             | mounting torque                                            | 2,5                                       | Nm    |
| $w$               |                                                            | 30                                        | g     |
| Case              | SEMITOP® 3                                                 | T56                                       |       |



**STA**

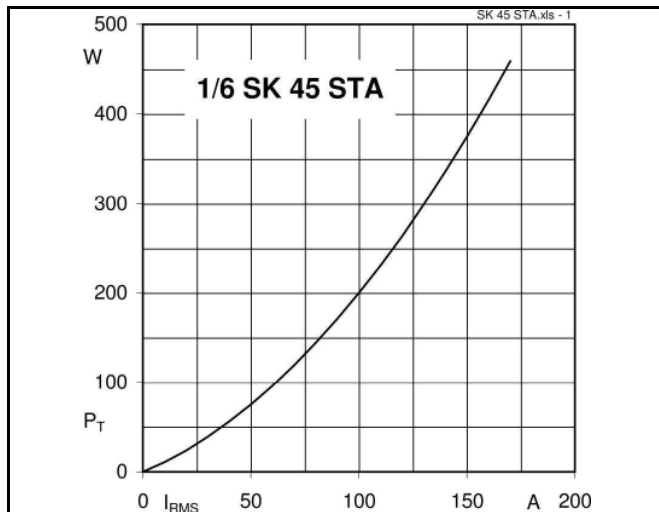


Fig. 1 Power dissipation per Thyristor vs. r.m.s. current

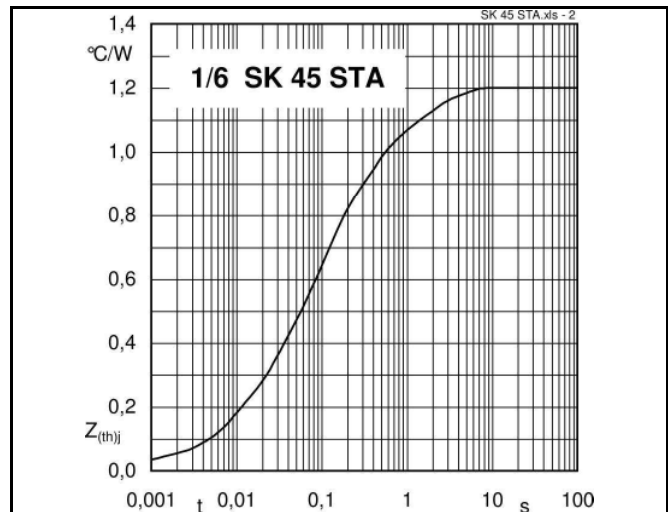


Fig. 2 Transient thermal impedance vs. time

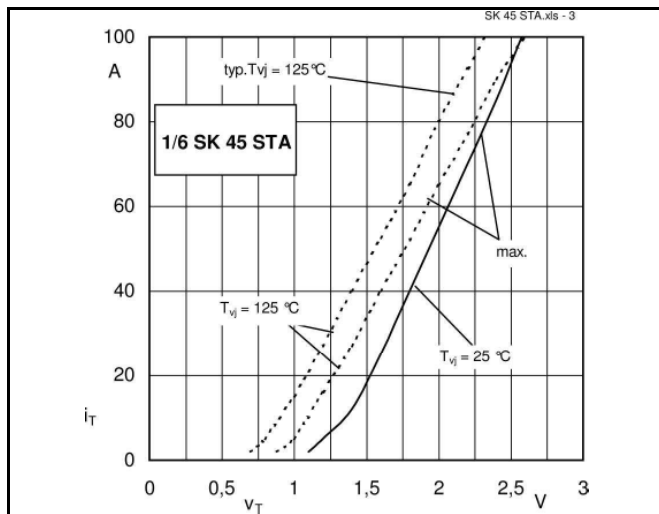


Fig. 3 On-state characteristics

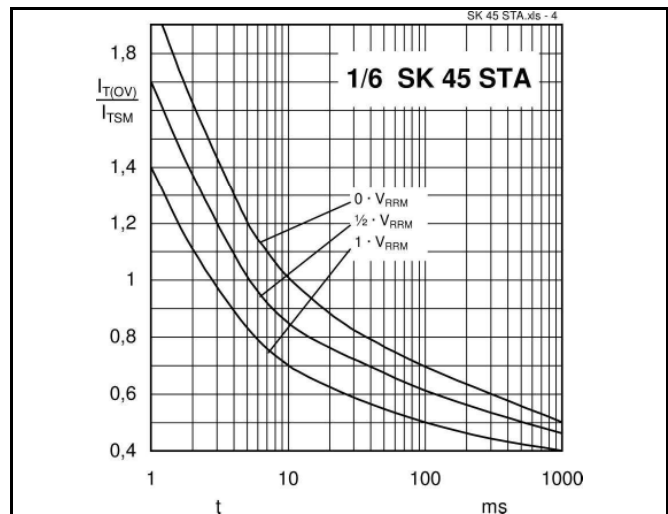


Fig. 4 Surge overload current vs. time

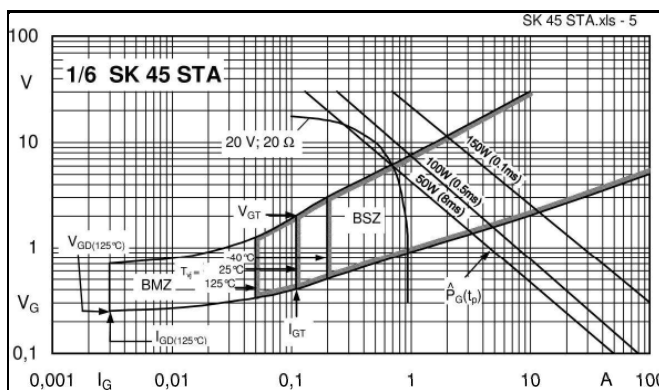
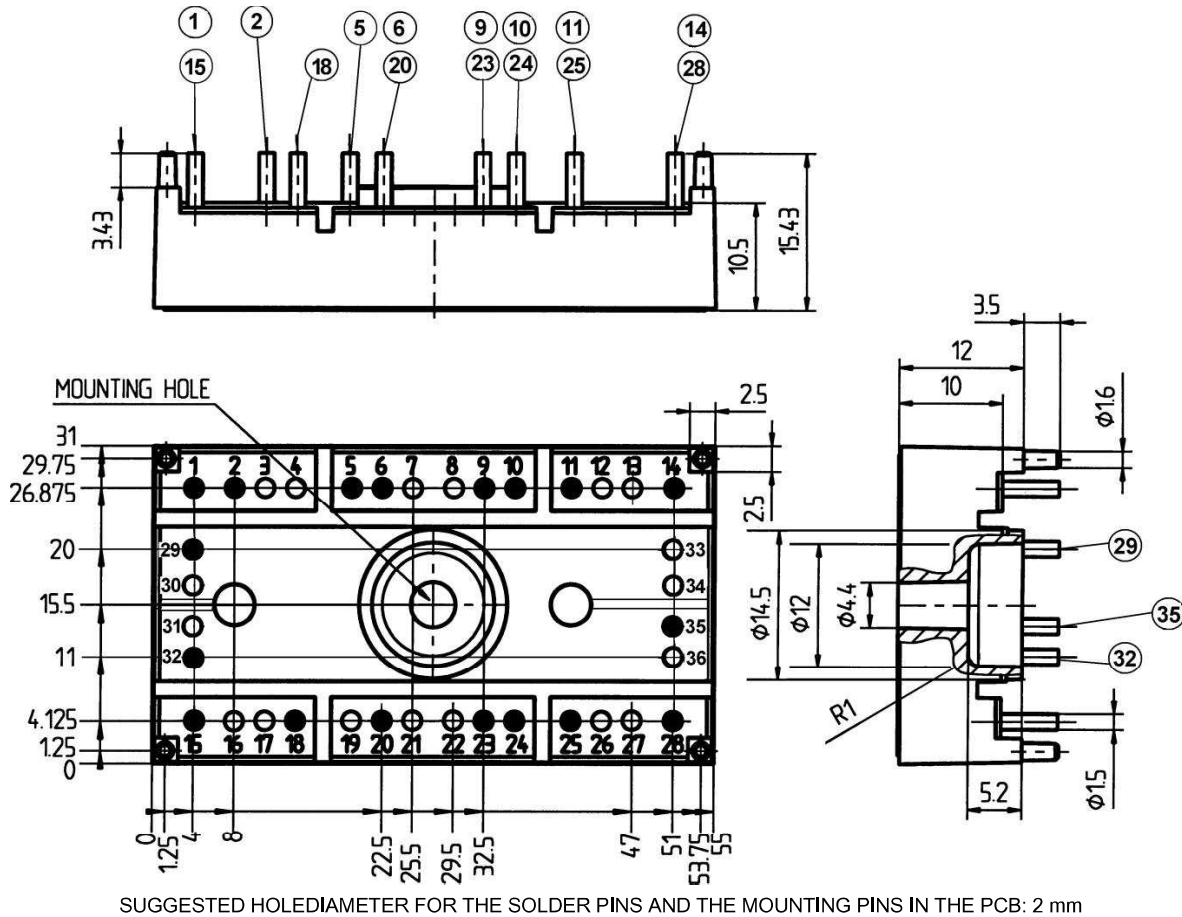
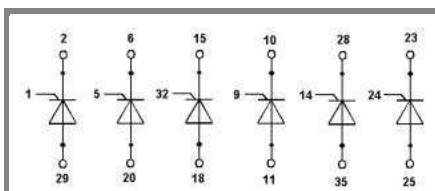


Fig. 5 Gate trigger characteristics

Dimensions in mm



Case T56 (Suggested hole diameter in the PCB for solder pins and mounting pins: 2mm)



## Case T56

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.