



## SEMIPACK® 0

### Antiparallel Thyristor Module

#### SKKQ 31

Preliminary Data

#### Features

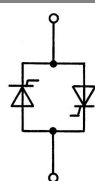
- Compact Design
- Heat transfer through aluminium oxide ceramic isolated metal baseplat
- UL recognized, file no. E 63 532

#### Typical Applications

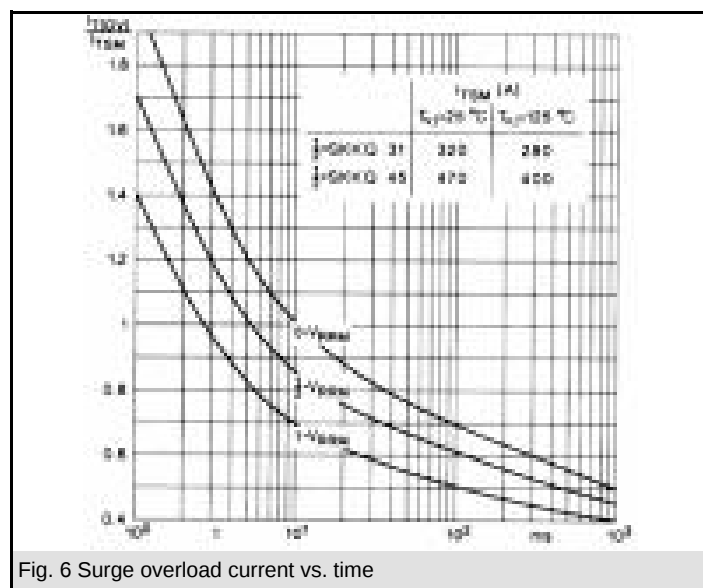
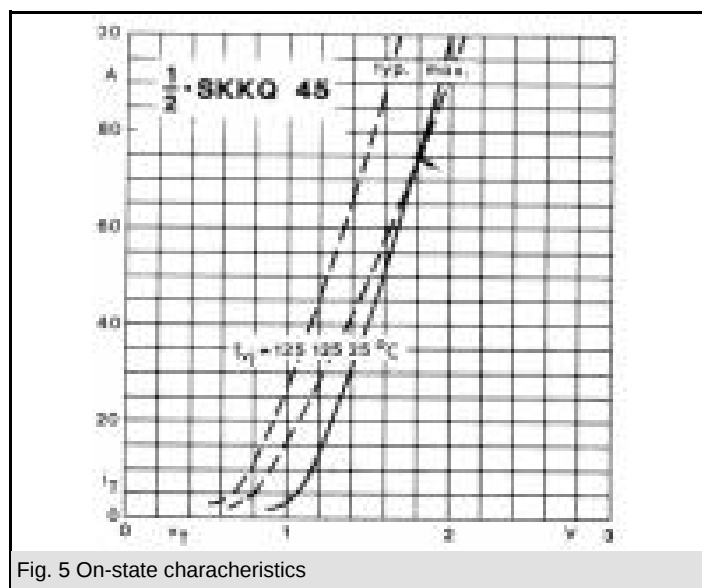
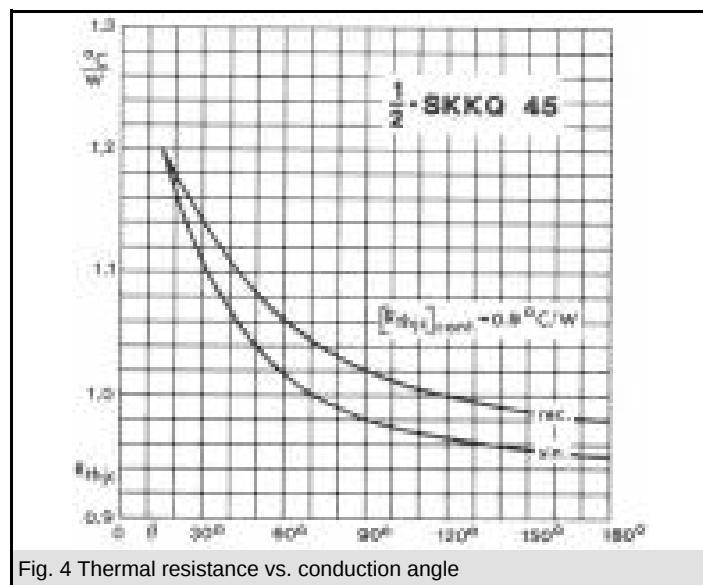
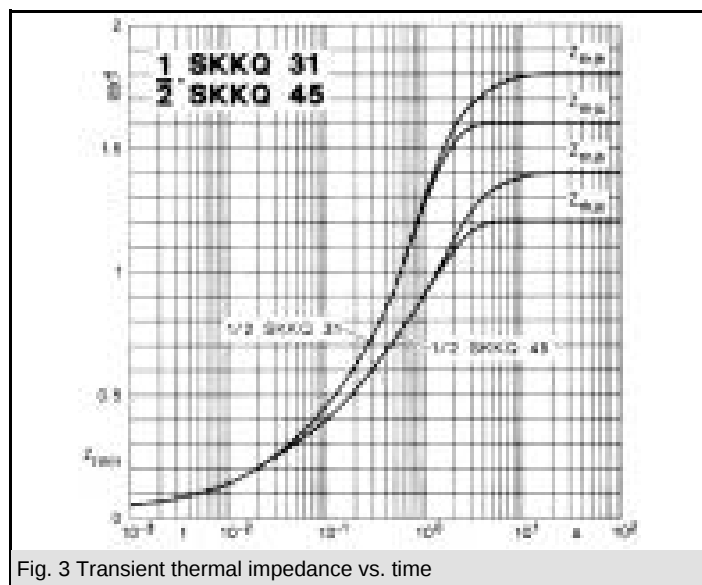
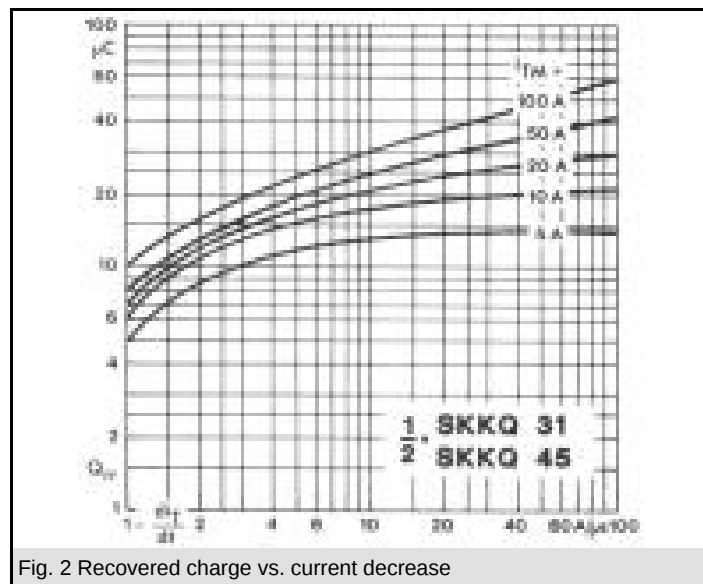
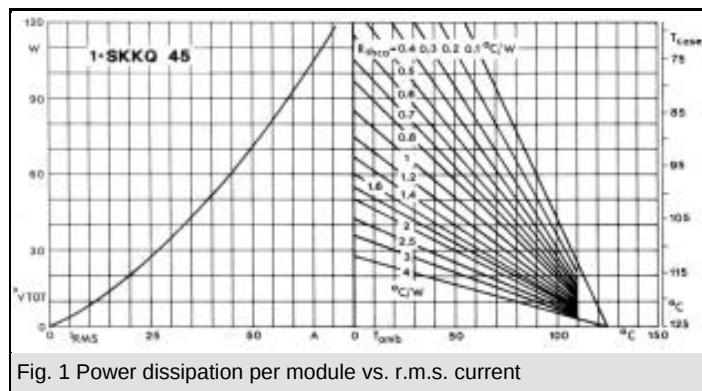
- AC motor starters
- Light control (studios, theaters...)
- Temperature control

| $V_{RSM}$<br>V | $V_{RRM}, V_{DRM}$<br>V | $I_{RMS} = 24 A^{(1)}; 45 A^{(2)}$ A (full conduction)<br>( $T_s = 85^\circ C$ ) |
|----------------|-------------------------|----------------------------------------------------------------------------------|
| 700            | 600                     | SKKQ 45/06 E                                                                     |
| 900            | 800                     | SKKQ 45/08 E                                                                     |
| 1300           | 1200                    | SKKQ 45/12 E                                                                     |
| 1500           | 1400                    | SKKQ 45/14 E                                                                     |
| 1700           | 1600                    | SKKQ 45/16 E                                                                     |

| Symbol           | Conditions                                                                     | Values       | Units            |
|------------------|--------------------------------------------------------------------------------|--------------|------------------|
| $I_{RMS}$        | W1C ; sin. $180^\circ$ ; $T_{case} = 85^\circ C^{(2)}$<br>; sin. $180^\circ$ ; | 45           | A                |
| $I_{tRMS}$       | W1C, sin. $180^\circ$ , $T_{case}=85^\circ C$                                  | 32           | A                |
| $I_{TSM}$        | $T_{vj} = 25^\circ C$ ; 10 ms                                                  | 470          | A                |
|                  | $T_{vj} = 125^\circ C$ ; 10 ms                                                 | 400          | A                |
| $i^2t$           | $T_{vj} = 25^\circ C$ ; 8,3...10 ms                                            | 1100         | A <sup>2</sup> s |
|                  | $T_{vj} = 125^\circ C$ ; 8,3...10 ms                                           | 800          | A <sup>2</sup> s |
| $V_T$            | $T_{vj} = 25^\circ C$ , $I_T = 75 A$                                           | max. 1,8     | V                |
| $V_{T(TO)}$      | $T_{vj} = 125^\circ C$                                                         | max. 0,9     | V                |
| $r_T$            | $T_{vj} = 125^\circ C$                                                         | max. 12      | m $\Omega$       |
| $I_{DD}, I_{RD}$ | $T_{vj} = 25^\circ C$ , $V_{RD}=V_{RRM}$                                       |              | mA               |
|                  | $T_{vj} = 125^\circ C$ , $V_{RD}=V_{RRM}$                                      | max. 10      | mA               |
| $t_{gd}$         | $T_{vj} = 25^\circ C$ , $I_G = 1 A$ ; $di_G/dt = 1 A/\mu s$                    | 1            | $\mu s$          |
| $t_{gr}$         | $V_D = 0,67 \cdot V_{DRM}$                                                     | 1            | $\mu s$          |
| $(dv/dt)_{cr}$   | $T_{vj} = 125^\circ C$                                                         | 1000         | V/ $\mu s$       |
| $(di/dt)_{cr}$   | $T_{vj} = 125^\circ C$ ; $f = 50...60 Hz$                                      | 100          | A/ $\mu s$       |
| $t_q$            | $T_{vj} = 125^\circ C$ ; typ.                                                  | 80           | $\mu s$          |
| $I_H$            | $T_{vj} = 25^\circ C$ ; typ. / max.                                            | 100 / 200    | mA               |
| $I_L$            | $T_{vj} = 25^\circ C$ ; $R_G = 33 \Omega$ ; typ. / max.                        | 250 / 400    | mA               |
| $V_{GT}$         | $T_{vj} = 25^\circ C$ ; d.c.                                                   | min. 3       | V                |
| $I_{GT}$         | $T_{vj} = 25^\circ C$ ; d.c.                                                   | min. 150     | mA               |
| $V_{GD}$         | $T_{vj} = 125^\circ C$ ; d.c.                                                  | max. 0,25    | V                |
| $I_{GD}$         | $T_{vj} = 125^\circ C$ ; d.c.                                                  | max. 5       | mA               |
| $R_{th(j-s)}$    | cont. per thyristor                                                            | 1,2          | K/W              |
|                  | sin $180^\circ$ per thyristor                                                  | 1,3          | K/W              |
| $R_{th(j-s)}$    | cont. per W1C                                                                  | 0,6          | K/W              |
|                  | sin $180^\circ$ per W1C                                                        | 0,6          | K/W              |
| $T_{vj}$         |                                                                                | -40 ... +125 | $^\circ C$       |
| $T_{stg}$        |                                                                                | -40 ... +125 | $^\circ C$       |
|                  | terminals, 10s                                                                 |              | $^\circ C$       |
| $V_{isol}$       | a. c. 50 Hz; r.m.s.; 1 s / 1 min.                                              | 3600 / 3000  | V~               |
| $M_s$            | Mounting torque to heatsink                                                    | 1,5          | Nm               |
| $M_t$            |                                                                                |              | Nm               |
| $a$              |                                                                                |              | m/s <sup>2</sup> |
| $m$              |                                                                                | 50           | g                |
| Case             | SEMIPACK® 0                                                                    | A 41         |                  |



KQ



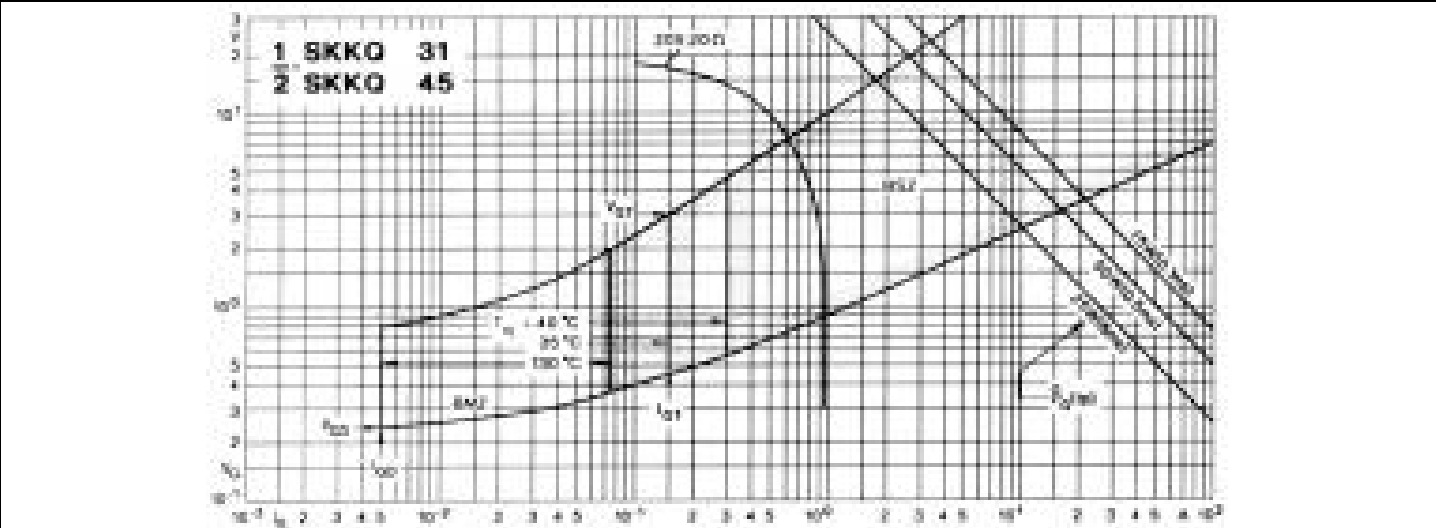
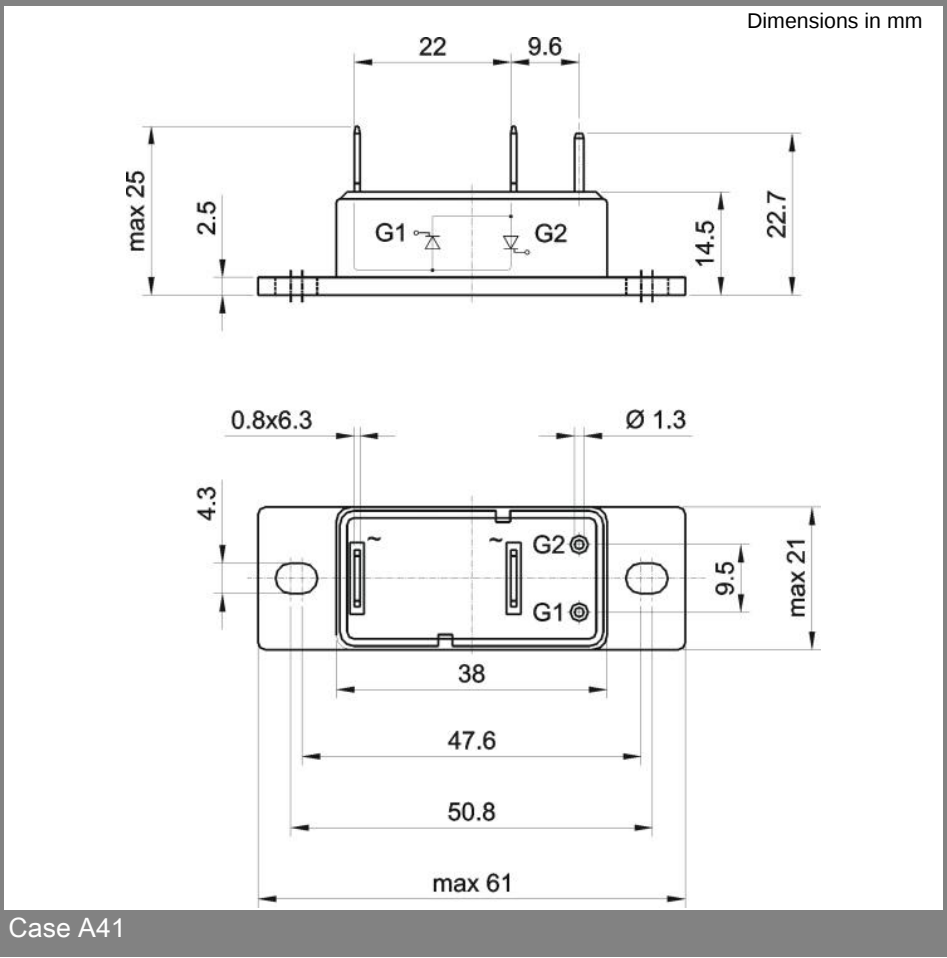


Fig. 5 Gate trigger characteristics



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