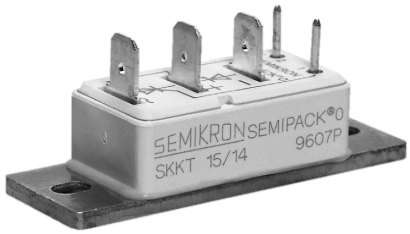
SEMIKRON

| $V_{RSM}$ | $V_{RRM}$ $V_{DRM}$ | $(dv/dt)_{cr}$ | $I_{TRMS}$ (maximum values for continuous operation) 24 A[1]; 30 A[2] | 24 A[1]; 45 A[2] |
|---|---|---|---|---|
| | | | $I_{TAV}$ (sin. 180; $T_{case}$ = 65 °C) | |
| V | V | V/µs | 17,5 A[2] | 17,5 A[2] |
| 500 | 400 | 500 | **SKKT 15/04 D** | **SKKH 15/04 D** |
| 700 | 600 | 500 | **SKKT 15/06 D** | **SKKH 15/06 D** |
| 900 | 800 | 500 | **SKKT 15/08 D** | **SKKH 15/08 D** |
| 1300 | 1200 | 1000 | **SKKT 15/12 E** | **SKKH 15/12 E** |
| 1500 | 1400 | 1000 | **SKKT 15/14 E** | **SKKH 15/14 E** |
| 1700 | 1600 | 1000 | **SKKT 15/16 E** | **SKKH 15/16 E** |

| Symbol | Conditions | SKKT 15 SKKH 15 | Units |
|---|---|---|---|
| $I_{TAV}$ | sin. 180; $T_{case}$ = 65 °C | 17,5 [2] | A |
| | $T_{case}$ = 75 °C | 15 [1] | A |
| $I_D$ | B2/B6 $T_{amb}$ = 45 °C; P 13A/100 | 14 / 17 | A |
| $I_{RMS}$ | W1/W3 $T_{amb}$ = 45 °C; P 13A/100 | 21 / 3 x 12 | A |
| $I_{TSM}$ | $T_{vj}$ = 25 °C; 10 ms | 320 | A |
| | $T_{vj}$ = 125 °C; 10 ms | 280 | A |
| $i^2t$ | $T_{vj}$ = 25 °C; 8,3 ... 10 ms | 510 | $A^2s$ |
| | $T_{vj}$ = 125 °C; 8,3 ... 10 ms | 390 | $A^2s$ |
| $t_{gd}$ | $T_{vj}$ = 25 °C $I_G$ = 1 A | | |
| | $di_G/dt$ = 1 A/µs | 1 | µs |
| $t_{gr}$ | $V_D = 0{,}67 \cdot V_{DRM}$ | 1 | µs |
| $(di/dt)_{cr}$ | $T_{vj}$ = 125 °C | 100 | 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. 2,45 | V |
| $V_{T(TO)}$ | $T_{vj}$ = 125 °C | 1,1 | V |
| $r_T$ | $T_{vj}$ = 125 °C | 20 | mΩ |
| $I_{DD}$; $I_{RD}$ | $T_{vj}$ = 125 °C; $V_{RD} = V_{RRM}$ | | |
| | $V_{DD} = V_{DRM}$ | max. 8 | mA |
| $V_{GT}$ | $T_{vj}$ = 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. | 5 | mA |
| $R_{thjc}$ | cont. (per thyristor / per module) | 1,6 / 0,8 | °C/W |
| | sin. 180 (per thyristor / per module) | 1,7 / 0,9 | °C/W |
| | rec. 120 (per thyristor / per module) | 1,8 / 0,9 | °C/W |
| $R_{thch}$ | | 0,2 / 0,1 | °C/W |
| $T_{vj}$ | | – 40 ... + 125 | °C |
| $T_{stg}$ | | – 40 ... + 125 | °C |
| $V_{isol}$ | a. c. 50 Hz; r.m.s; 1 s/1 min | 3600 / 3000 | V~ |
| $M_1$ | Case to heatsink; SI (US) units | 1,5 (13 lb. in.) ± 15 %[3] | Nm |
| a | | $5 \cdot 9{,}81$ | $m/s^2$ |
| w | approx. | 50 | g |
| Case | → page B 1 – 30 | SKKT 15: A 1<br>SKKH 15: A 2 | |

## SEMIPACK® 0
## Thyristor / Diode Modules

## SKKT 15
## SKKH 15




**SKKT** **SKKH**

### Features

- Heat transfer through aluminium oxide ceramic isolated metal baseplate
- Hard soldered joints for high reliability
- 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] Using tin plated connectors with flexible leads of 6 $mm^2$ for the main terminals
[2] Flexible leads of 6 $mm^2$ soldered to the main terminals
[3] See the assembly instructions

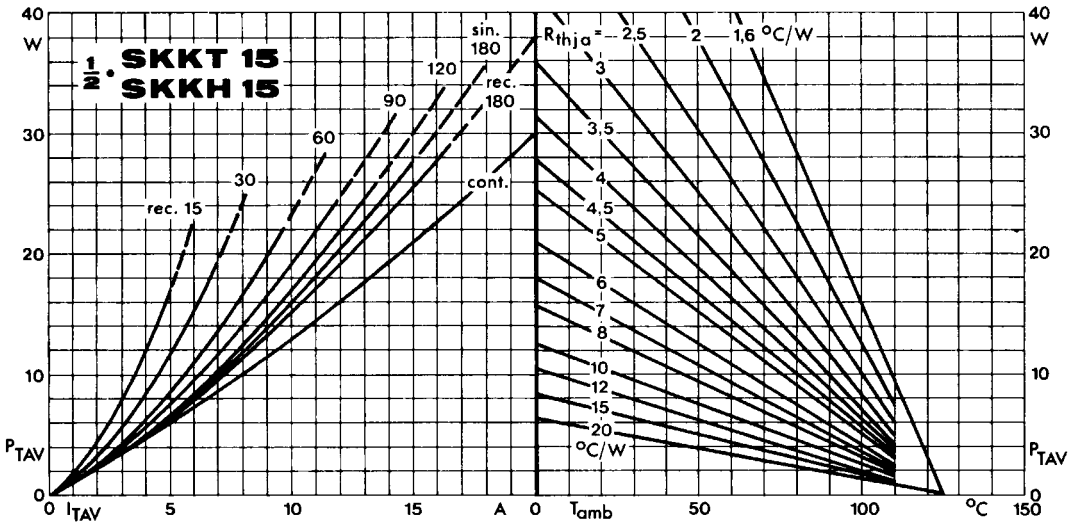



Fig. 1 Power dissipation per thyristor vs. on-state current and ambient temperature

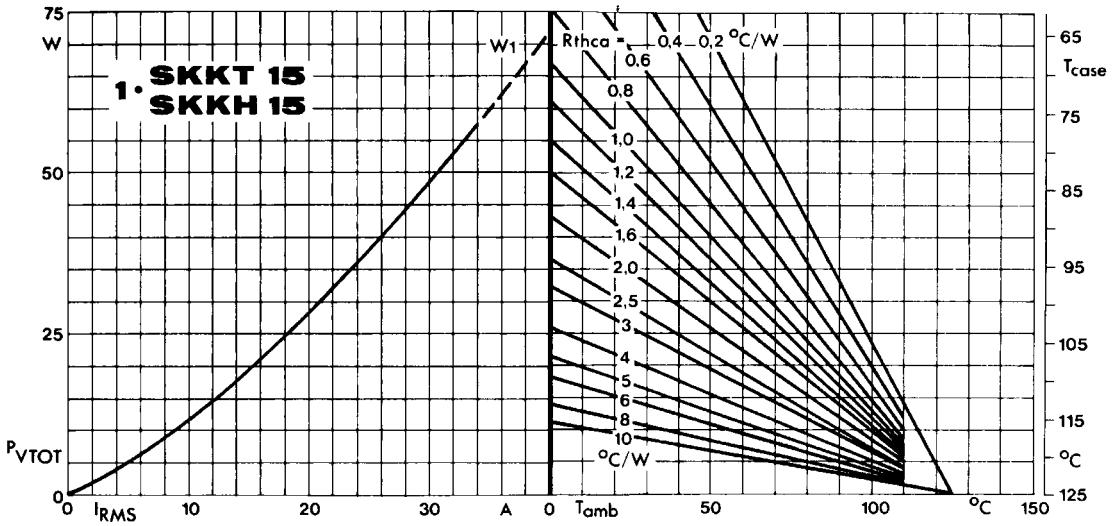



Fig. 2 Power dissipation per module vs. rms current and case temperature

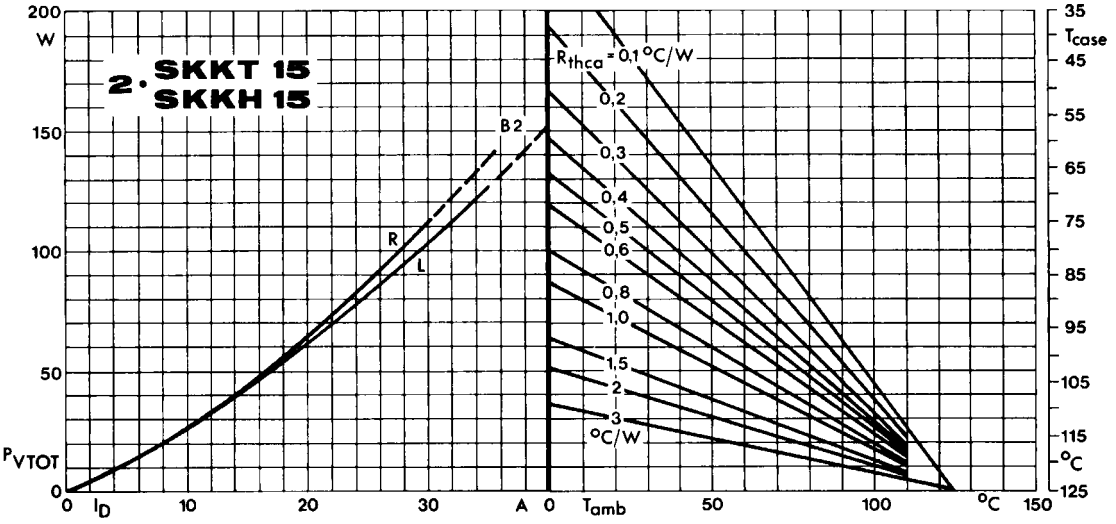



Fig. 3 Power dissipation of two modules vs. direct current and case temperature

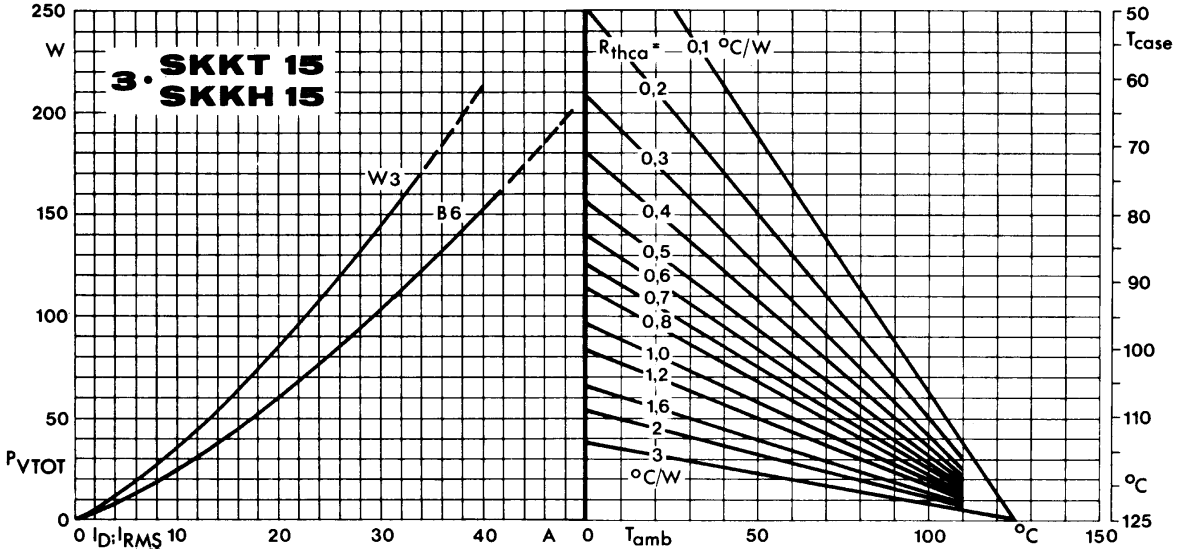



Fig. 4 Power dissipation of three modules vs. direct and rms current and case temperature

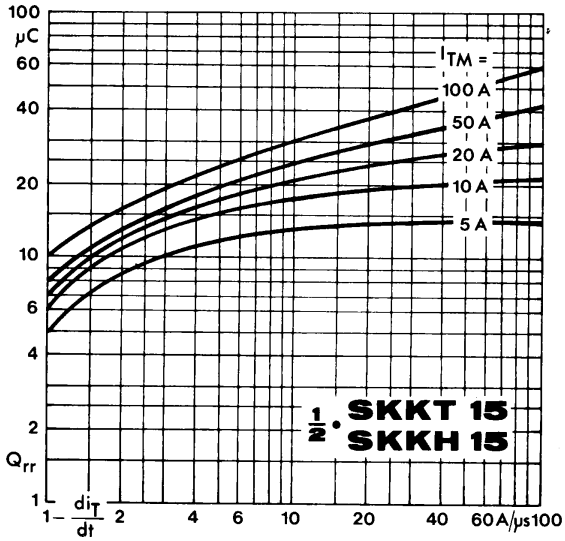



Fig. 5 Recovered charge vs. current decrease

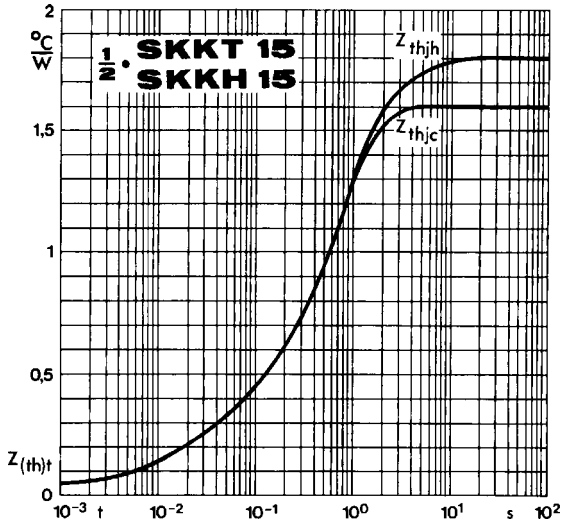



Fig. 6 Transient thermal impedance vs. time

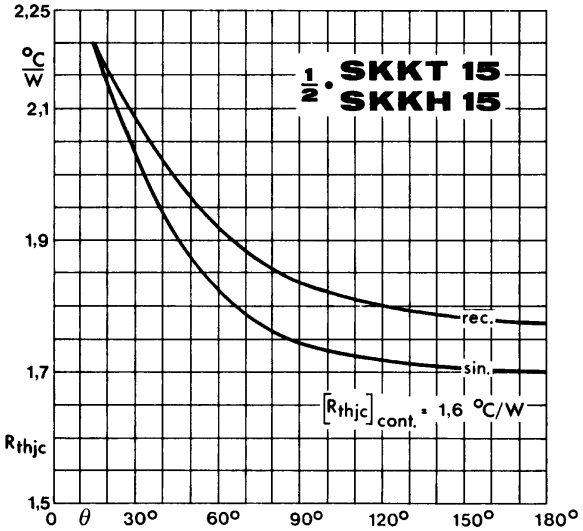



Fig. 7 Thermal resistance vs. conduction angle

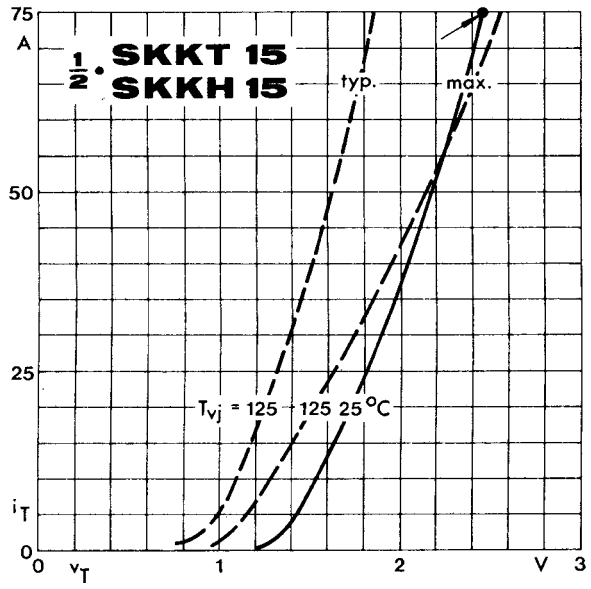



Fig. 8 On-state characteristics

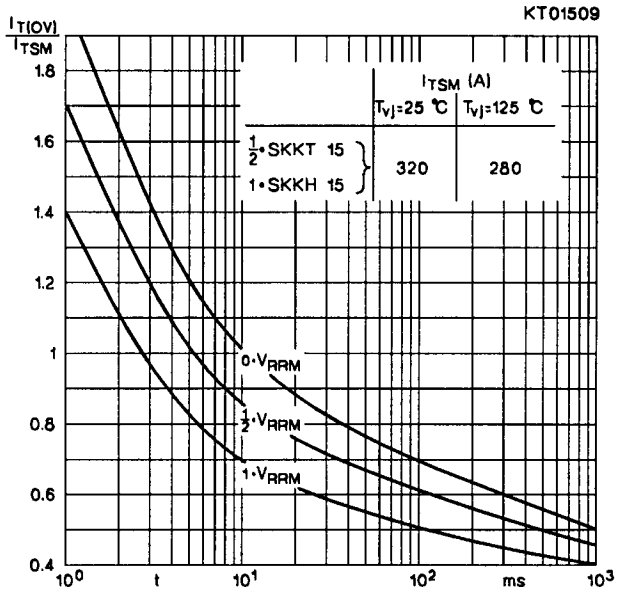



Fig. 9 Surge overload current vs. time

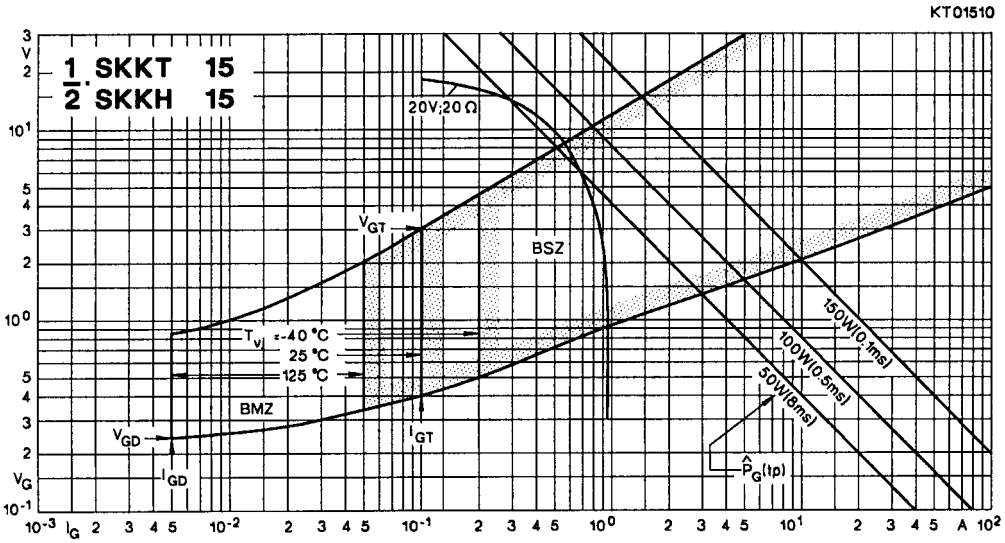
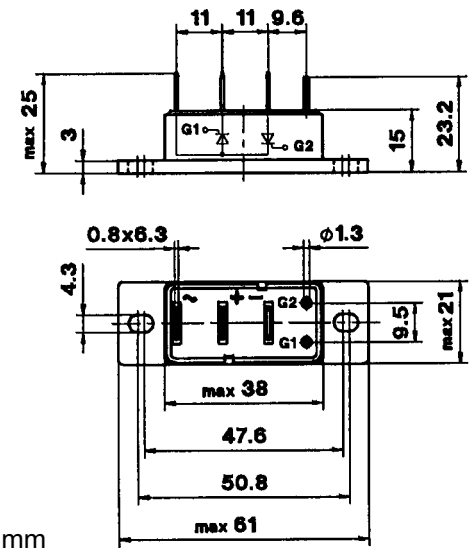



Fig. 10 Gate trigger characteristics

**SKKT 15**

Case A 1

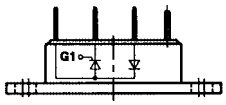
SEMIPACK® 0




Dimensions in mm

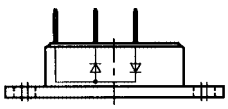
**SKKH 15**

Case A 2




**SKKD 15**

Case A 3



**SKKE 15**

Case A 4