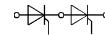
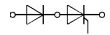


## SEMPACK® 1 Thyristor/ Diode Modules

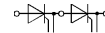
**SKKT 71**      **SKKH 71**  
**SKKT 72**      **SKKH 72**  
**SKKT 72B**



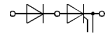
**SKKT 71**



**SKKH 71**



**SKKT 72**



**SKKH 72**

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

1) Also available in SKKT 72 B configuration (case A 48)

2) See the assembly instructions

3) /20 E, /22 E max. 30 mA

| V <sub>RSM</sub> | V <sub>RRM</sub> | (dv/dt) <sub>cr</sub> | I <sub>TRMS</sub> (maximum value for continuous operation) |                            |              |              |
|------------------|------------------|-----------------------|--|----------------------------|--------------|--------------|
|                  |                  |                       | 125 A  |                            |              |              |
| V                | V                | V/μs                  | I <sub>TAV</sub> (sin. 180; T <sub>case</sub> = 78 °C)     |                            |              |              |
|                  |                  |                       | 80 A   |                            |              |              |
| 700              | 600              | 500                   | SKKT 71/06 D   | –                          | –            | SKKH 72/06 D |
| 900              | 800              | 500                   | SKKT 71/08 D   | SKKT 72/08 D <sup>1)</sup> | SKKH 71/08 D | SKKH 72/08 D |
| 1300             | 1200             | 500                   | SKKT 71/12 D   | –                          | SKKH 71/12 D | –            |
| 1300             | 1200             | 1000                  | SKKT 71/12 E   | SKKT 72/12 E <sup>1)</sup> | –            | SKKH 72/12 E |
| 1500             | 1400             | 1000                  | SKKT 71/14 E   | SKKT 72/14 E <sup>1)</sup> | SKKH 71/14 E | SKKH 72/14 E |
| 1700             | 1600             | 1000                  | SKKT 71/16 E   | SKKT 72/16 E <sup>1)</sup> | SKKH 71/16 E | SKKH 72/16 E |
| 1900             | 1800             | 1000                  | SKKT 71/18 E   | SKKT 72/18 E <sup>1)</sup> | SKKH 71/18 E | SKKH 72/18 E |
| 2100             | 2000             | 1000                  | SKKT 71/20 E   | SKKT 72/20 E <sup>1)</sup> | –            | SKKH 72/20 E |
| 2300             | 2200             | 1000                  | SKKT 71/22 E   | SKKT 72/22 E <sup>1)</sup> | –            | SKKH 72/22 E |

| Symbol                             | Conditions  | SKKT 71<br>SKKH 71                                 | SKKT 72<br>SKKT 72B<br>SKKH 72                   |
|------------------------------------|---|--|--|
| I <sub>TAV</sub>                   | sin. 180; T <sub>case</sub> = 78 °C<br>T <sub>case</sub> = 85 °C                                  | 80 A<br>70 A                                       |  |
| I <sub>D</sub>                     | B2/B6<br>T <sub>amb</sub> = 45 °C; P 3/180<br>T <sub>amb</sub> = 35 °C; P 3/180 F                 | 62 A/75 A<br>115 A/145 A                           |  |
| I <sub>RMS</sub>                   | W1/W3<br>T <sub>amb</sub> = 35 °C; P 3/180 F  | 155 A/3 x 115 A                                    |  |
| I <sub>TSM</sub>                   | T <sub>vj</sub> = 25 °C; 10 ms<br>T <sub>vj</sub> = 125 °C; 10 ms                                 | 1 600 A<br>1 450 A                                 |  |
| i <sup>2</sup> t                   | T <sub>vj</sub> = 25 °C; 8,3 ... 10 ms<br>T <sub>vj</sub> = 125 °C; 8,3 ... 10 ms                 | 13 000 A <sup>2</sup> s<br>10 500 A <sup>2</sup> s |  |
| t <sub>gd</sub>                    | T <sub>vj</sub> = 25 °C; I <sub>G</sub> = 1 A; di <sub>G</sub> /dt = 1 A/μs                       | 1 μs   |  |
| t <sub>gr</sub>                    | V <sub>D</sub> = 0,67 · V <sub>DRM</sub>  | 2 μs   |  |
| (di/dt) <sub>cr</sub>              | T <sub>vj</sub> = 125 °C  | 150 A/μs   |  |
| t <sub>q</sub>                     | T <sub>vj</sub> = 125 °C  | typ. 80 μs   |  |
| I <sub>H</sub>                     | T <sub>vj</sub> = 25 °C;  | typ. 150 mA; max. 250 mA                           |  |
| I <sub>L</sub>                     | T <sub>vj</sub> = 25 °C; R <sub>G</sub> = 33 Ω  | typ. 300 mA; max. 600 mA                           |  |
| V <sub>T</sub>                     | T <sub>vj</sub> = 25 °C; I <sub>T</sub> = 300 A   | max. 1,9 V   |  |
| V <sub>T(TO)</sub>                 | T <sub>vj</sub> = 125 °C  | 0,9 V  |  |
| r <sub>T</sub>                     | T <sub>vj</sub> = 125 °C  | 3,5 mΩ   |  |
| I <sub>DD</sub> ; I <sub>RD</sub>  | T <sub>vj</sub> = 125 °C; V <sub>DD</sub> = V <sub>DRM</sub> ; V <sub>RD</sub> = V <sub>RRM</sub> | max. 20 mA <sup>3)</sup>                           |  |
| V <sub>GT</sub>                    | T <sub>vj</sub> = 25 °C; d. c.  | 3 V  |  |
| I <sub>GT</sub>                    | T <sub>vj</sub> = 25 °C; d. c.  | 150 mA   |  |
| V <sub>GD</sub>                    | T <sub>vj</sub> = 125 °C; d. c.   | 0,25 V   |  |
| I <sub>GD</sub>                    | T <sub>vj</sub> = 125 °C; d. c.   | 6 mA   |  |
| R <sub>thjc</sub>                  | cont.   | } per thyristor/per module                         |  |
| R <sub>thch</sub>                  | sin. 180  |  |  |
| T <sub>vj</sub> ; T <sub>Stg</sub> | rec. 120  |  |  |
| V <sub>isol</sub>                  | a. c. 50 Hz; r. m. s.; 1 s/1 min  | 3600 V~ / 3000 V~                                  |  |
| M <sub>1</sub>                     | to heatsink   | 5 Nm/44 lb. in. ± 15 % <sup>2)</sup>               |  |
| M <sub>2</sub>                     | to terminals  | 3 Nm/26 lb. in. ± 15 %                             |  |
| a                                  |   | 5 · 9,81 m/s <sup>2</sup>                          |  |
| w                                  | approx.   | 120 g  |  |
| Case                               | → page B 1 – 93   | SKKT 71: A 5<br>SKKH 71: A 6                       | SKKT 72: A 46<br>SKKT 72B: A 48<br>SKKH 72: A 47 |

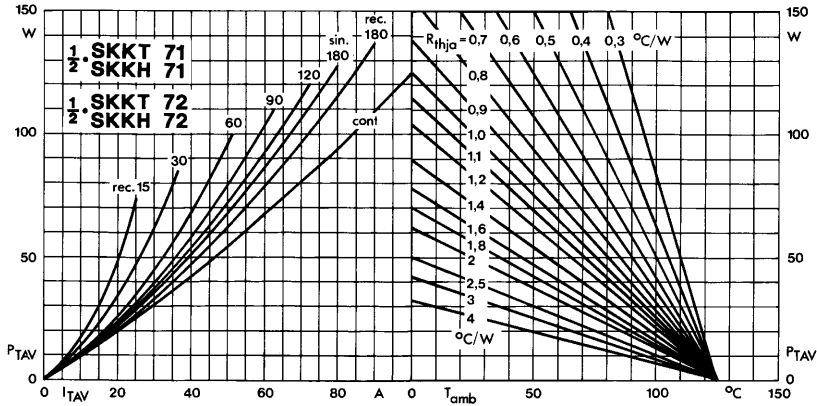


Fig. 1 Power dissipation per thyristor vs. on-state current and ambient temperature

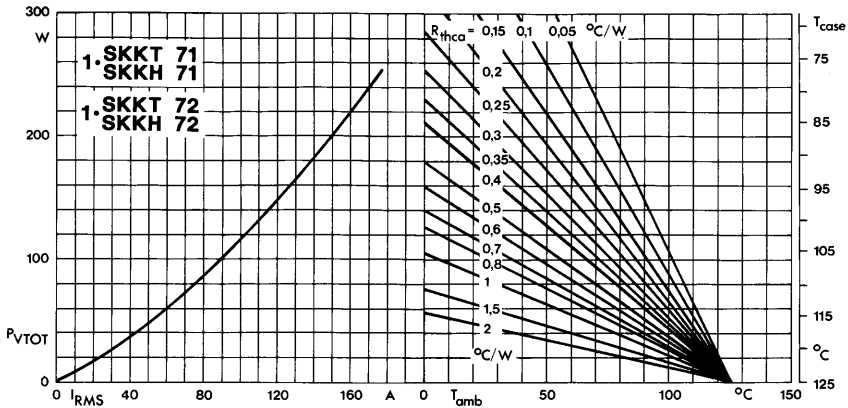


Fig. 2 Power dissipation per module vs. rms current and case temperature

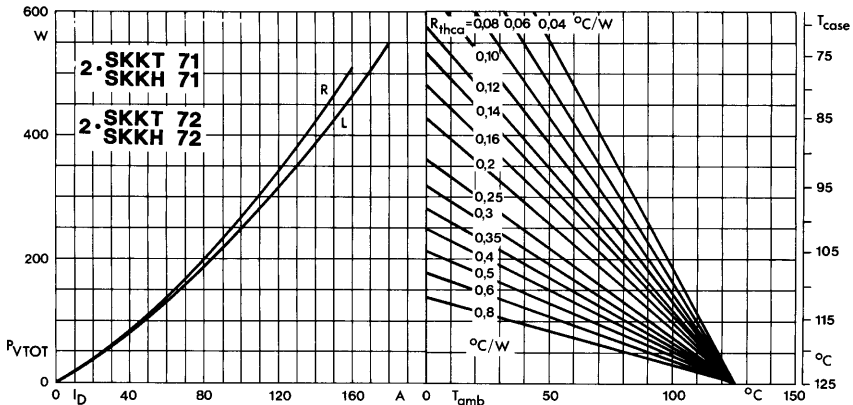


Fig. 3 Power dissipation of two modules vs. direct current and case temperature

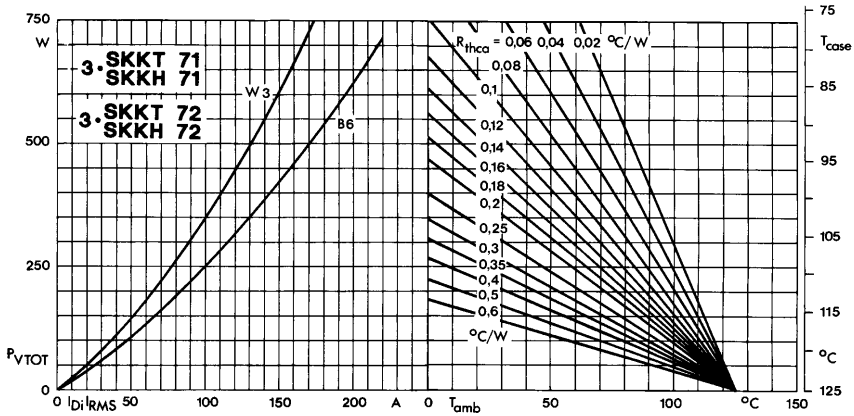


Fig. 4 Power dissipation of three modules vs. direct and rms current and case temperature

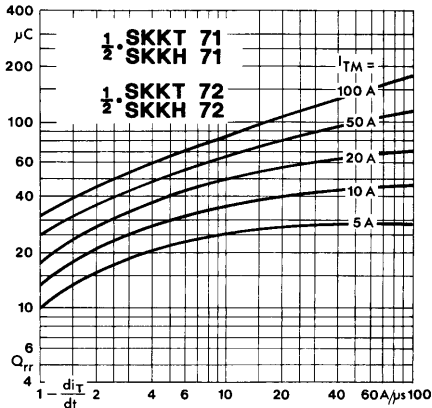


Fig. 5 Recovered charge vs. current decrease

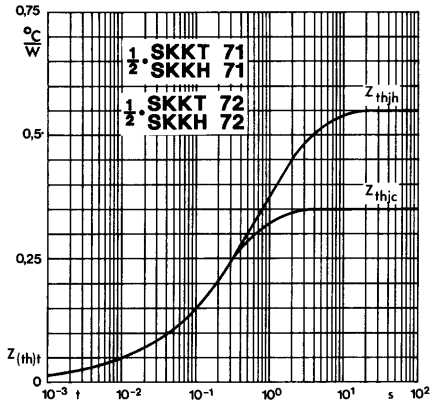


Fig. 6 Transient thermal impedance vs. time

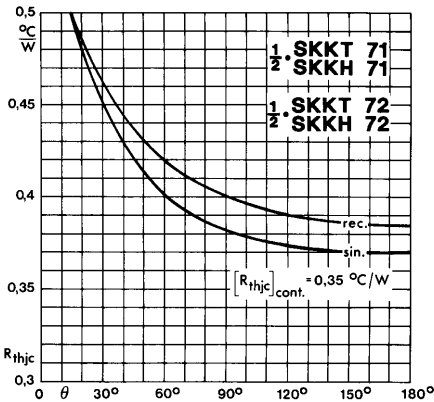


Fig. 7 Thermal resistance vs. conduction angle

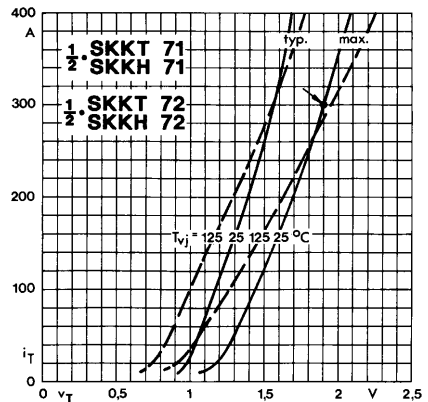


Fig. 8 On-state characteristics

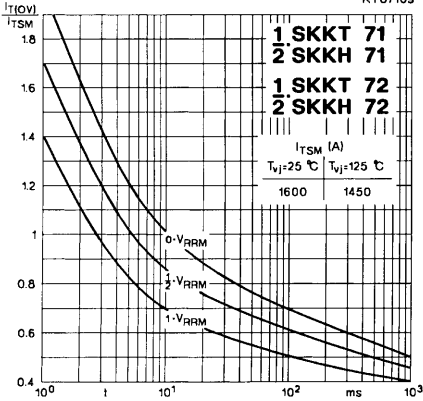


Fig. 9 Surge overload current vs. time

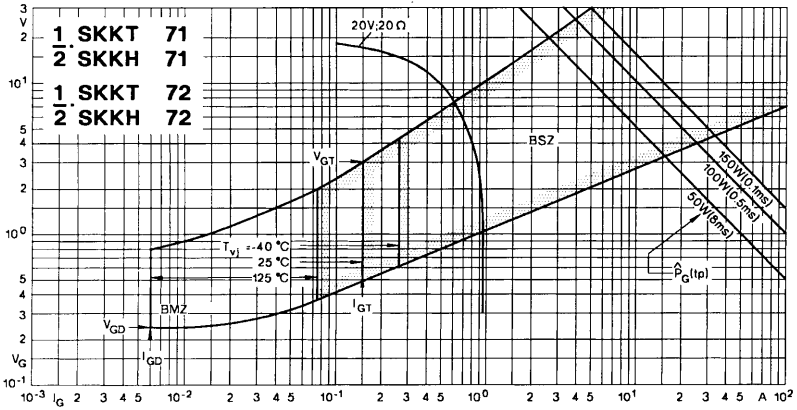


Fig. 10 Gate trigger characteristics