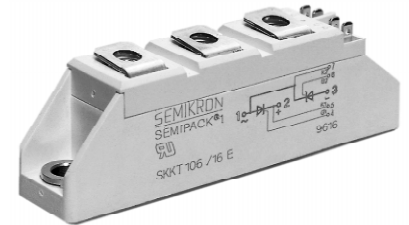


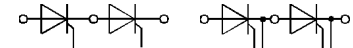
|           |           |                |  |              |              |
|-----------|-----------|----------------|--|--------------|--------------|
| $V_{RSM}$ | $V_{RRM}$ | $(dv/dt)_{cr}$ | $I_{TRMS}$ (maximum value for continuous operation)<br>40 A          |              |              |
|           | $V_{DRM}$ |                |  |              |              |
| V         | V         | $V/\mu s$      | $I_{TAV}$ (sin. 180; $T_{case} = 60\text{ }^\circ\text{C}$ )<br>25 A |              |              |
| 700       | 600       | 500            | SKKT 19/06 D   | SKKT 20/06 D | –            |
| 900       | 800       | 500            | SKKT 19/08 D   | SKKT 20/08 D | SKKT 20B08 D |
| 1300      | 1200      | 1000           | SKKT 19/12 E   | SKKT 20/12 E | SKKT 20B12 E |
| 1500      | 1400      | 1000           | SKKT 19/14 E   | SKKT 20/14 E | SKKT 20B14 E |
| 1700      | 1600      | 1000           | SKKT 19/16 E   | SKKT 20/16 E | SKKT 20B16 E |

## SEMIPACK® 1 Thyristor Modules

**SKKT 19**  
**SKKT 20**  
**SKKT 20B**



| Symbol              | Conditions  | SKKT 19                                 | SKKT 20<br>SKKT 20B | Units                     |
|---------------------|---|---|---------------------|---------------------------|
| $I_{TAV}$           | sin. 180; $T_{case} = 60\text{ }^\circ\text{C}$<br>$T_{case} = 85\text{ }^\circ\text{C}$                    | 25                                      | 18                  | A                         |
| $I_D$               | B2/B6   $T_{amb} = 45\text{ }^\circ\text{C}$ ; P 3/180<br>$T_{amb} = 35\text{ }^\circ\text{C}$ ; P 3/180 F  | 31 / 38                                 | 46 / 60             | A                         |
| $I_{RMS}$           | W1/W3   $T_{amb} = 45\text{ }^\circ\text{C}$ ; P 3/180  | 42 / 3 x 30                             |                     | A                         |
| $I_{TSM}$           | $T_{vj} = 25\text{ }^\circ\text{C}$ ; 10 ms<br>$T_{vj} = 125\text{ }^\circ\text{C}$ ; 10 ms                 | 320                                     | 280                 | A                         |
| $i^2t$              | $T_{vj} = 25\text{ }^\circ\text{C}$ ; 8,3 ... 10 ms<br>$T_{vj} = 125\text{ }^\circ\text{C}$ ; 8,3 ... 10 ms | 510                                     | 390                 | A <sup>2</sup> s          |
| $t_{gd}$            | $T_{vj} = 25\text{ }^\circ\text{C}$ ; $I_G = 1\text{ A}$<br>$di_G/dt = 1\text{ A}/\mu s$                    | 1                                       |                     | $\mu s$                   |
| $t_{gr}$            | $V_D = 0,67 \cdot V_{DRM}$  | 1                                       |                     | $\mu s$                   |
| $(di/dt)_{cr}$      | $T_{vj} = 125\text{ }^\circ\text{C}$  | 150                                     |                     | A/ $\mu s$                |
| $t_q$               | $T_{vj} = 125\text{ }^\circ\text{C}$  | typ. 80                                 |                     | $\mu s$                   |
| $I_H$               | $T_{vj} = 25\text{ }^\circ\text{C}$ ; typ./max.   | 100 / 200                               |                     | mA                        |
| $I_L$               | $T_{vj} = 25\text{ }^\circ\text{C}$ ; $R_G = 33\ \Omega$ ; typ./max.  | 250 / 400                               |                     | mA                        |
| $V_T$               | $T_{vj} = 25\text{ }^\circ\text{C}$ ; $I_T = 75\text{ A}$   | max. 2,3                                |                     | V                         |
| $V_{T(TO)}$         | $T_{vj} = 125\text{ }^\circ\text{C}$  | 1,0                                     |                     | V                         |
| $r_T$               | $T_{vj} = 125\text{ }^\circ\text{C}$  | 16                                      |                     | m $\Omega$                |
| $I_{DD}$ ; $I_{RD}$ | $T_{vj} = 125\text{ }^\circ\text{C}$ ; $V_{RD} = V_{RRM}$<br>$V_{DD} = V_{DRM}$                             | max. 10                                 |                     | mA                        |
| $V_{GT}$            | $T_{vj} = 25\text{ }^\circ\text{C}$ ; d.c.  | 3                                       |                     | V                         |
| $I_{GT}$            | $T_{vj} = 25\text{ }^\circ\text{C}$ ; d.c.  | 150                                     |                     | mA                        |
| $V_{GD}$            | $T_{vj} = 125\text{ }^\circ\text{C}$ ; d.c.   | 0,25                                    |                     | V                         |
| $I_{GD}$            | $T_{vj} = 125\text{ }^\circ\text{C}$ ; d.c.   | 5                                       |                     | mA                        |
| $R_{thjc}$          | cont. }<br>sin. 180 } per thyristor /<br>rec. 120 } per module  | 1,2 / 0,6                               |                     | $^\circ\text{C}/\text{W}$ |
| $R_{thch}$          |   | 1,3 / 0,65                              |                     | $^\circ\text{C}/\text{W}$ |
| $T_{vj}$            |   | 1,35 / 0,68                             |                     | $^\circ\text{C}/\text{W}$ |
| $T_{stg}$           |   | 0,2 / 0,1                               |                     | $^\circ\text{C}/\text{W}$ |
| $V_{isol}$          |   | – 40 ... + 125                          |                     | $^\circ\text{C}$          |
| $M_1$               |   | – 40 ... + 125                          |                     | $^\circ\text{C}$          |
| $M_2$               | a. c. 50 Hz; r.m.s.; 1 s/1 min<br>to heatsink }<br>to terminals } SI (US) units                             | 3600 / 3000                             |                     | V~                        |
| $a$                 |   | 5 (44 lb. in.) $\pm 15\%$ <sup>1)</sup> |                     | Nm                        |
| $w$                 |   | 3 (26 lb. in.) $\pm 15\%$               |                     | Nm                        |
|                     |   | 5 · 9,81                                |                     | m/s <sup>2</sup>          |
|                     |   | 95                                      |                     | g                         |
| Case                | → page B 1 – 95   | SKKT 19: A 5                            | SKKT 20: A 46       | SKKT 20B: A 48            |



**SKKT 19**

**SKKT 20**  
**SKKT 20B**

### 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)

<sup>1)</sup> See the assembly instructions

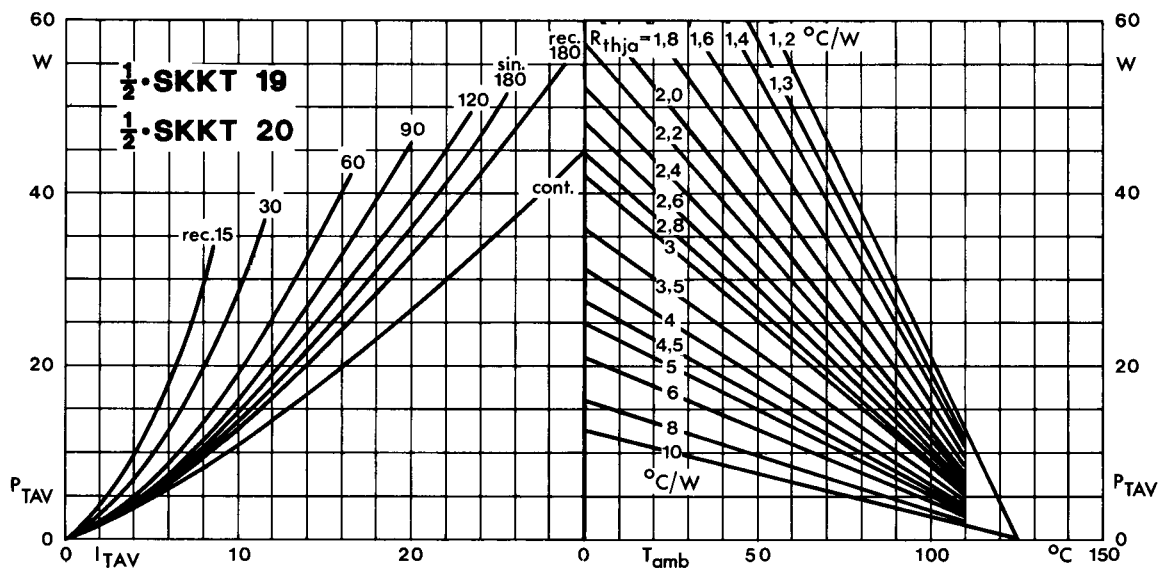


Fig. 1 Power dissipation per thyristor vs. on-state current and ambient temperature

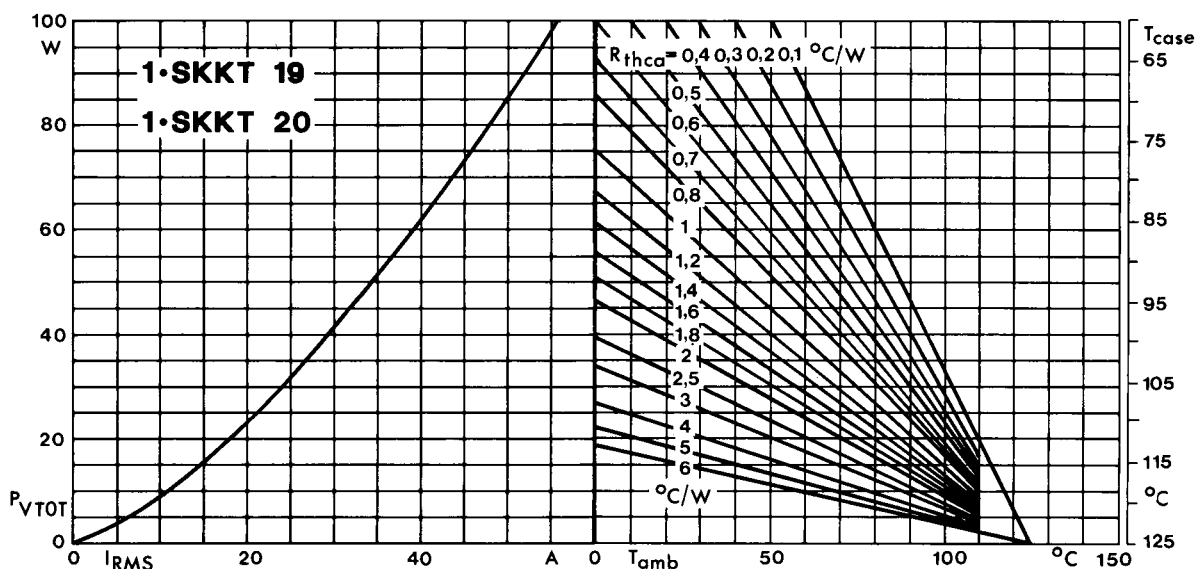


Fig. 2 Power dissipation per module vs. rms current and case temperature

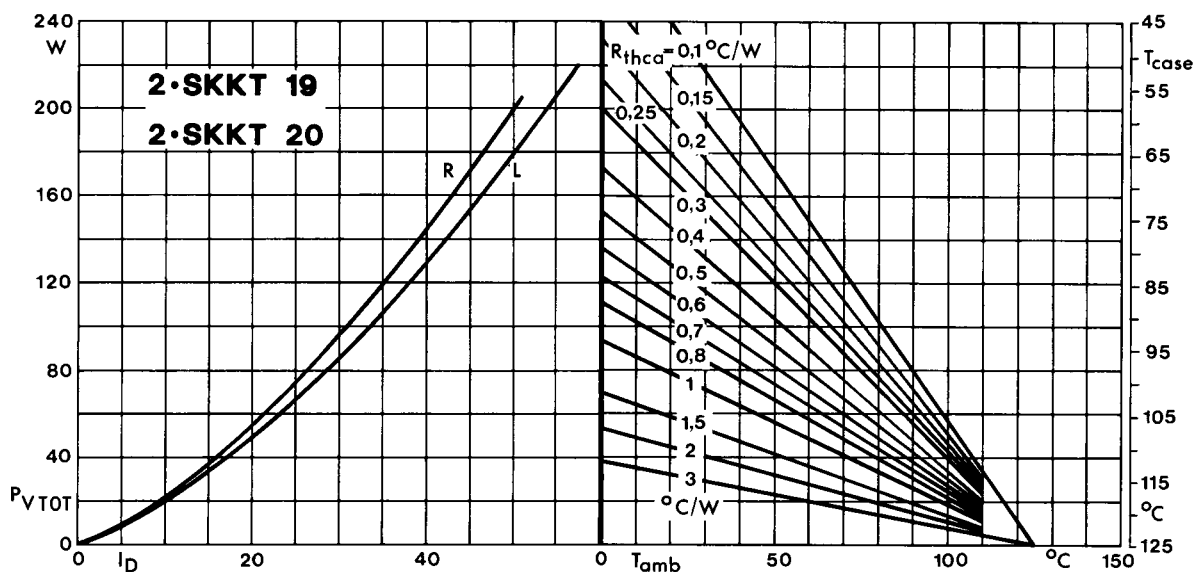


Fig. 3 Power dissipation of two modules vs. direct current and case temperature

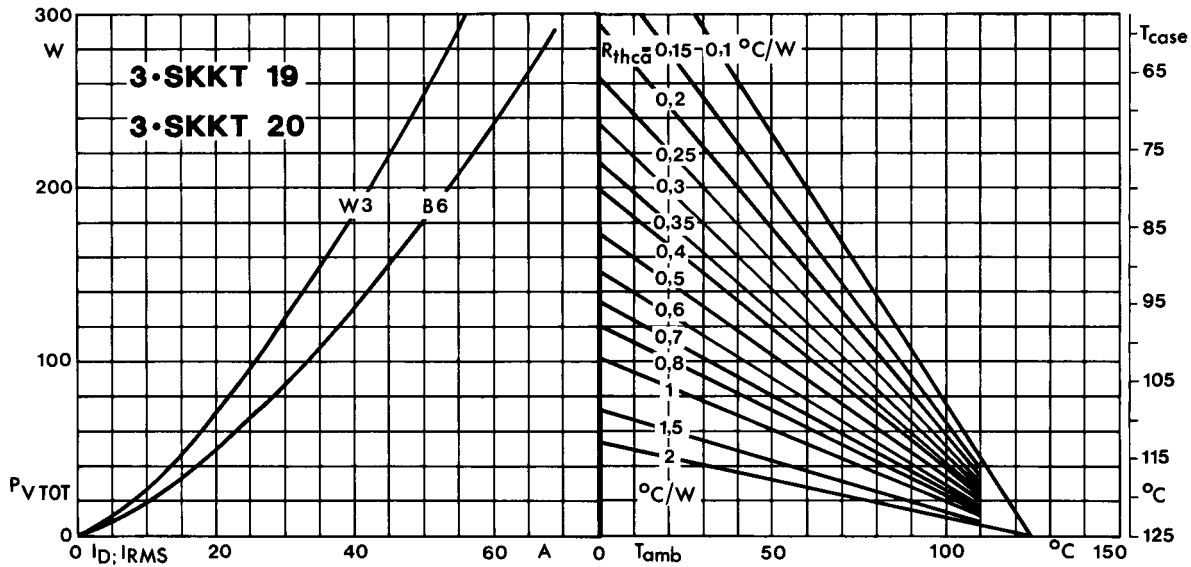


Fig. 4 Power dissipation of three modules vs. direct and rms current and case temperature

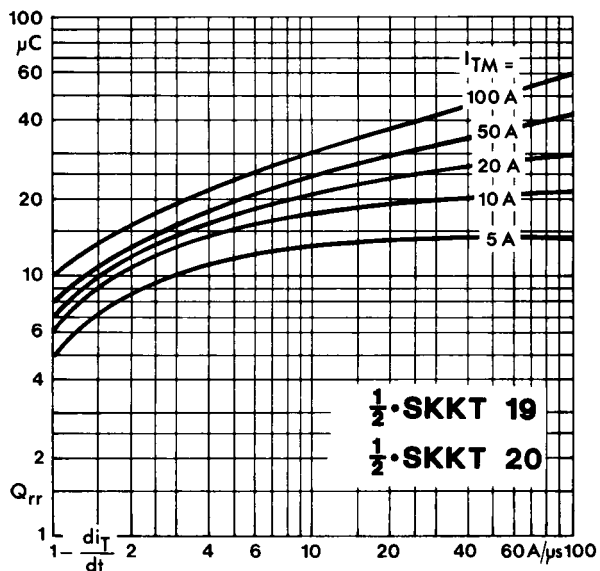


Fig. 5 Recovered charge vs. current decrease

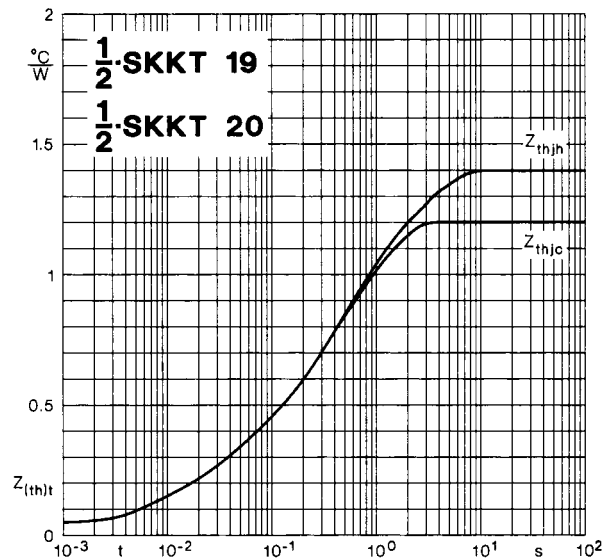


Fig. 6 Transient thermal impedance vs. time

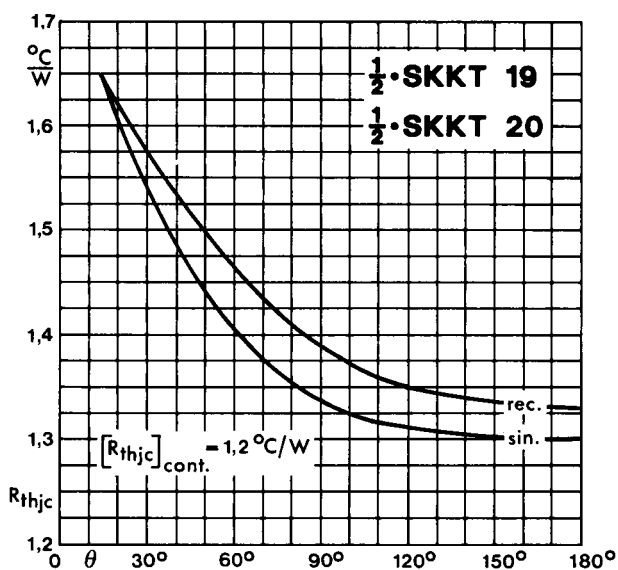


Fig. 7 Thermal resistance vs. conduction angle

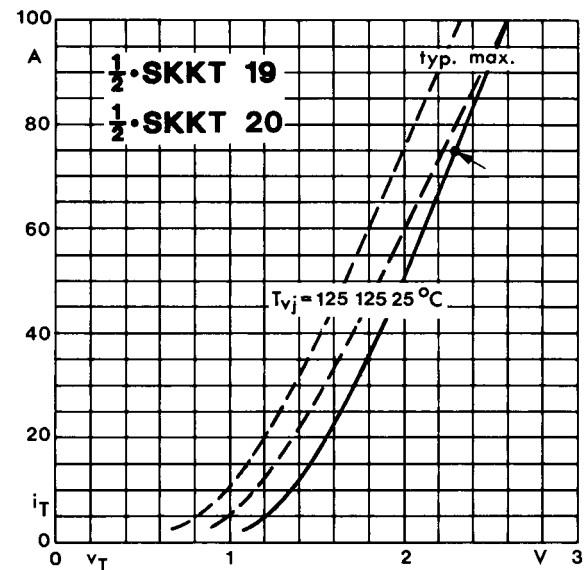


Fig. 8 On-state characteristics

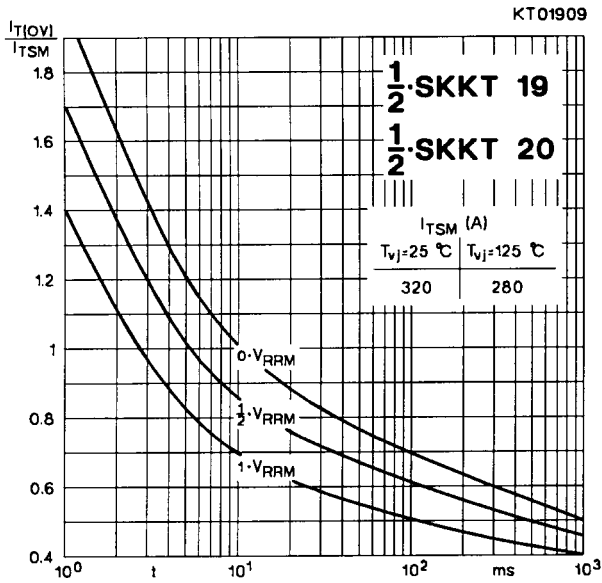


Fig. 9 Surge overload current vs. time

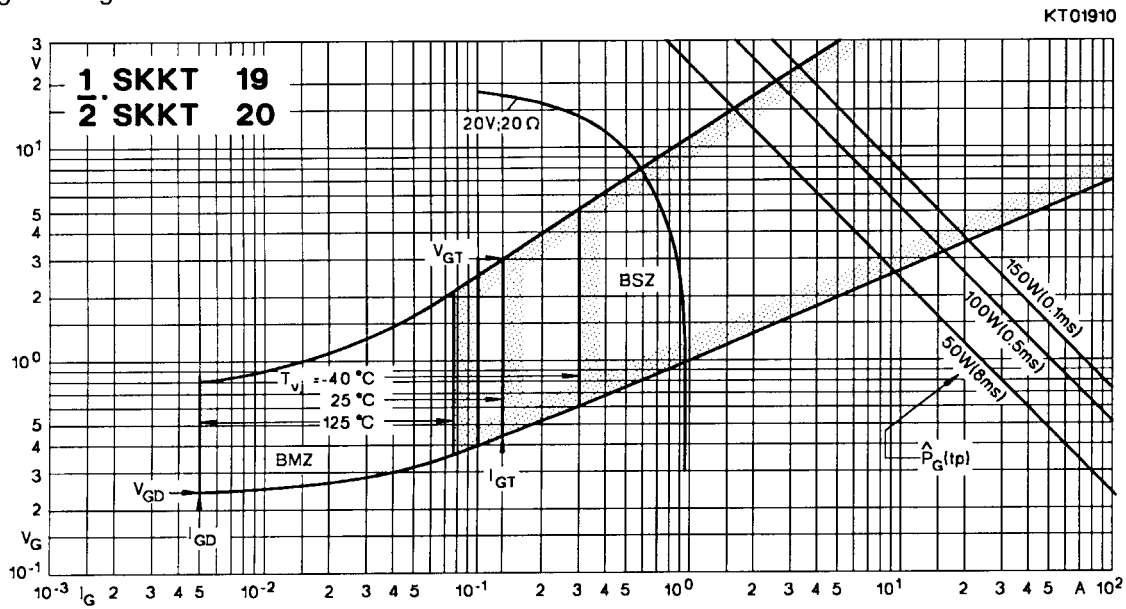


Fig. 10 Gate trigger characteristics

## SKKT 19 ... 105

Case A 5

IEC 192-2: A 77 A

JEDEC: TO-240 AA

SEMIPACK® 1

UL recognized, file no. E 63 532



Dimensions in mm

## SKKT 20/ ... 106/

Case A 46

IEC 192-2: A 77 A

JEDEC: TO-240 AA

SEMIPACK® 1



Dimensions in mm

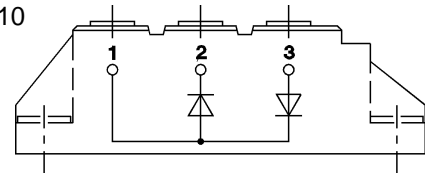
## SKKH 26 ... 105

Case A 6



## SKKD 26 ... 100

Case A 10



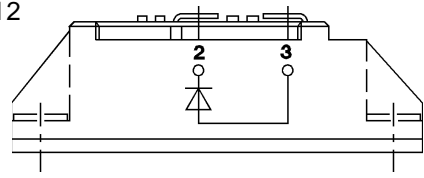
## SKNH 56 ... 91

Case A 7



## SKKE 81

Case A 12



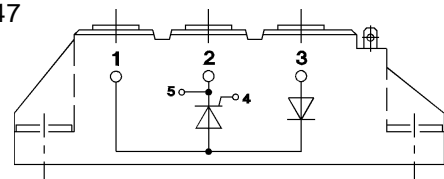
## SKKL 56 ... 105

Case A 9



## SKKH 27 ... 106

Case A 47



## SKND 46 ... 81

Case A 19



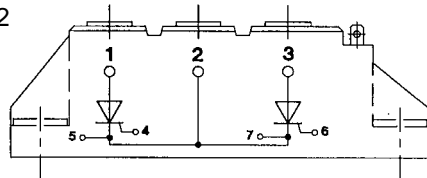
## SKKT 20 B ... 106 B

Case A 48



## SKMT 92

Case A 72



## SKKL 42 ... 106

Case A 59

