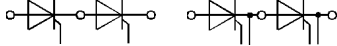


| $V_{RSM}$ | $V_{RRM}$<br>$V_{DRM}$ | $(dv/dt)_{cr}$ | $I_{TRMS}$ (maximum value for continuous operation)            |              |              |
|-----------|------------------------|----------------|----------------------------------------------------------------|--------------|--------------|
|           |                        |                | 40 A                                                           |              |              |
| V         | V                      | V/ $\mu$ s     | $I_{TAV}$ (sin. 180; $T_{case} = 60\text{ }^{\circ}\text{C}$ ) |              |              |
|           |                        |                | 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 |

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

## SEMIPACK® 1 Thyristor Modules

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



**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

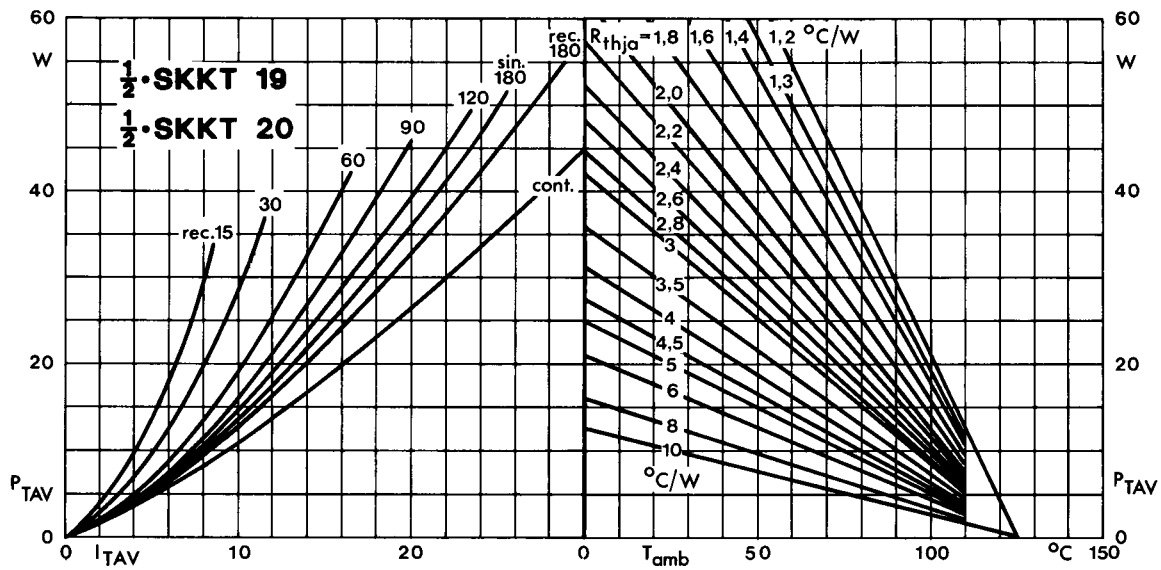


Fig. 1 Power dissipation per thyristor vs. on-state current and ambient temperature

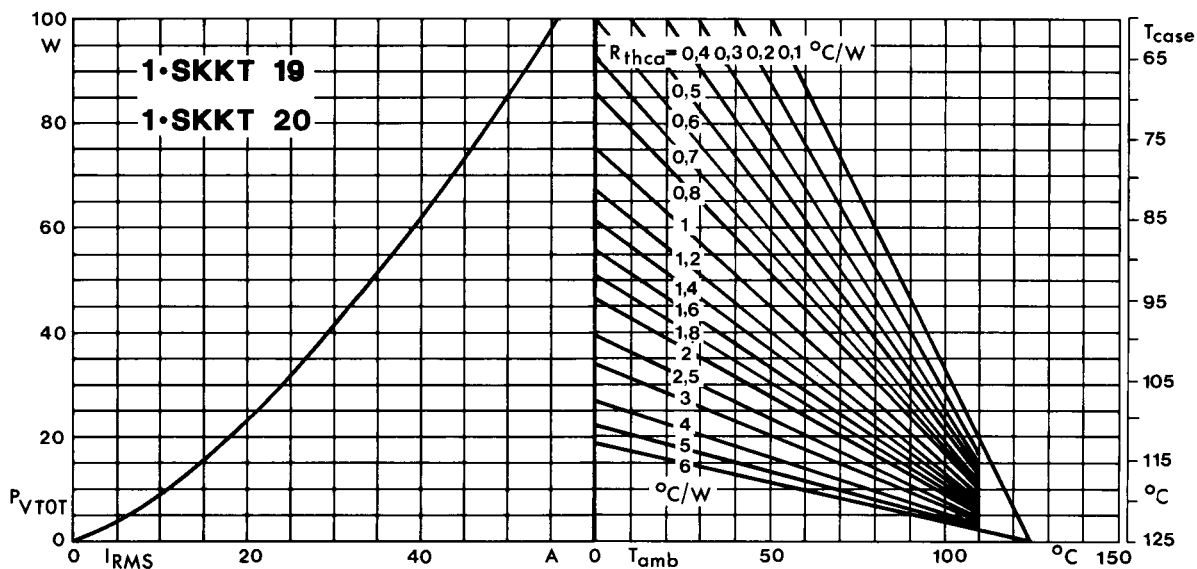


Fig. 2 Power dissipation per module vs. rms current and case temperature

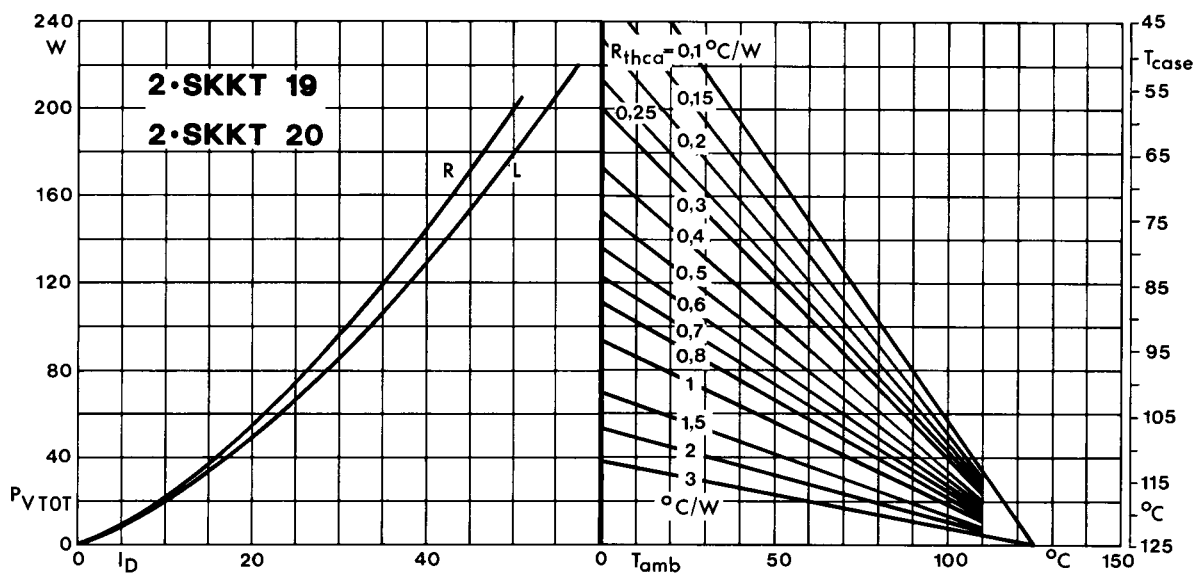


Fig. 3 Power dissipation of two modules vs. direct current and case temperature

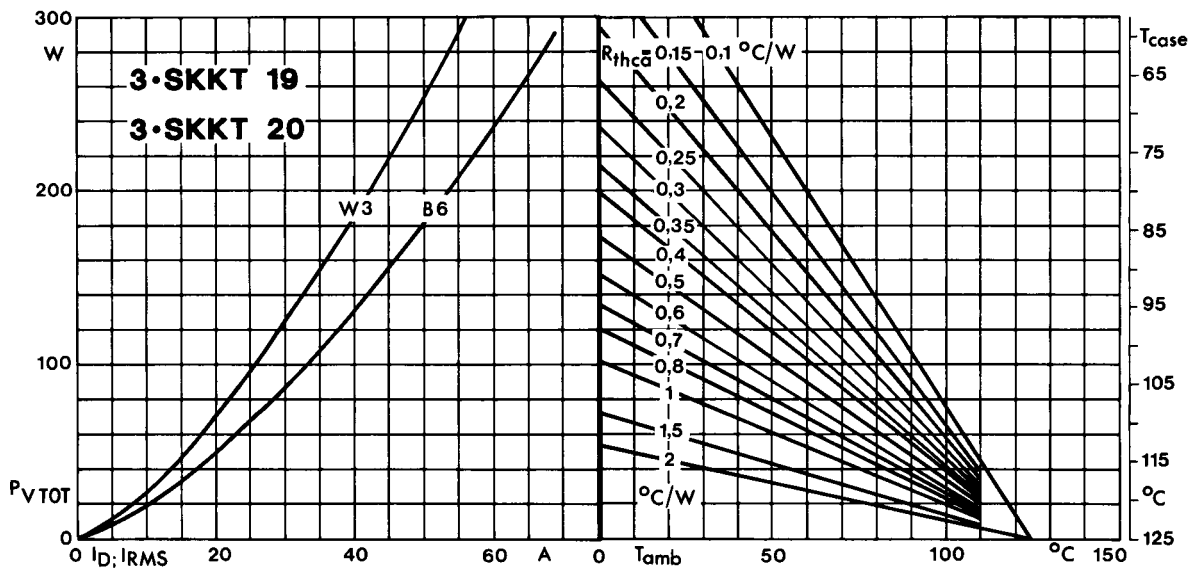


Fig. 4 Power dissipation of three modules vs. direct and rms current and case temperature

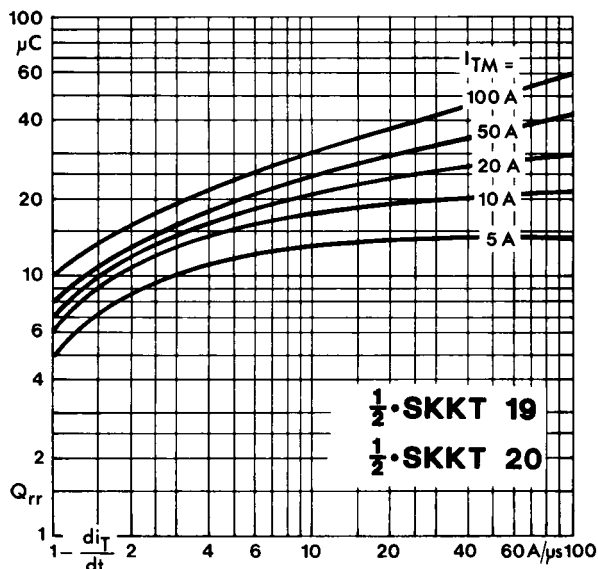


Fig. 5 Recovered charge vs. current decrease

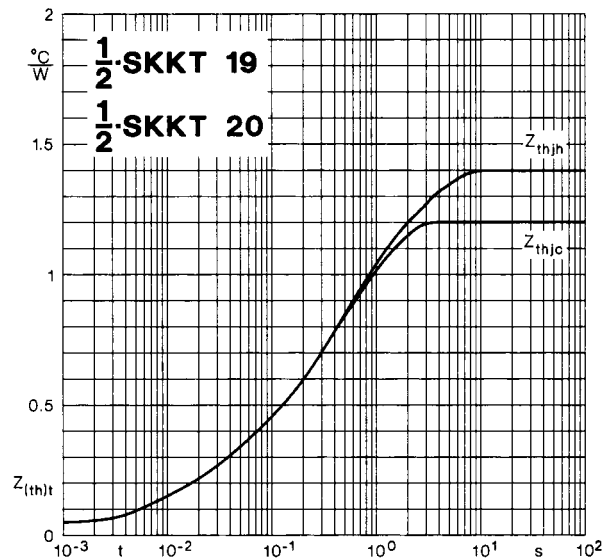


Fig. 6 Transient thermal impedance vs. time

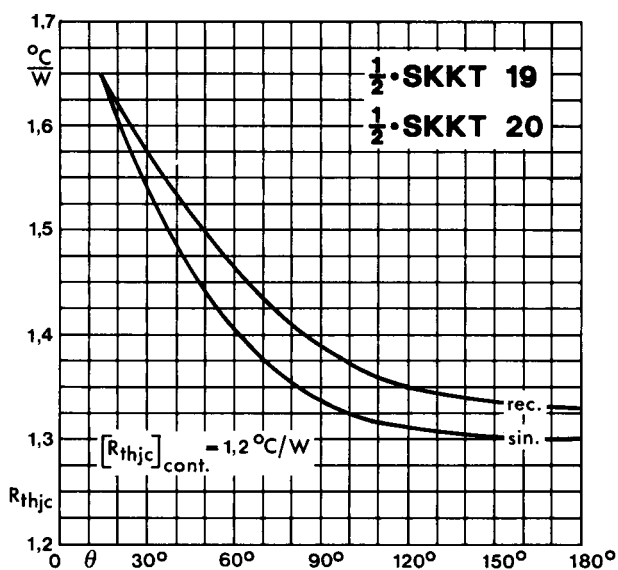


Fig. 7 Thermal resistance vs. conduction angle

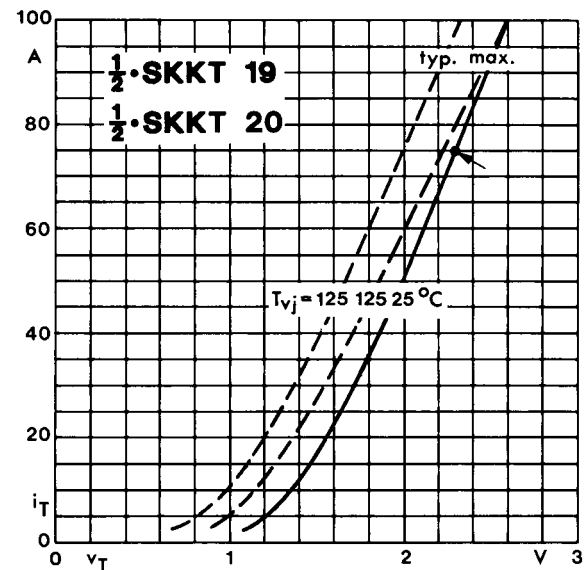


Fig. 8 On-state characteristics

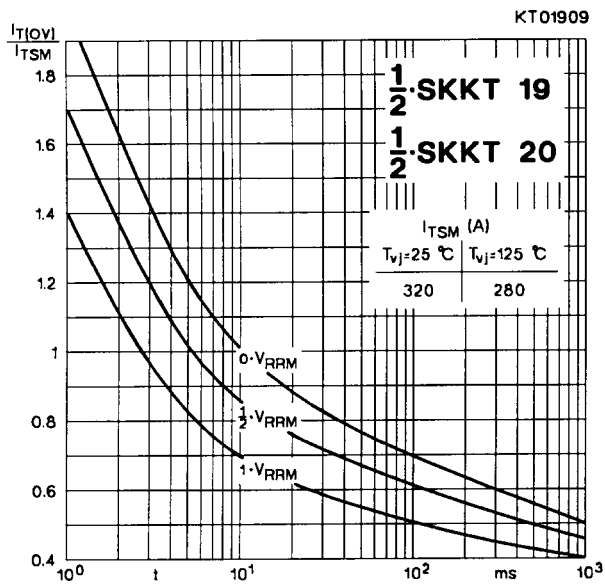


Fig. 9 Surge overload current vs. time

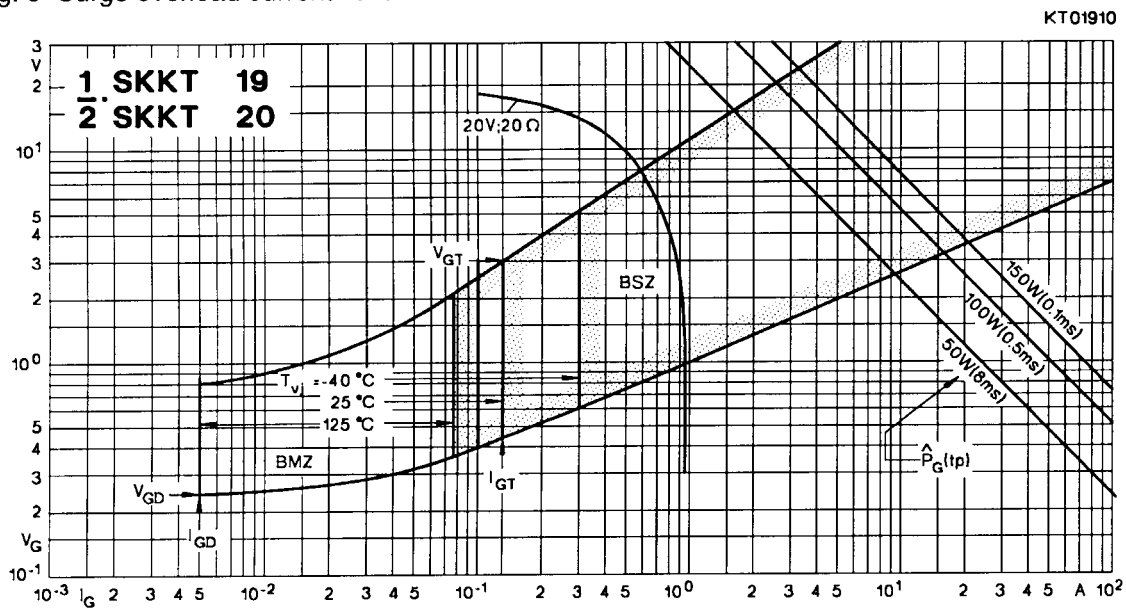


Fig. 10 Gate trigger characteristics

## SKKT 19 ... 105

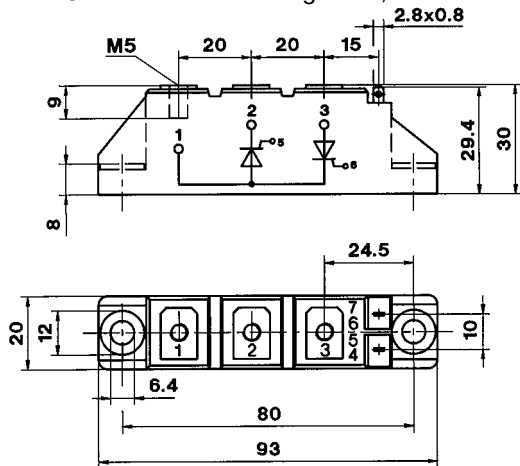
Case A 5

IEC 192-2: A 77 A

JEDEC: TO-240 AA

SEMIPACK® 1

UL recognized, file no. E 63 532



Dimensions in mm

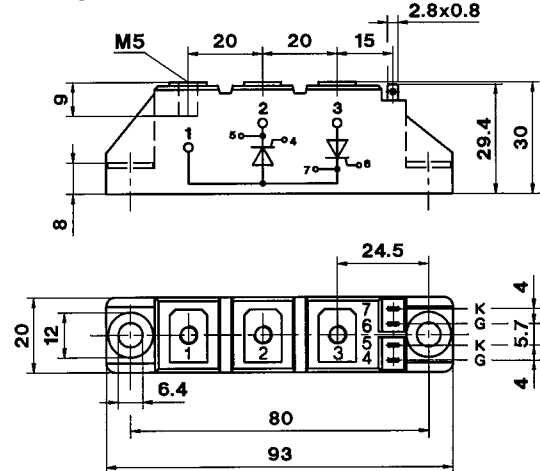
## SKKT 20/ ... 106/

Case A 46

IEC 192-2: A 77 A

JEDEC: TO-240 AA

SEMIPACK® 1



Dimensions in mm

## SKKH 26 ... 105

Case A 6

