

## Thyristors

**SKT 40**  
**SKT 50**



| $V_{RSM}$ | $V_{RRM}$<br>$V_{DRM}$ | $\left(\frac{dv}{dt}\right)_{cr}$ | $I_{TRMS}$ (maximum values for continuous operation) |                     |
|-----------|------------------------|-----------------------------------|--|---------------------|
|           |                        |                                   | 63 A   | 78 A                |
| V         | V                      | V/ $\mu$ s                        | $I_{TAV}$ (sin. 180; $T_{case} = \dots$ °C)          |                     |
|           |                        |                                   | 40 A (80 °C)   | 50 A (78 °C)        |
| 500       | 400                    | 500                               | <b>SKT 40/04 D</b>                                   | –                   |
| 700       | 600                    | 500                               | <b>SKT 40/06 D</b>                                   | <b>SKT 50/06 D*</b> |
| 900       | 800                    | 500                               | <b>SKT 40/08 D</b>                                   | <b>SKT 50/08 D</b>  |
| 1300      | 1200                   | 1000                              | <b>SKT 40/12 E</b>                                   | <b>SKT 50/12 E*</b> |
| 1500      | 1400                   | 1000                              | <b>SKT 40/14 E</b>                                   | <b>SKT 50/14 E*</b> |
| 1700      | 1600                   | 1000                              | <b>SKT 40/16 E</b>                                   | <b>SKT 50/16 E*</b> |
| 1900      | 1800                   | 1000                              | <b>SKT 40/18 E*</b>                                  | <b>SKT 50/18 E*</b> |

| Symbol           | Conditions  | SKT 40               | SKT 50               | Units   |
|------------------|---|----------------------|----------------------|---|
| $I_{TAV}$        | sin. 180; $T_{case} = 85$ °C  | 38                   | 45                   | A   |
| $I_{TSM}$        | $T_{vj} = 25$ °C; 10 ms<br>$T_{vj} = 130$ °C; 10 ms                   | 700<br>600           | 1050<br>900          | A<br>A  |
| $i^2t$           | $T_{vj} = 25$ °C; 8,35 ... 10 ms<br>$T_{vj} = 130$ °C; 8,35 ... 10 ms | 2500<br>1800         | 5000<br>4000         | $A^2s$<br>$A^2s$                                |
| $t_{gd}$         | $T_{vj} = 25$ °C; $I_G = 1$ A;<br>$di_G/dt = 1$ A/ $\mu$ s            | typ. 1               |                      | $\mu$ s   |
| $t_{gr}$         | $V_D = 0,67 \cdot V_{DRM}$  | typ. 1,5             |                      | $\mu$ s   |
| $(di/dt)_{cr}$   | $f = 50 \dots 60$ Hz  | 50                   |                      | A/ $\mu$ s                                      |
| $I_H$            | $T_{vj} = 25$ °C  | typ. 100; max. 200   |                      | mA  |
| $I_L$            | $T_{vj} = 25$ °C; $R_G = 33$ $\Omega$                                 | typ. 250; max. 400   |                      | mA  |
| $t_q$            | $T_{vj} = 130$ °C; typ.   | 100                  |                      | $\mu$ s   |
| $V_T$            | $T_{vj} = 25$ °C; $I_T = 120$ A; max.                                 | 1,95                 | 1,8                  | V   |
| $V_{T(TO)}$      | $T_{vj} = 130$ °C   | 1,0                  | 1,1                  | V   |
| $r_T$            | $T_{vj} = 130$ °C   | 9                    | 5                    | m $\Omega$                                      |
| $I_{DD}, I_{RD}$ | $T_{vj} = 130$ °C; $V_{DD} = V_{DRM}$<br>$V_{RD} = V_{RRM}$           | 8                    | 8                    | mA  |
| $V_{GT}$         | $T_{vj} = 25$ °C  | 3                    |                      | V   |
| $I_{GT}$         | $T_{vj} = 25$ °C  | 150                  |                      | mA  |
| $V_{GD}$         | $T_{vj} = 130$ °C   | 0,25                 |                      | V   |
| $I_{GD}$         | $T_{vj} = 130$ °C   | 5                    |                      | mA  |
| $R_{thjc}$       | cont.<br>sin. 180<br>rec. 120   | 0,60<br>0,66<br>0,70 | 0,57<br>0,60<br>0,65 | $^{\circ}C/W$<br>$^{\circ}C/W$<br>$^{\circ}C/W$ |
| $R_{thch}$       |   | 0,20                 |                      | $^{\circ}C/W$                                   |
| $T_{vj}$         |   | – 40 ... +130        |                      | $^{\circ}C$                                     |
| $T_{stg}$        |   | – 55 ... +150        |                      | $^{\circ}C$                                     |
| M                | SI units  | 4 (UNF: 2,5)         |                      | Nm  |
| a                | US units  | 35 (UNF: 22)         |                      | lb. in.   |
| w                |   | 5 · 9,81             |                      | m/s <sup>2</sup>                                |
|                  |   | 2,2                  |                      | g   |
| Case             |   | B 3                  |                      |   |

### Features

- Hermetic metal cases with glass insulators
- Threaded studs ISO M8 or UNF 1/4-28
- International standard cases

### Typical Applications

- DC motor control (e. g. for machine tools)
- Controlled rectifiers (e. g. for battery charging)
- AC controllers (e. g. for temperature control)

\* Available with UNF thread 1/4-28 UNF2A, e.g. SKT 50/06 D UNF

♦ available in limited quantities

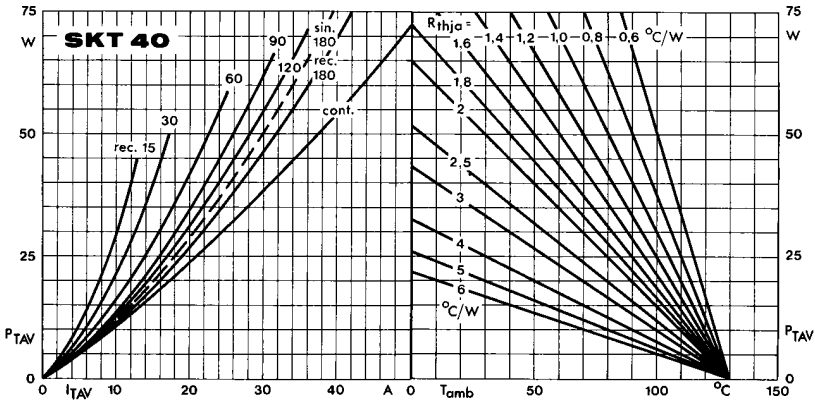


Fig. 1 a Power dissipation vs. on-state current and ambient temperature

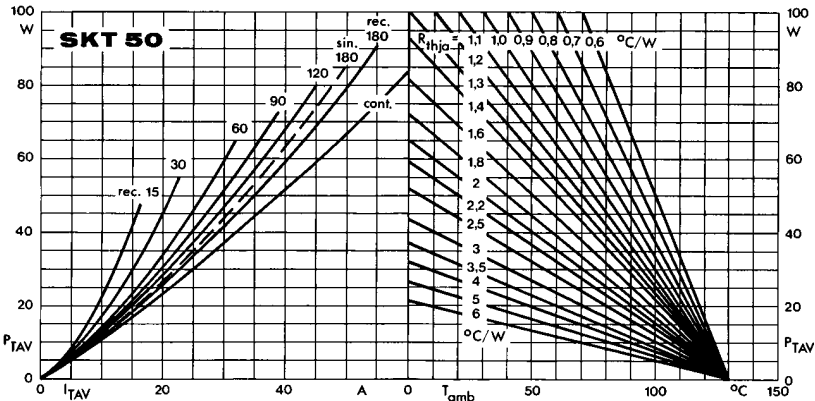


Fig. 1 b Power dissipation vs. on-state current and ambient temperature

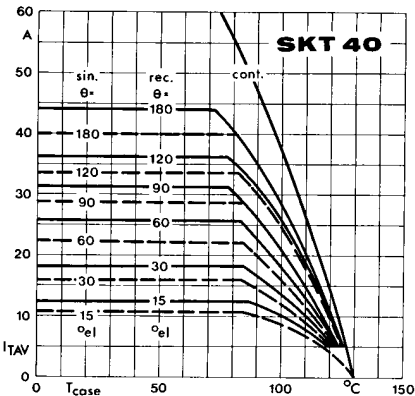


Fig. 2 a Rated on-state current vs. case temperature

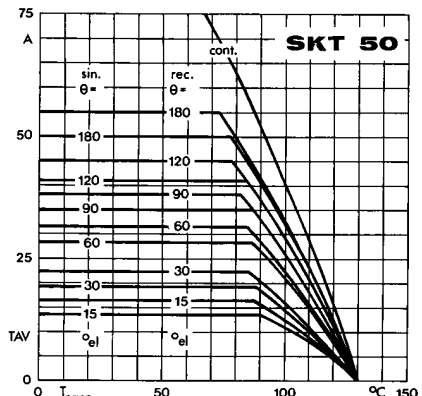


Fig. 2 b Rated on-state current vs. case temperature

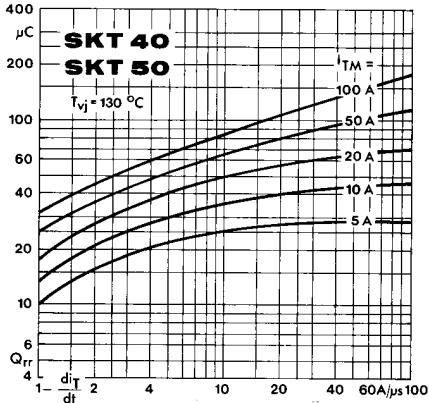


Fig. 3 Recovered charge vs. current decrease

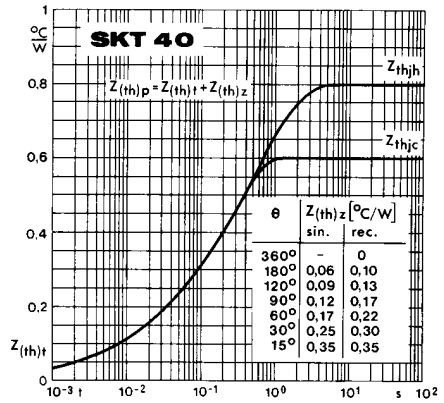


Fig. 4 a Transient thermal impedance vs. time

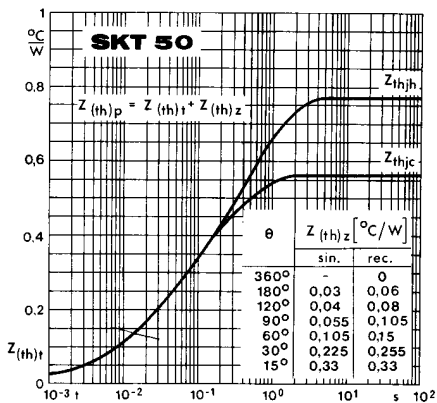


Fig. 4 b Transient thermal impedance vs. time

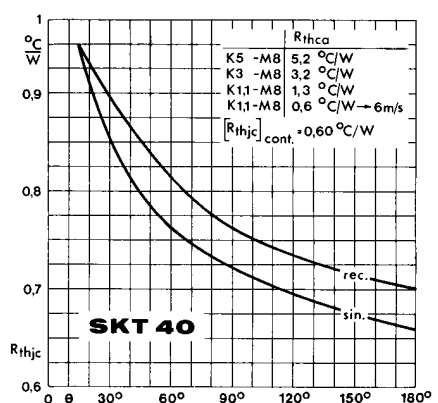


Fig. 5 a Thermal resistance vs. conduction angle

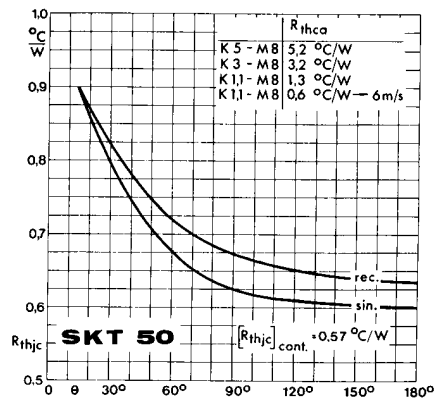


Fig. 5 b Thermal resistance vs. conduction angle

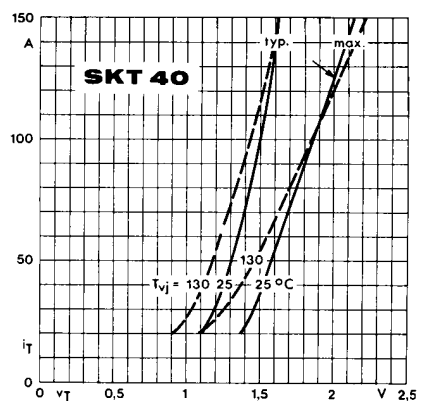


Fig. 6 a On-state characteristics

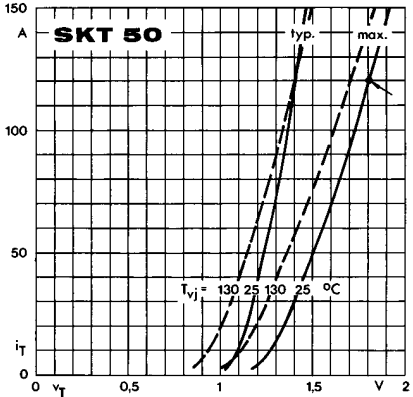


Fig. 6 b On-state characteristics

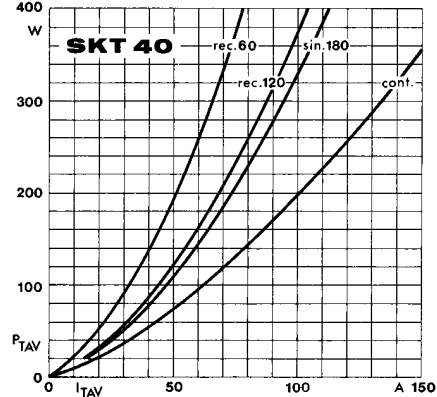


Fig. 7 a Power dissipation vs. on-state current

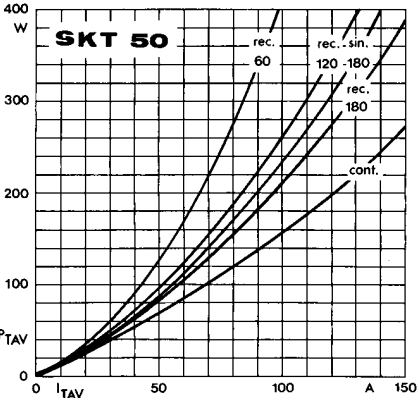


Fig. 7 b Power dissipation vs. on-state current

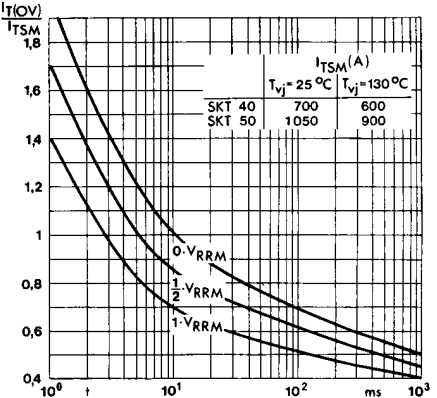


Fig. 8 Surge overload current vs. time

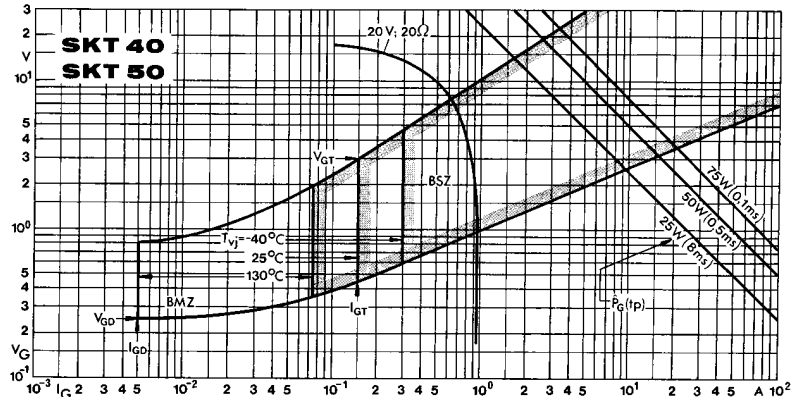


Fig. 9 Gate trigger characteristics