

| $V_{RSM}$<br>$V_{RRM}$<br>V | $I_{FAV}$ (sin. 180; $T_{case} = 85\text{ °C}$ ) |                   |                   |
|-----------------------------|--|-------------------|-------------------|
|                             | 500 A  | 720 A             | 1110 A            |
| 400                         | –  | <b>SKN 501/04</b> | <b>SKN 870/04</b> |
| 800                         | –  | <b>SKN 501/08</b> | –                 |
| 1200                        | –  | <b>SKN 501/12</b> | <b>SKN 870/12</b> |
| 1400                        | –  | <b>SKN 501/14</b> | –                 |
| 1600                        | –  | <b>SKN 501/16</b> | <b>SKN 870/16</b> |
| 1800                        | <b>SKN 450/18</b>                                | <b>SKN 501/18</b> | –                 |
| 2000                        | <b>SKN 450/20</b>                                | –                 | –                 |
| 2200                        | <b>SKN 450/22</b>                                | –                 | –                 |
| 2400                        | –  | –                 | <b>SKN 870/24</b> |

## Rectifier Diodes

**SKN 450**  
**SKN 501**  
**SKN 870**



| Symbol     | Conditions   | SKN 450                  | SKN 501                  | SKN 870                  |
|------------|--|--------------------------|--------------------------|--------------------------|
| $I_{FAV}$  | sin. 180; DSC;<br>( $T_{case} = \dots$ )   | 450 A (95 °C)            | 500 A (125 °C)           | 870 A (105 °C)           |
| $I_{FSM}$  | $T_{vj} = 25\text{ °C}$ ;<br>10 ms   | 6 000 A                  | 7 000 A                  | 13 000 A                 |
| $i^2t$     | $T_{vj\text{ max.}}$ ; 10 ms   | 5 000 A                  | 6 000 A                  | 10 500 A                 |
|            | $T_{vj} = 25\text{ °C}$ ;<br>8,3 ... 10 ms   | 180 000 A <sup>2</sup> s | 245 000 A <sup>2</sup> s | 850 000 A <sup>2</sup> s |
|            | $T_{vj\text{ max.}}$ ;<br>8,3 ... 10 ms  | 125 000 A <sup>2</sup> s | 180 000 A <sup>2</sup> s | 550 000 A <sup>2</sup> s |
| $Q_{rr}$   | $T_{vj} = 140\text{ °C}$ ;<br>$I_{FM} = 500\text{ A}$ ;<br>$-\frac{di_F}{dt} = 10 \frac{A}{\mu s}$ | 700 $\mu C$              | 600 $\mu C$              | 2000 $\mu C$             |
| $I_{RM}$   | typ.   | 60 A                     | 30 A                     | 100 A                    |
| $I_R$      | $T_{vj} = 25\text{ °C}$ ;<br>$V_R = V_{RRM}$   | 2 mA                     | 2 mA                     | 4 mA                     |
|            | $T_{vj\text{ max.}}$ ;<br>$V_R = V_{RRM}$  | 20 mA                    | 50 mA                    | 40 mA                    |
| $V_F$      | $T_{vj} = 25\text{ °C}$ ;<br>( $I_F = \dots$ ); max.   | 1,8 V<br>(1500 A)        | 1,65 V<br>(1500 A)       | 1,85 V<br>(3000 A)       |
| $V_{(TO)}$ | $T_{vj\text{ max.}}$   | 0,85 V                   | 0,80 V                   | 0,85 V                   |
| $r_T$      | $T_{vj\text{ max.}}$   | 0,7 m $\Omega$           | 0,6 m $\Omega$           | 0,33 m $\Omega$          |
| $R_{thjc}$ | DSC/SSC<br>(Double-sided<br>cooling/single<br>sided cooling)                                       | 0,075/0,15 °C/W          |                          | 0,033/<br>0,066 °C/W     |
| $R_{thch}$ |  | 0,02/0,04 °C/W           |                          | 0,007/<br>0,014 °C/W     |
| $T_{vj}$   |  | – 40 ... + 150 °C        |                          | – 40 ... + 150 °C        |
| $T_{stg}$  |  | – 40 ... + 150 °C        |                          | – 40 ... + 150 °C        |
| F          | SI units   | 4 ... 5 kN               |                          | 13,5 ... 16,5 kN         |
| w          | US units   | 900 ... 1100 lbs.        |                          | 3000 ... 3500 lbs.       |
|            | approx.  | 51 g                     |                          | 230 g                    |
| RC         | $P_R = 2\text{ W}$   | 1 $\mu F$ + 20 $\Omega$  |                          |                          |
| $R_p$      | $P_R = 20\text{ W}$  | 25 k $\Omega$            |                          |                          |
| Case       |  | E 18                     |                          | E 19                     |

## Features

- Reverse voltages up to 3000 V
- Capsule type metal-ceramic packages with precious metal pressure contacts
- Contact diameters 19 and 32 mm

## Typical Applications

- All-purpose high power rectifier diodes
- SKN 870: High voltage grades available for industrial high power drives and medium traction applications
- Cooling via heatsinks (double or single sided)
- Non-controllable and half-controllable rectifiers
- Free-wheeling diodes

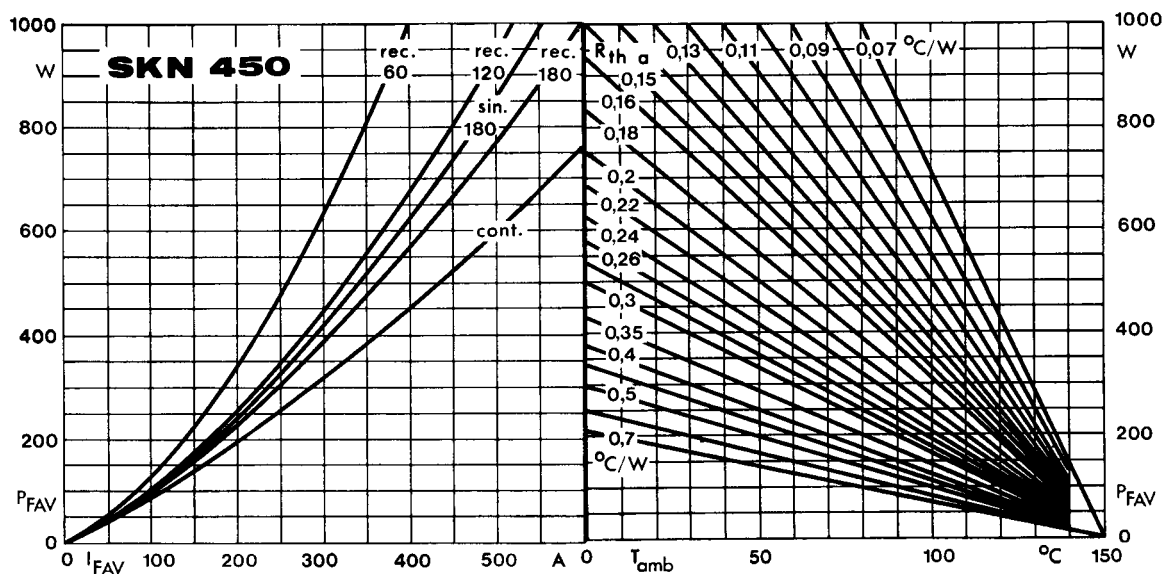


Fig. 2 a Power dissipation vs. forward current and ambient temperature

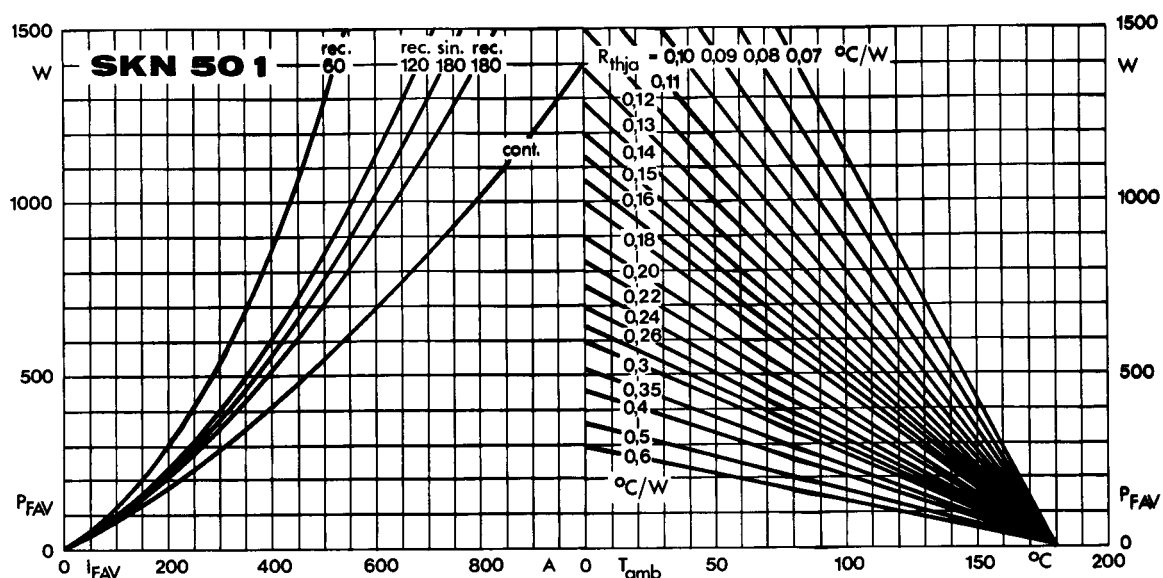


Fig. 2 b Power dissipation vs. forward current and ambient temperature

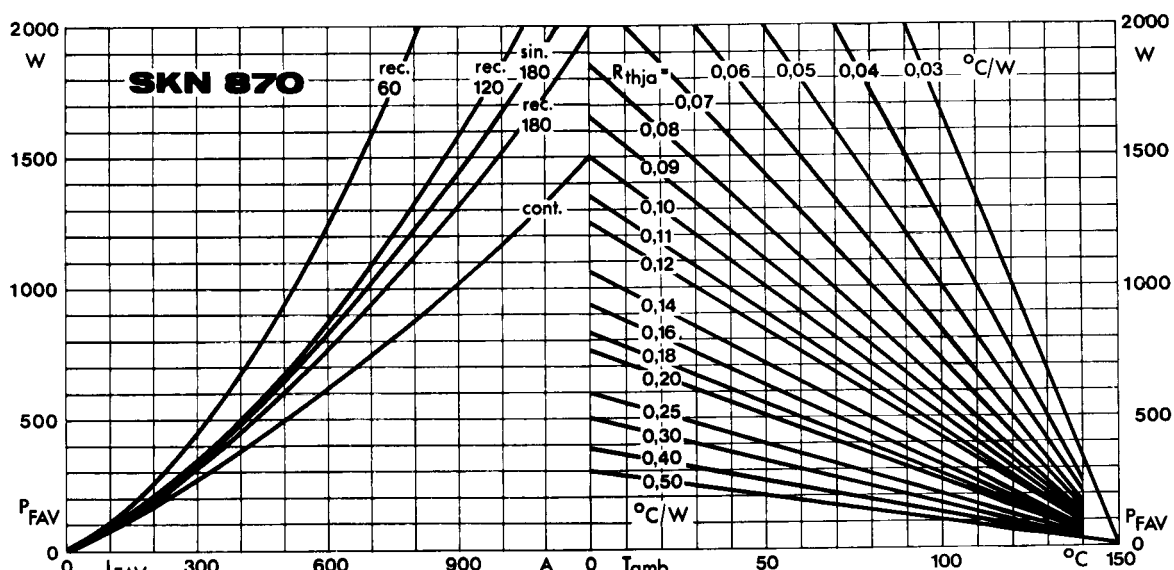


Fig. 2 c Power dissipation vs. forward current and ambient temperature

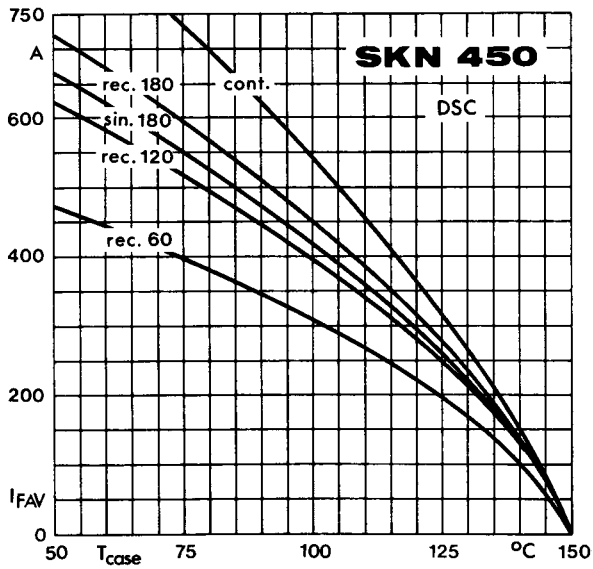


Fig. 3 a Rated forward current vs. case temperature

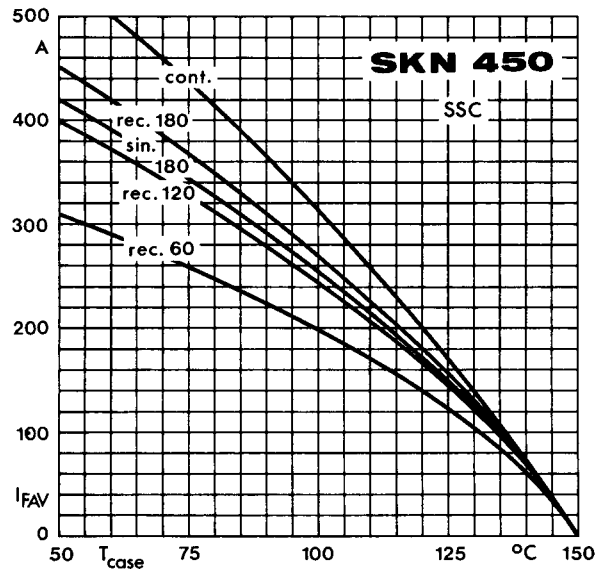


Fig. 3 b Rated forward current vs. case temperature

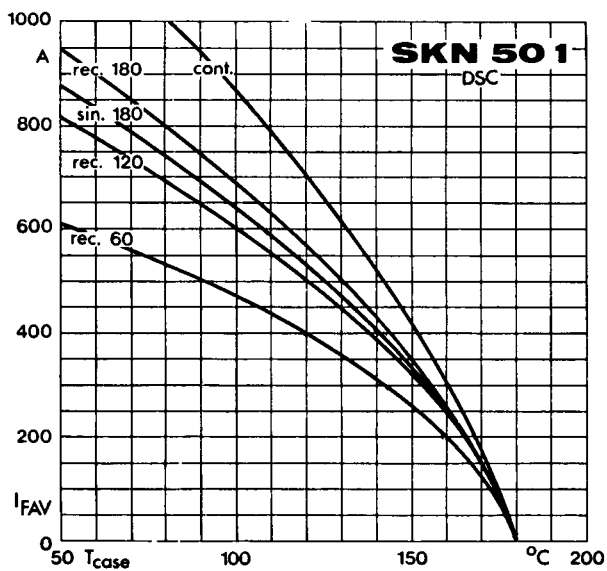


Fig. 3 c Rated forward current vs. case temperature

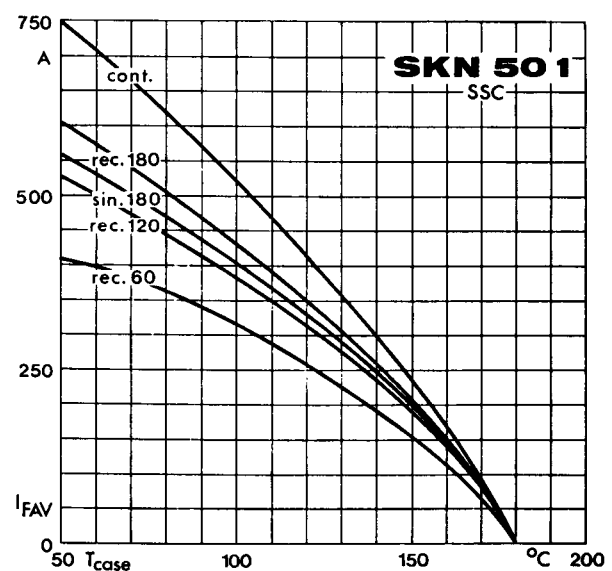


Fig. 3 d Rated forward current vs. case temperature

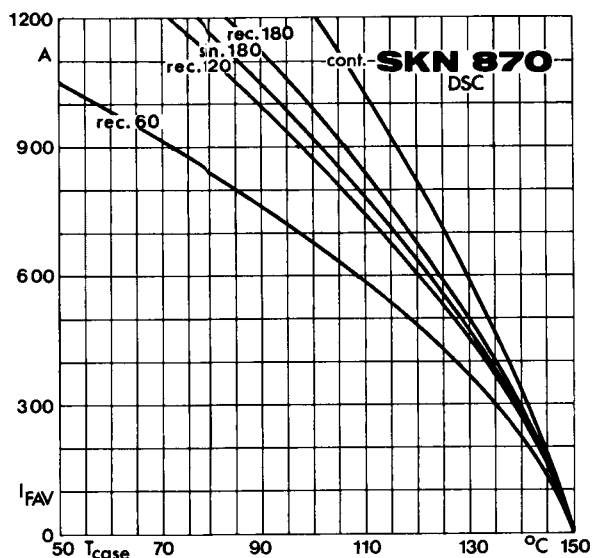


Fig. 3 e Rated forward current vs. case temperature

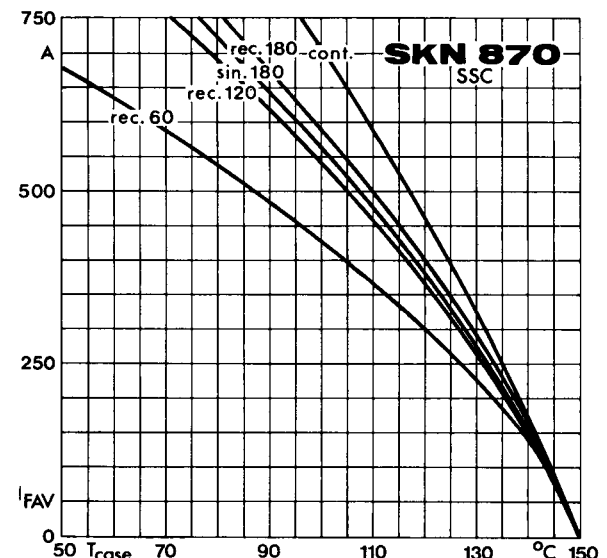


Fig. 3 f Rated forward current vs. case temperature

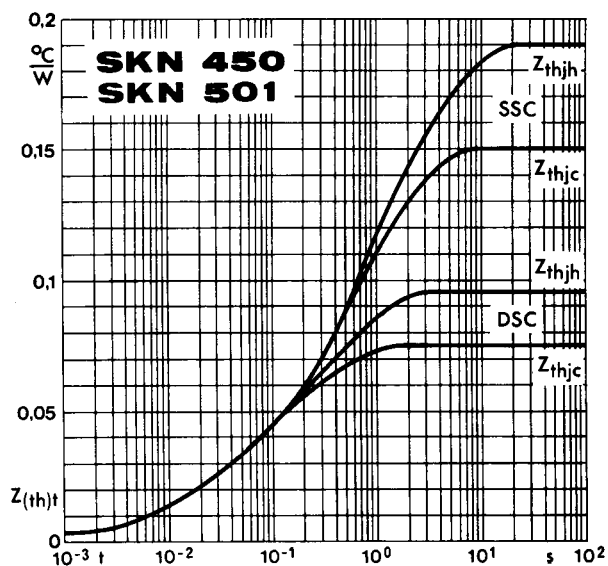


Fig. 5 a Transient thermal impedance vs. time

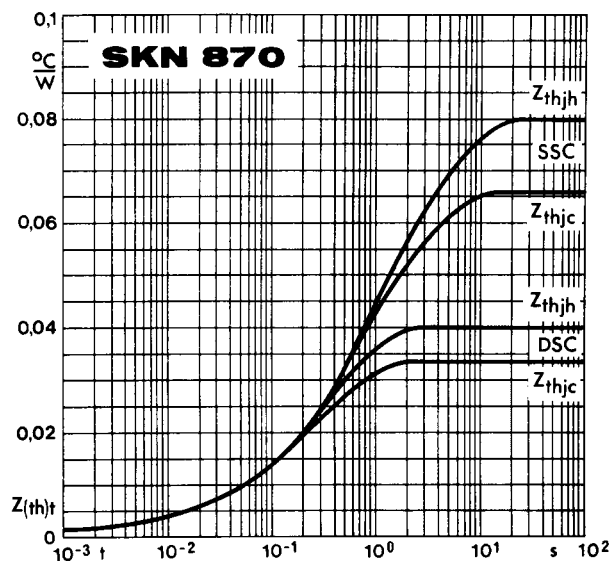


Fig. 5 b Transient thermal impedance vs. time

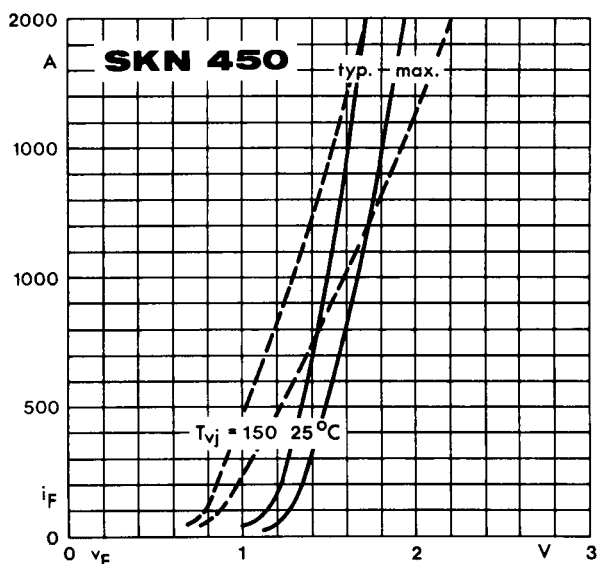


Fig. 6 a Forward characteristics

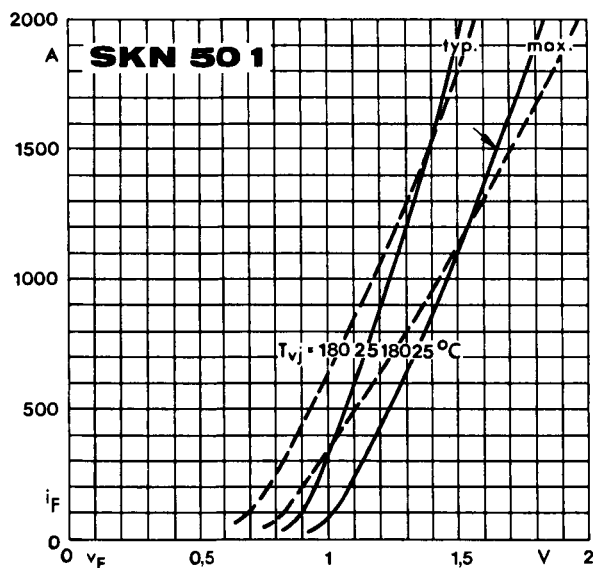


Fig. 6 b Forward characteristics



Fig. 6 c Forward characteristics

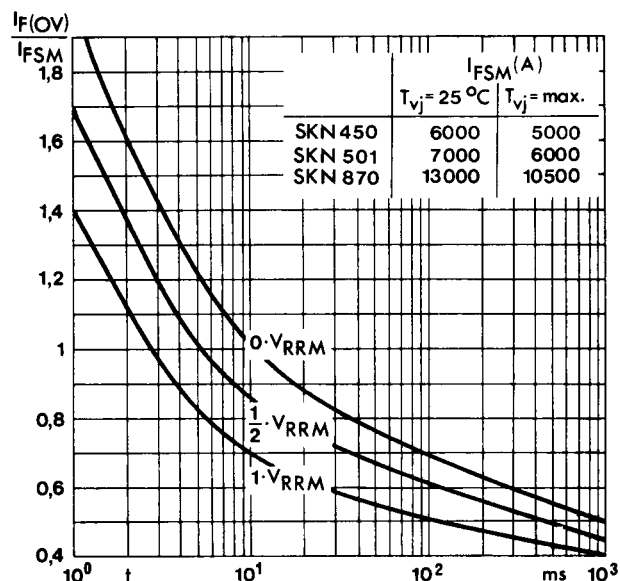


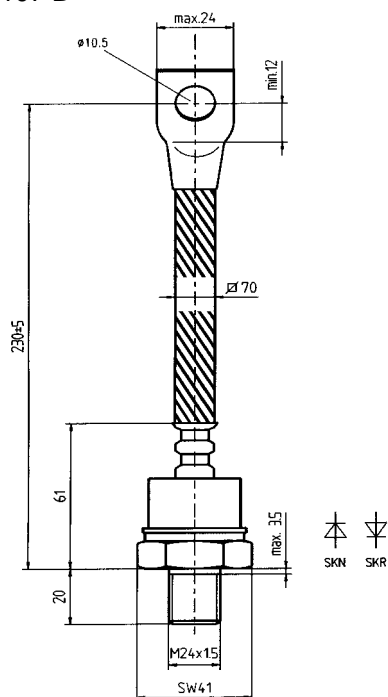
Fig. 7 Surge overload current vs. time

**SKN 320**  
**SKR 320**

Case E 16

IEC: A 22 B

DIN 41 888: 107 B

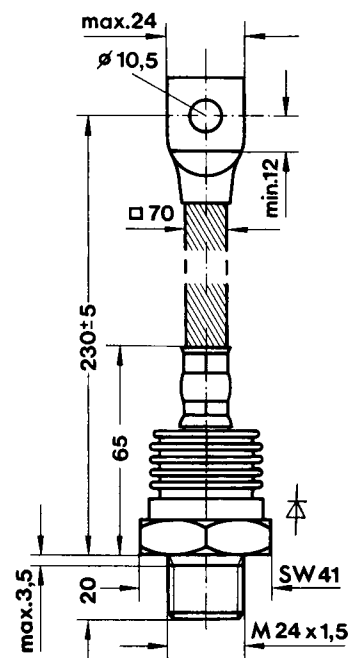


**SKN 400**

Case E 17

IEC: A 22 B

DIN 41 888: 107 B 2

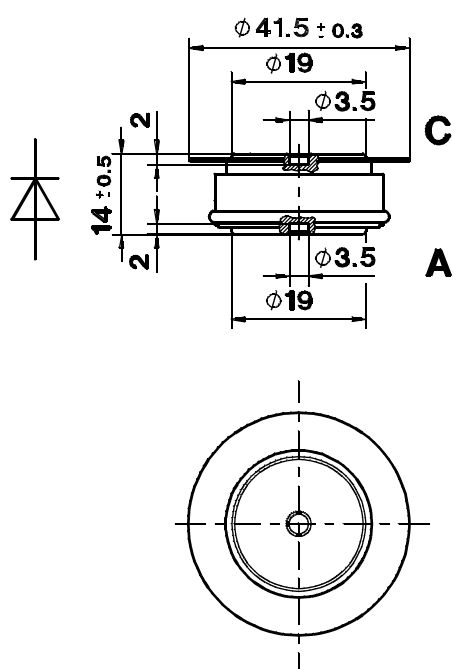


**SKN 450**  
**SKN 501**

Case E 18

DIN 41 814: 151 A 2

JEDEC: DO-200 AA

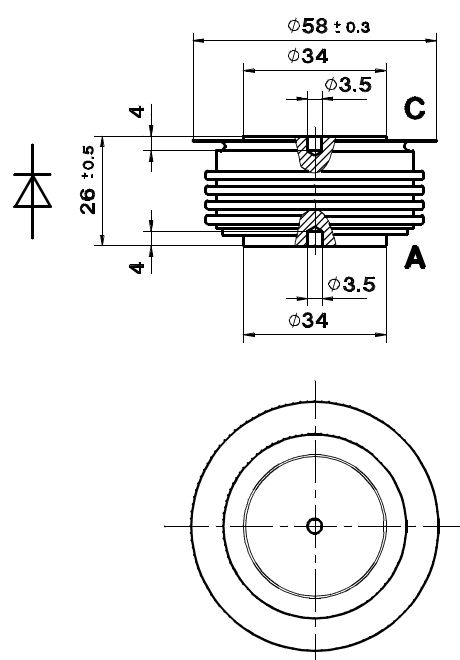


**SKN 870**

Case E 19

DIN 41 814: 153 C 2

JEDEC: DO-200 AB



Dimensions in mm