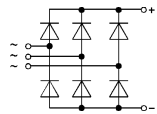


## SEMIPONT® 1 Power Bridge Rectifiers

### SKD 31



#### Features

- Sturdy isolated metal baseplate
- Fast-on terminals with solder tips
- Suitable for wave soldering
- High surge current rating
- UL recognized, file no. E 63 532

#### Typical Applications

- DC power supply, e. g. for transistorized AC motor controllers
- Battery chargers
- Non-controlled DC motor field supply

| $V_{RSM}$<br>$V_{RRM}$ | $I_D$ ( $T_{case} = 100\text{ °C}$ )<br>31 A |
|------------------------|----------------------------------------------|
| 200 V                  | <b>SKD 31/02</b>                             |
| 400 V                  | <b>SKD 31/04</b>                             |
| 800 V                  | <b>SKD 31/08</b>                             |
| 1200 V                 | <b>SKD 31/12</b>                             |
| 1400 V                 | <b>SKD 31/14</b>                             |
| 1600 V                 | <b>SKD 31/16</b>                             |

| Symbol     | Conditions                                                                 | SKD 31                 |       |
|------------|----------------------------------------------------------------------------|------------------------|-------|
| $I_D$      | $T_{case} = 85\text{ °C}$                                                  | 44 A                   |       |
|            | $T_{amb} = 45\text{ °C}$ , isolated <sup>1)</sup><br>chassis <sup>2)</sup> | P5A/100                | 5,3 A |
|            |                                                                            | P5A/100                | 17 A  |
|            |                                                                            | R4A/120, P13A/125      | 26 A  |
|            |                                                                            | P1A/120                | 27 A  |
|            | $T_{amb} = 35\text{ °C}$ , P1A/120 F                                       | 56 A                   |       |
| IFSM       | $T_{vj} = 25\text{ °C}$ , 10 ms                                            | 370 A                  |       |
|            | $T_{vj} = 125\text{ °C}$ , 10 ms                                           | 320 A                  |       |
| $i^2t$     | $T_{vj} = 25\text{ °C}$ , 8,3...10 ms                                      | 685 A <sup>2</sup> s   |       |
|            | $T_{vj} = 125\text{ °C}$ , 8,3...10 ms                                     | 510 A <sup>2</sup> s   |       |
| $V_F$      | $T_{vj} = 25\text{ °C}$ ; $I_F = 75\text{ A}$                              | max. 1,75 V            |       |
| $V_{(TO)}$ | $T_{vj} = 125\text{ °C}$                                                   | 0,85 V                 |       |
| $r_T$      | $T_{vj} = 125\text{ °C}$                                                   | 12 mΩ                  |       |
| $I_{RD}$   | $T_{vj} = 25\text{ °C}/125\text{ °C}$ ; $V_{RD} = V_{RRM}$                 | 0,2/2 mA               |       |
| $R_{thjc}$ | per diode                                                                  | 2,0 °C/W               |       |
|            | total                                                                      | 0,33 °C/W              |       |
| $R_{thch}$ | total                                                                      | 0,1 °C/W               |       |
| $R_{thja}$ | isolated <sup>1)</sup>                                                     | 15 °C/W                |       |
|            | chassis <sup>2)</sup>                                                      | 3 °C/W                 |       |
|            | P5A/100                                                                    | 1,85 °C/W              |       |
|            | P1A/120                                                                    | 1,05 °C/W              |       |
| $T_{vj}$   |                                                                            | - 40...+ 125 °C        |       |
| $T_{stg}$  |                                                                            | - 40...+ 125 °C        |       |
| $V_{isol}$ | a.c. 50...60 Hz; r.m.s.; 1 s / 1 min                                       | 3600 V- / 3000 V-      |       |
| RC         | $P_R = 1\text{ W}$                                                         | 0,1 μF + 50 Ω          |       |
| $F_u$      |                                                                            | 25 A                   |       |
| $M_1$      | case to heatsink; SI units/US units                                        | 2 Nm/18 lb. in. ± 15 % |       |
| w          |                                                                            | 66 g                   |       |
| Case       | → page B11-26                                                              | G 26                   |       |

<sup>1)</sup> Freely suspended or mounted on an insulator

<sup>2)</sup> Mounted on a painted metal sheet of min. 250 x 250 x 1 mm

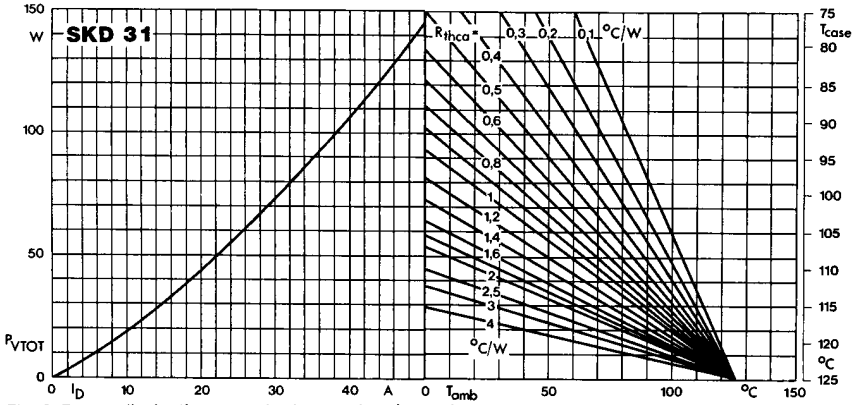


Fig. 3 Power dissipation vs. output current and case temperature

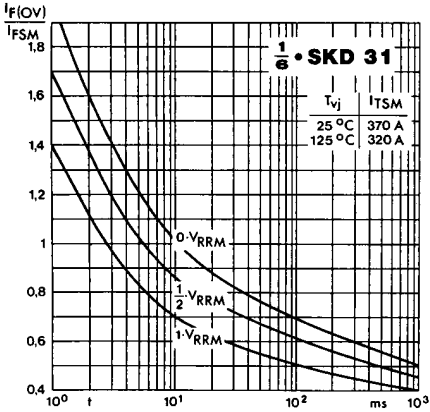


Fig. 5 Surge overload current vs. time

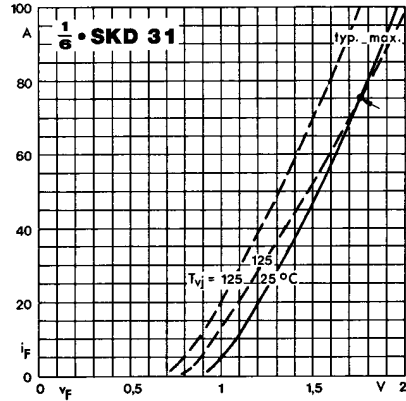


Fig. 9 Forward characteristics of a single diode

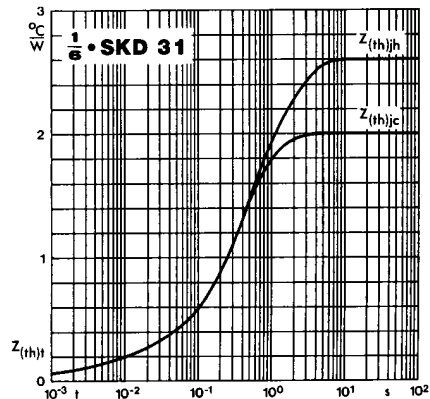


Fig. 12 Transient thermal impedance vs. time