



SEMIPACK® 1

Rectifier Diode Modules

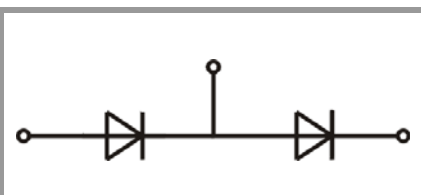
SKKD 101/16

Features

- Heat transfer through aluminium oxide ceramic isolated metal baseplate
- UL recognized, file no. E63532

Typical Applications*

- Non-controllable rectifiers for AC/AC converters
- Line rectifiers for transistorized AC motor controllers
- Field supply for DC motors



SKKD

| Absolute Maximum Ratings | | | | |
|--------------------------|---------------------|-----------------------|-------------|------------------|
| Symbol | Conditions | | Values | Unit |
| Rectifier Diode | | | | |
| I_{FAV} | sin. 180° | $T_c = 85\text{ °C}$ | 134 | A |
| | | $T_c = 100\text{ °C}$ | 101 | A |
| I_{FSM} | 10 ms | $T_j = 25\text{ °C}$ | 2500 | A |
| | | $T_j = 130\text{ °C}$ | 2000 | A |
| i^2t | 10 ms | $T_j = 25\text{ °C}$ | 31250 | A ² s |
| | | $T_j = 130\text{ °C}$ | 20000 | A ² s |
| V_{RSM} | | | 1700 | V |
| V_{RRM} | | | 1600 | V |
| T_j | | | -40 ... 130 | °C |
| Module | | | | |
| T_{stg} | | | -40 ... 125 | °C |
| V_{isol} | a.c.; 50 Hz; r.m.s. | 1 min | 3000 | V |
| | | 1 s | 3600 | V |

| Characteristics | | | | | | |
|-----------------|--|------------|------|------|----------|------------------|
| Symbol | Conditions | | min. | typ. | max. | Unit |
| Diode | | | | | | |
| V_F | $T_j = 25\text{ °C}, I_F = 300\text{ A}$ | | | 1.45 | 1.60 | V |
| $V_{(TO)}$ | $T_j = 130\text{ °C}$ | | | 0.75 | 0.87 | V |
| r_T | $T_j = 130\text{ °C}$ | | | 2.20 | 2.45 | mΩ |
| I_{RD} | $T_j = 130\text{ °C}, V_{RRM}$ | | | | 3 | mA |
| $R_{th(j-c)}$ | cont. | per chip | | | 0.19 | K/W |
| | | per module | | | 0.095 | K/W |
| $R_{th(j-c)}$ | sin. 180° | per chip | | | 0.2 | K/W |
| | | per module | | | 0.1 | K/W |
| Module | | | | | | |
| $R_{th(c-s)}$ | chip | | | 0.22 | | K/W |
| | module | | | 0.11 | | K/W |
| M_s | to heatsink M5 | | 4.25 | | 5.75 | Nm |
| M_t | to terminals M5 | | 2.55 | | 3.45 | Nm |
| a | | | | | 5 * 9,81 | m/s ² |
| w | | | | 75 | | g |

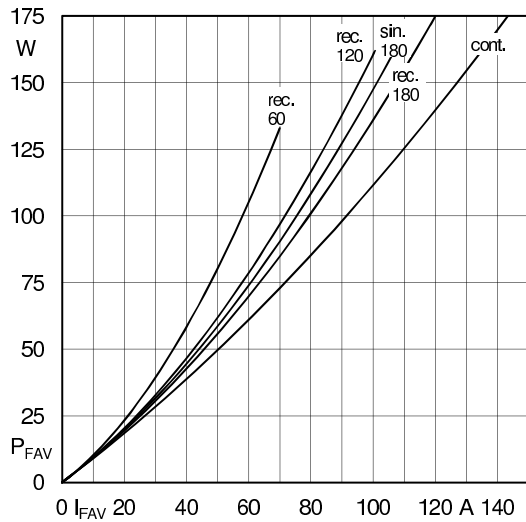


Fig. 11L: Power dissipation per diode vs. forward current

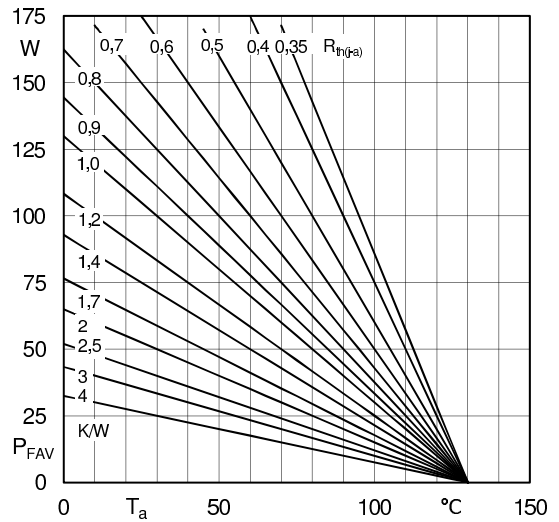


Fig. 11R: Power dissipation per diode vs. ambient temperature

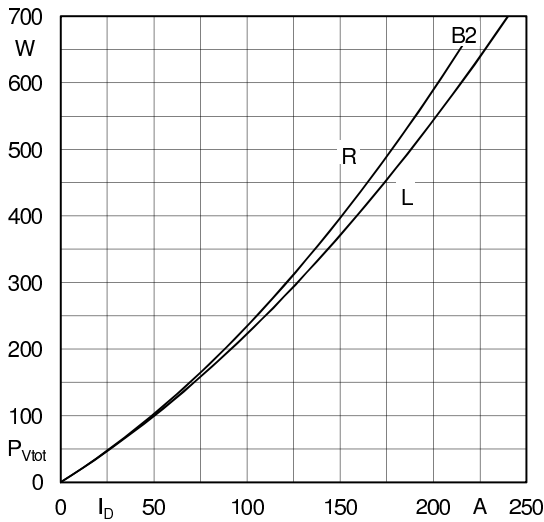


Fig. 12L: Power dissipation of two modules vs. direct current

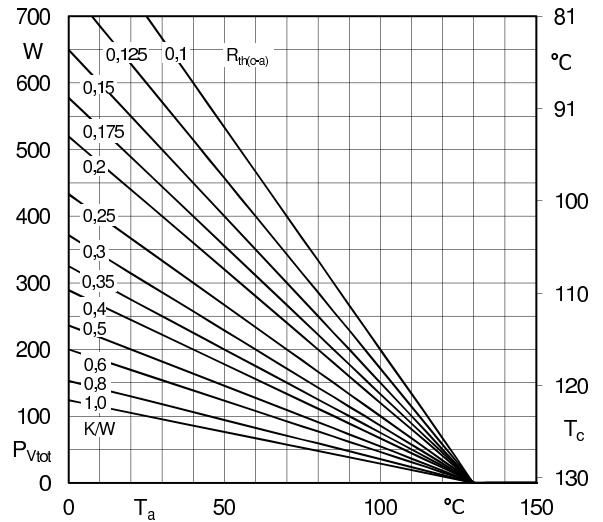


Fig. 12R: Power dissipation of two modules vs. case temperature

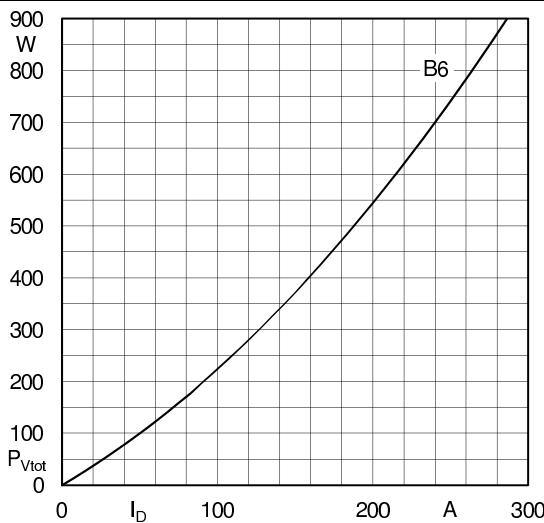


Fig. 13L: Power dissipation of three modules vs. direct current

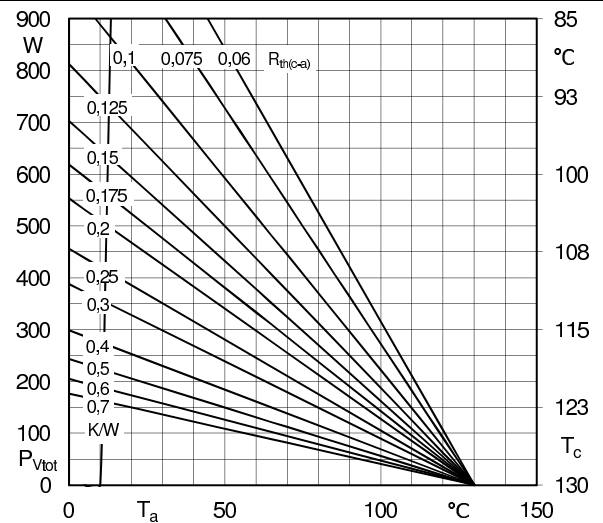


Fig. 13R: Power dissipation of three modules vs. case temperature

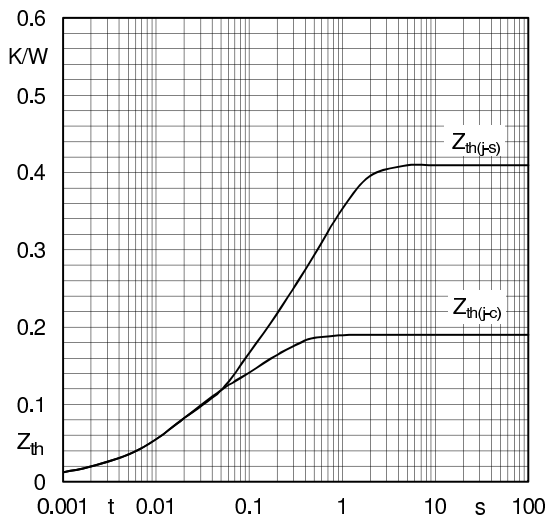


Fig. 14: Transient thermal impedance vs. time

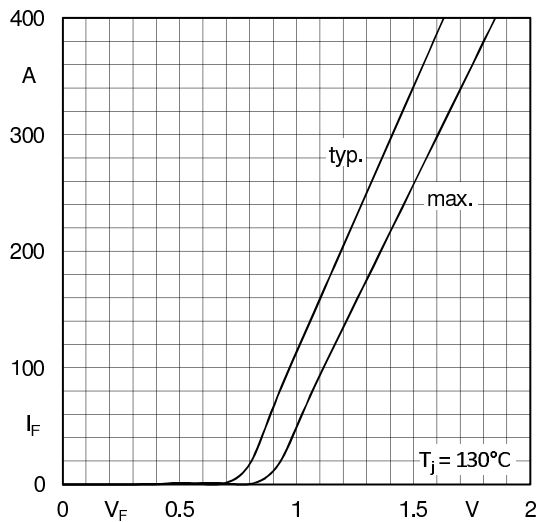


Fig. 15: Forward characteristics

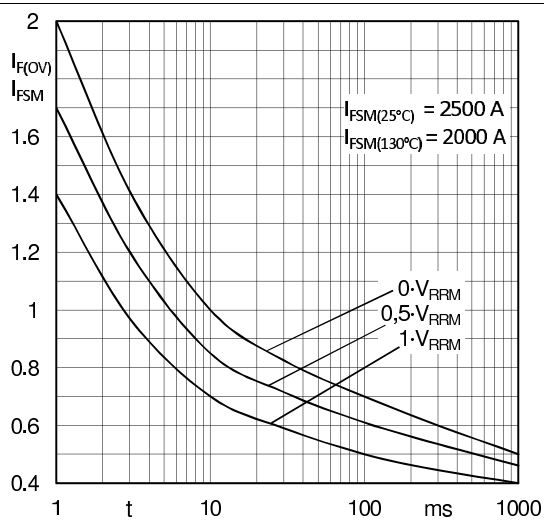
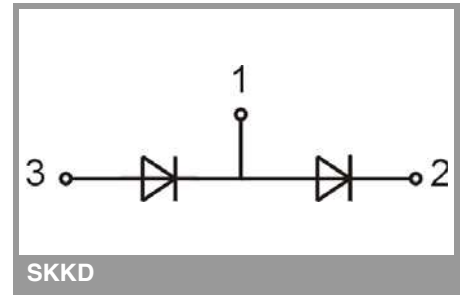
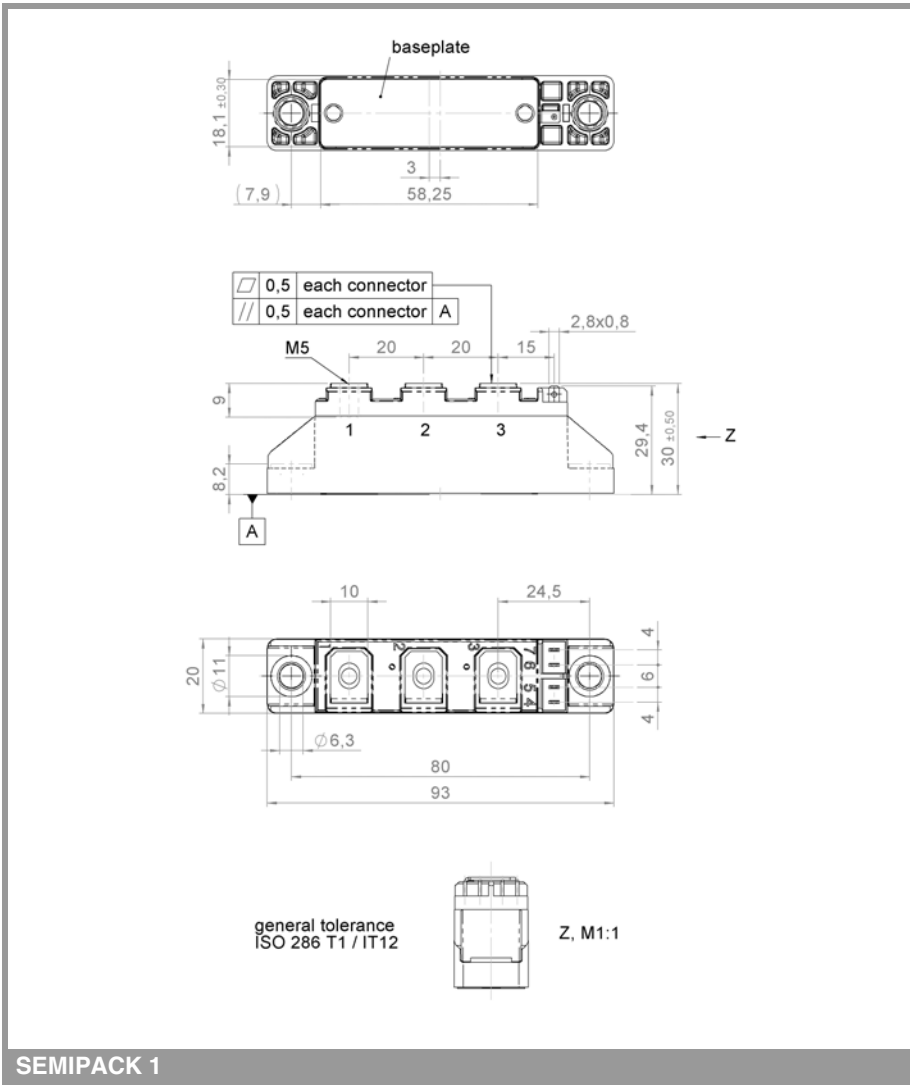


Fig. 16: Surge overload current vs. time



This is an electrostatic discharge sensitive device (ESDS), international standard IEC 60747-1, Chapter IX

* The specifications of our components may not be considered as an assurance of component characteristics. Components have to be tested for the respective application. Adjustments may be necessary. The use of SEMIKRON products in life support appliances and systems is subject to prior specification and written approval by SEMIKRON. We therefore strongly recommend prior consultation of our staff.