



**SEMIPACK® 1**

## Rectifier Diode Modules

### SKKD 101/16

#### Features\*

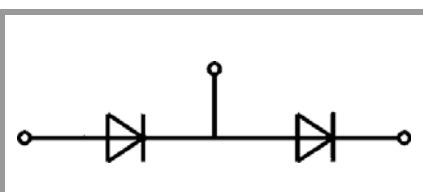
- Heat transfer through aluminium oxide ceramic insulated metal baseplate
- UL recognized, file no. E63532

#### Typical Applications

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

| Absolute Maximum Ratings |  |                       |             |                  |
|--------------------------|--|-----------------------|-------------|------------------|
| Symbol                   | Conditions                               |                       | Values      | Unit             |
| <b>Rectifier Diode</b>   |  |                       |             |                  |
| $I_{FAV}$                | sin. 180°<br>$T_{j\max} = 130\text{ °C}$ | $T_c = 85\text{ °C}$  | 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 <sup>2</sup> s |
|                          |  | $T_j = 130\text{ °C}$ | 20000       | A <sup>2</sup> s |
| $V_{RSM}$                | $T_j = 25\text{ °C}$                     |                       | 1700        | V                |
| $V_{RRM}$                | $T_j = 25\text{ °C}$                     |                       | 1600        | V                |
| $T_j$                    |  |                       | -40 ... 130 | °C               |
| <b>Module</b>            |  |                       |             |                  |
| $T_{stg}$                |  |                       | -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             |
| <b>Diode</b>    |  |            |      |      |          |                  |
| $V_F$           | $T_j = 25\text{ °C}, I_F = 300\text{ A}$ |            |      | 1.45 | 1.60     | V                |
| $V_{F0}$        | $T_j = 130\text{ °C}$                    |            |      | 0.75 | 0.87     | V                |
| $r_F$           | $T_j = 130\text{ °C}$                    |            |      | 2.20 | 2.45     | mΩ               |
| $I_R$           | $T_j = 130\text{ °C}, V_{RRM}$           |            |      |      | 3        | mA               |
| $R_{th(j-c)}$   | cont.                                    | per chip   |      |      | 0.15     | K/W              |
|                 |  | per module |      |      | 0.075    | K/W              |
| $R_{th(j-c)}$   | sin. 180°                                | per chip   |      |      | 0.2      | K/W              |
|                 |  | per module |      |      | 0.1      | K/W              |
| <b>Module</b>   |  |            |      |      |          |                  |
| $R_{th(c-s)}$   | chip                                     |            |      | 0.09 |          | K/W              |
|                 | module                                   |            |      | 0.05 |          | 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 <sup>2</sup> |
| $w$             |  |            |      | 75   |          | g                |



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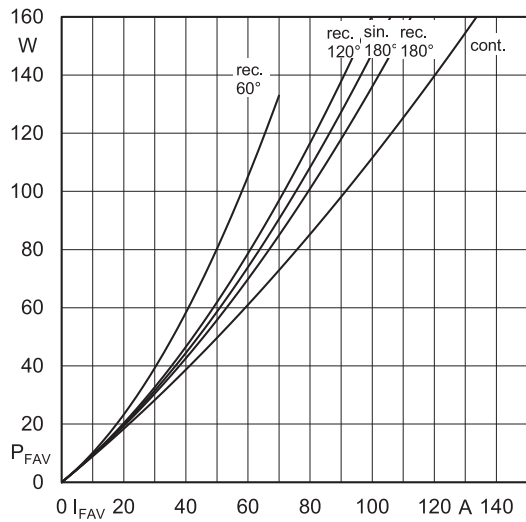


Fig. 11L: Power dissipation per diode vs. forward current

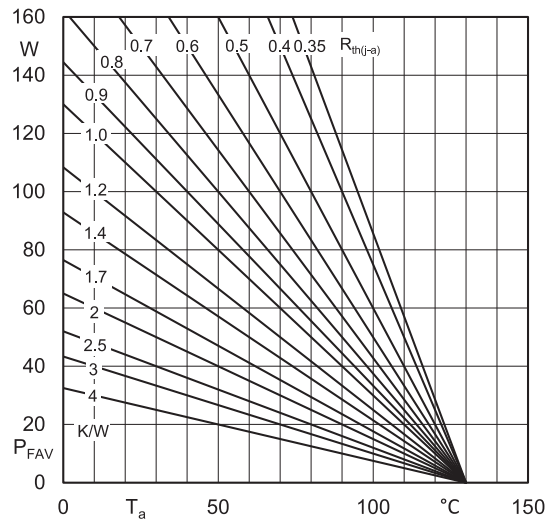


Fig. 11R: Power dissipation per diode vs. ambient temperature

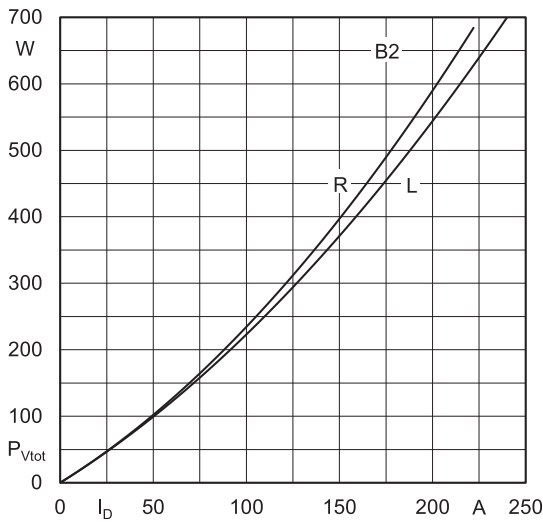


Fig. 12L: Power dissipation of two modules vs. direct current

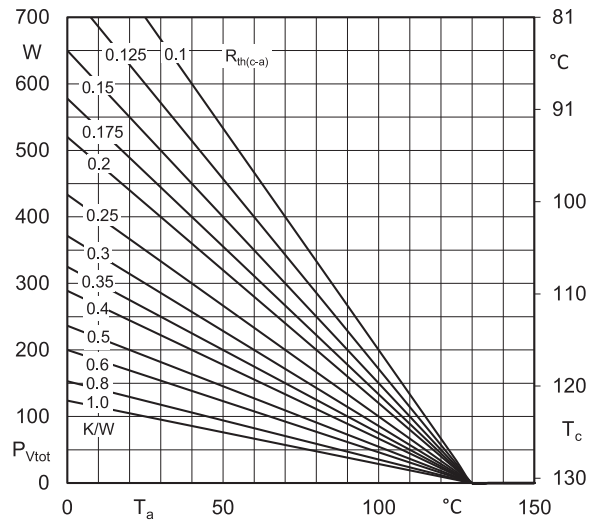


Fig. 12R: Power dissipation of two modules vs. case temperature

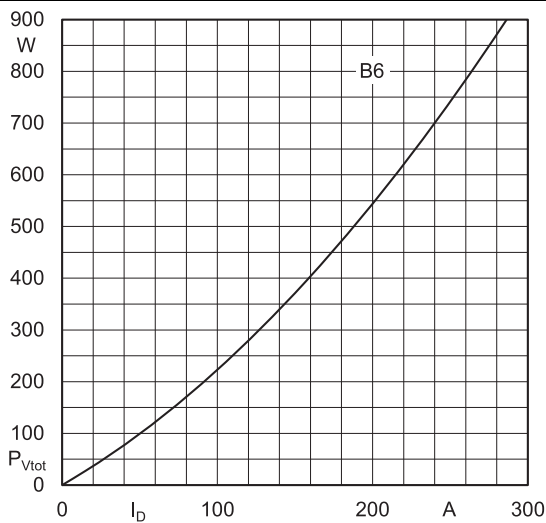


Fig. 13L: Power dissipation of three modules vs. direct current

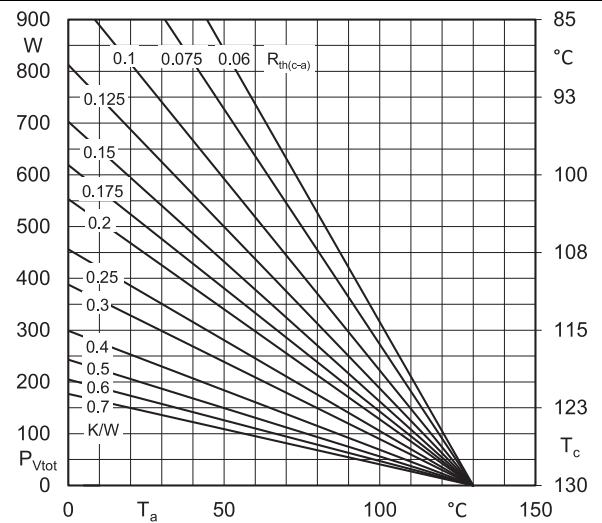


Fig. 13R: Power dissipation of three modules vs. case temperature

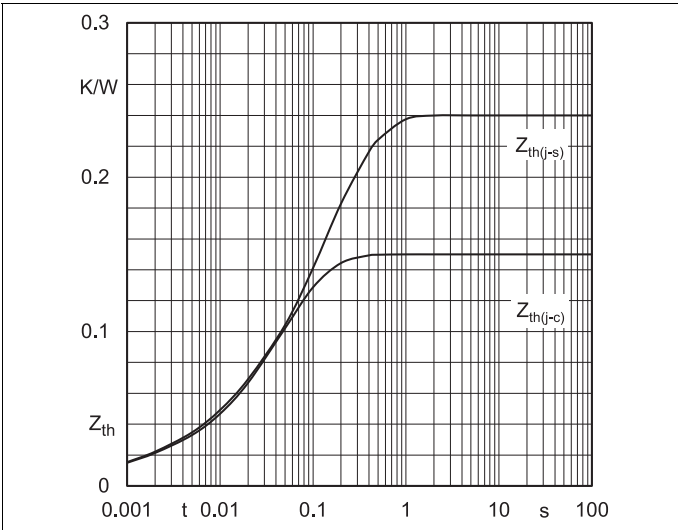


Fig. 14: Transient thermal impedance vs. time

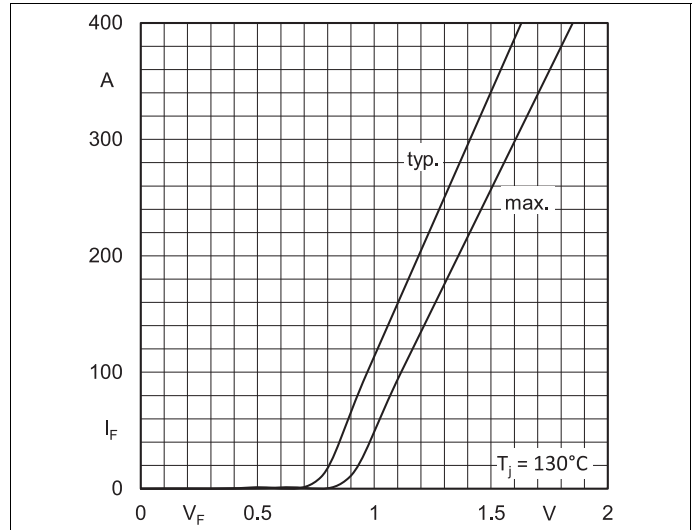


Fig. 15: Forward characteristics

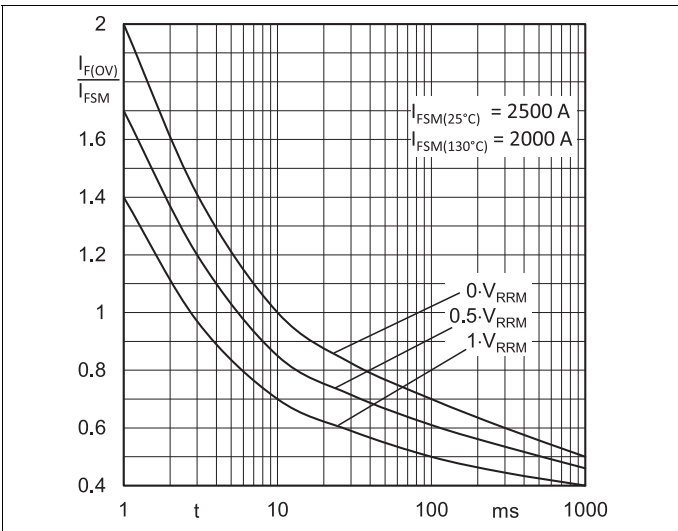
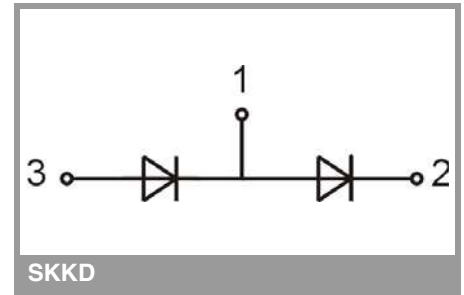
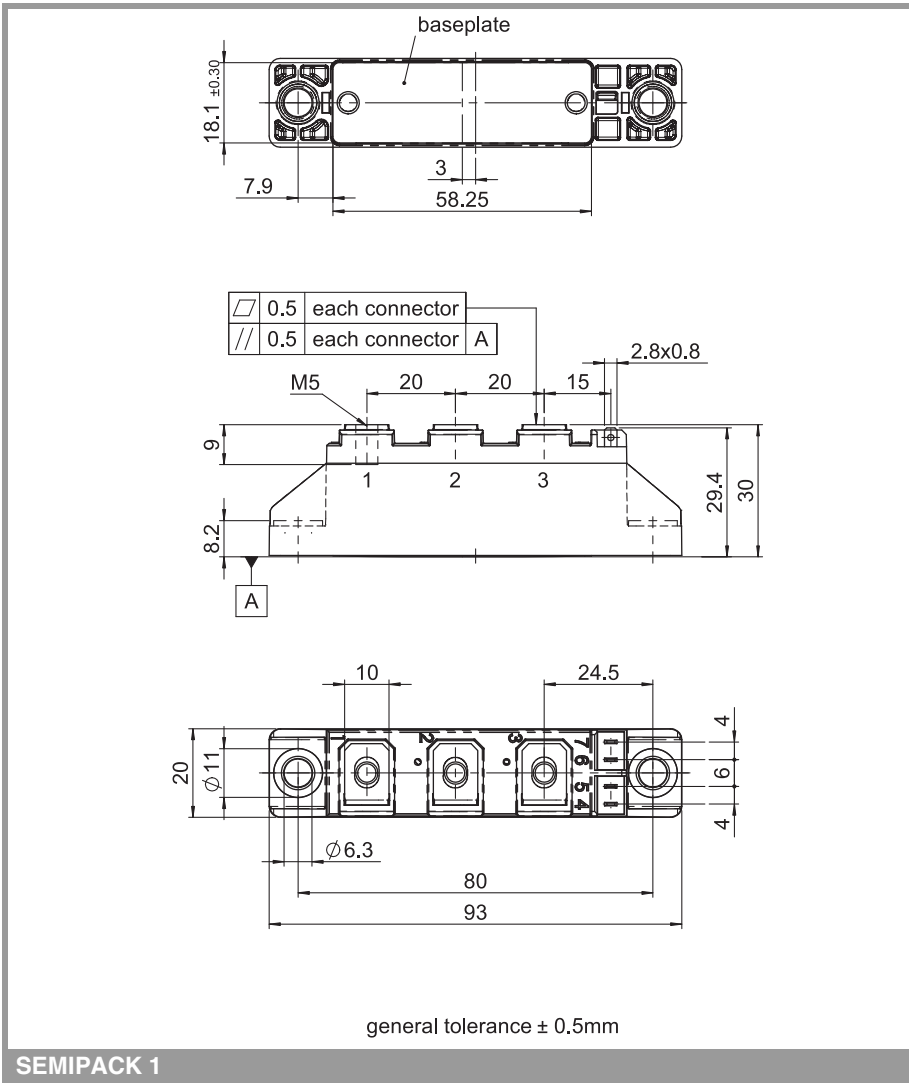


Fig. 16: Surge overload current vs. time



This is an electrostatic discharge sensitive device (ESDS) due to international standard IEC 61340.

### \*IMPORTANT INFORMATION AND WARNINGS

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