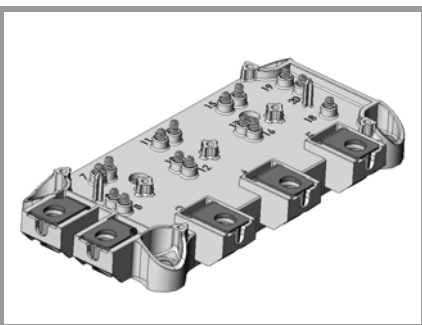


SEMiX251D12Fs



SEMiX[®] 13

Bridge Rectifier Module (uncontrolled) SEMiX251D12Fs

Features

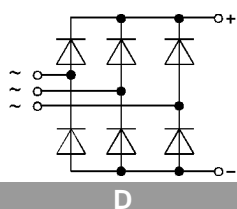
- Terminal height 17 mm
- Chips soldered directly to isolated substrate

Typical Applications*

- Fast Input Bridge Rectifier for AC/DC motor control
- Power supply
- High frequency applications

| Absolute Maximum Ratings | | | | |
|--------------------------|-----------------------|-----------------------|-------------|------------------|
| Symbol | Conditions | | Values | Unit |
| Rect. Diode | | | | |
| I_F | $T_j = 150\text{ °C}$ | $T_c = 85\text{ °C}$ | 250 | A |
| | | $T_c = 100\text{ °C}$ | 215 | A |
| I_{FSM} | 10 ms | $T_j = 25\text{ °C}$ | 1660 | A |
| | | $T_j = 150\text{ °C}$ | 1330 | A |
| i^2t | | $T_j = 25\text{ °C}$ | 13700 | A ² s |
| | | $T_j = 150\text{ °C}$ | 8800 | A ² s |
| V_{RSM} | | | 1200 | V |
| V_{RRM} | | | 1200 | V |
| T_j | | | -40 ... 150 | °C |
| Module | | | | |
| T_{stg} | | | -40 ... 125 | °C |
| V_{isol} | AC sinus 50Hz | 1 min | 4000 | V |
| | | 1 s | 4800 | V |

| Characteristics | | | | | | |
|------------------------|-----------------------|--------------------------------------|------|------|----------|------------------|
| Symbol | Conditions | | min. | typ. | max. | Unit |
| Rectifier Diode | | | | | | |
| V_F | $T_j = 25\text{ °C}$ | | | | 2.5 | V |
| $V_{(TO)}$ | $T_j = 150\text{ °C}$ | | | | 1.2 | V |
| r_T | $T_j = 150\text{ °C}$ | | | | 7 | mΩ |
| I_{RD} | $T_j = 150\text{ °C}$ | $V_{RD} = V_{RRM}; V_{RD} = V_{RRM}$ | | | 40 | mA |
| $R_{th(j-c)}$ | | per diode | | | 0.26 | K/W |
| | | | | | | K/W |
| Module | | | | | | |
| $R_{th(c-s)}$ | per chip | | | | | K/W |
| | per module | | | 0.04 | | K/W |
| M_s | to heat sink (M5) | | 3 | | 5 | Nm |
| M_t | to terminals (M6) | | 2.5 | | 5 | Nm |
| a | | | | | 5 * 9,81 | m/s ² |
| w | | | | 350 | | g |



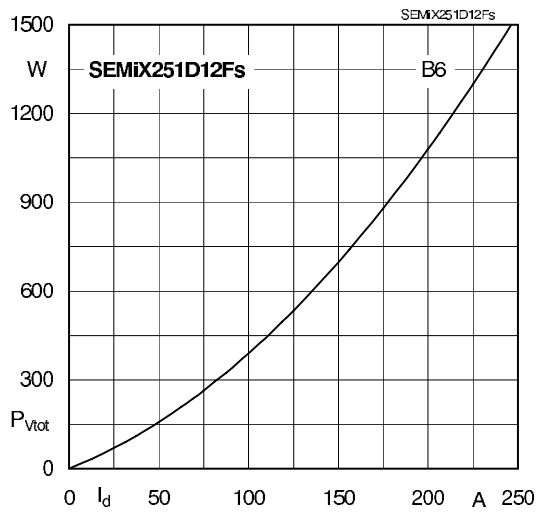


Fig. 4L: Power dissipation per module vs. direct current

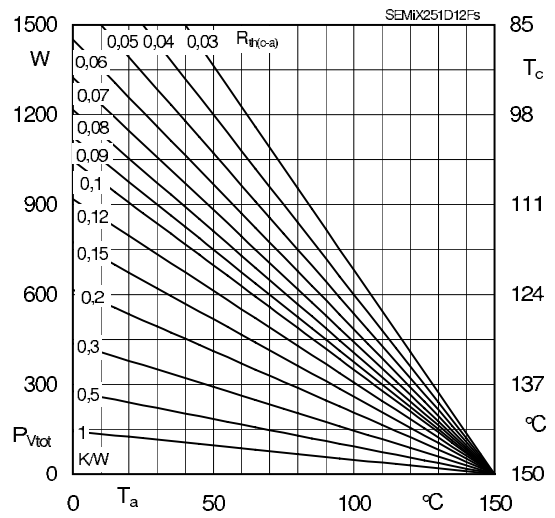


Fig. 4R: Power dissipation per module vs. case temperature

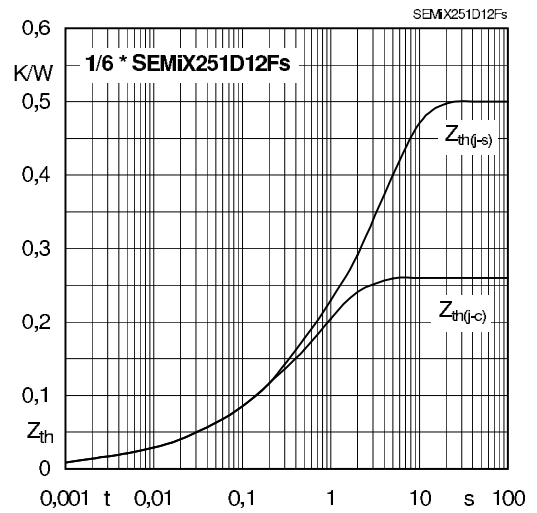


Fig. 6: Transient thermal impedance vs. time

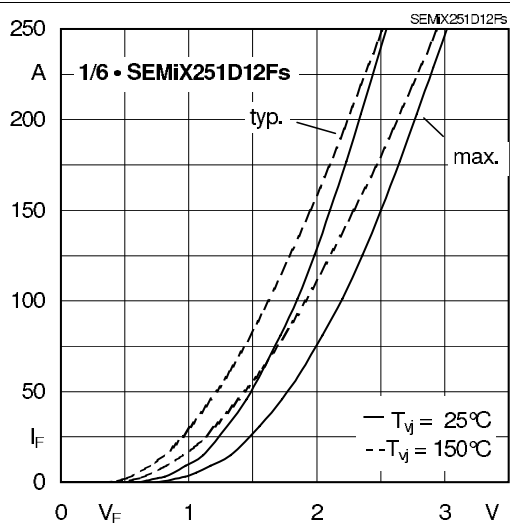


Fig. 7: On-state characteristics

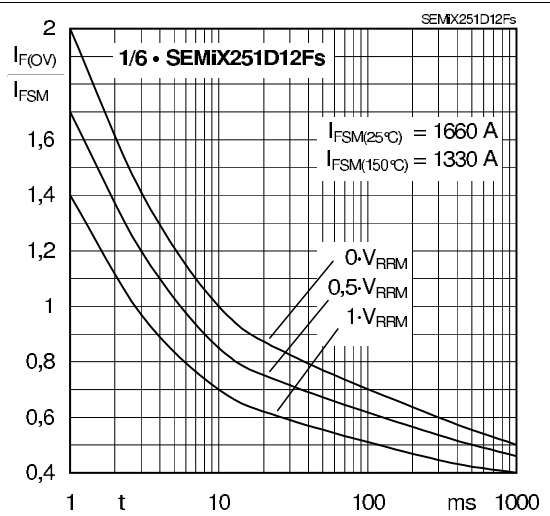
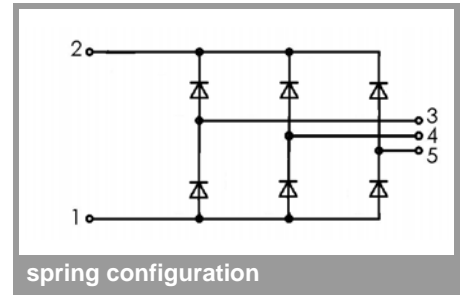
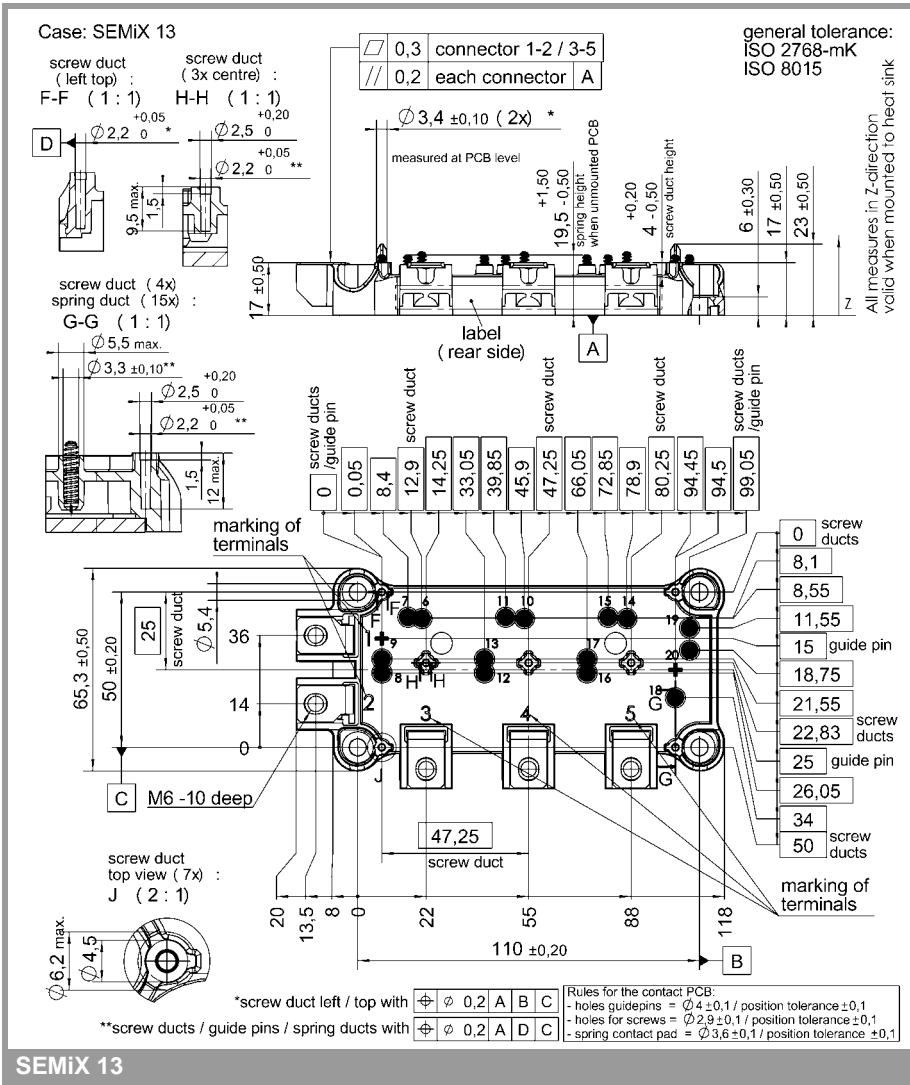


Fig. 8: Surge overload current vs. time

SEMiX251D12Fs



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 personal.