

SEMiSTART

Antiparallel thyristors for softstart

SKKQ 1500

Features

- Compact design
- Thyristor with amplifying gate
- Pressure contact technology

Typical Applications*

- Soft Starters

Remarks

- Please note: This module has no soft mold protection around the chip. It is therefore susceptible to environmental influences (dust, humidity, etc.). The humidity test according to IEC60068-2-67 is not passed by this product.
- Recommendation: The devices should be installed in control cabinets of IP54 degree of protection.

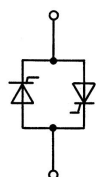
1) T_{vjmax} up to 150°C is allowable for overload conditions, max. time period for the overload condition is 20s.

Absolute Maximum Ratings

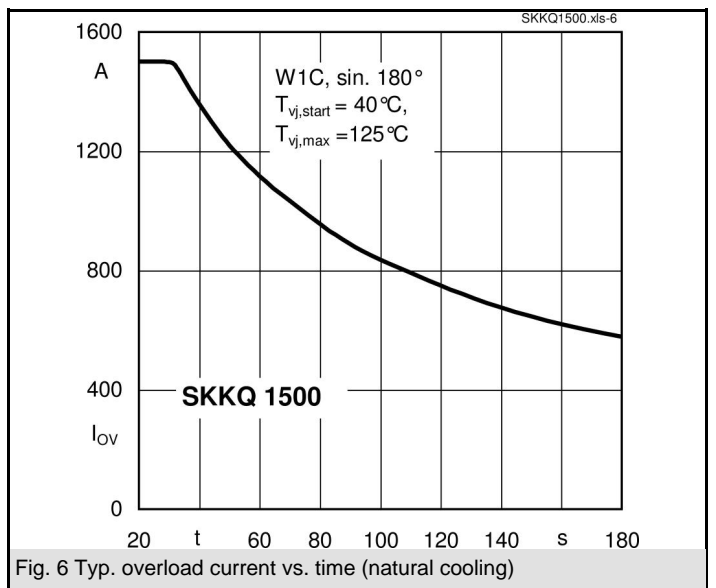
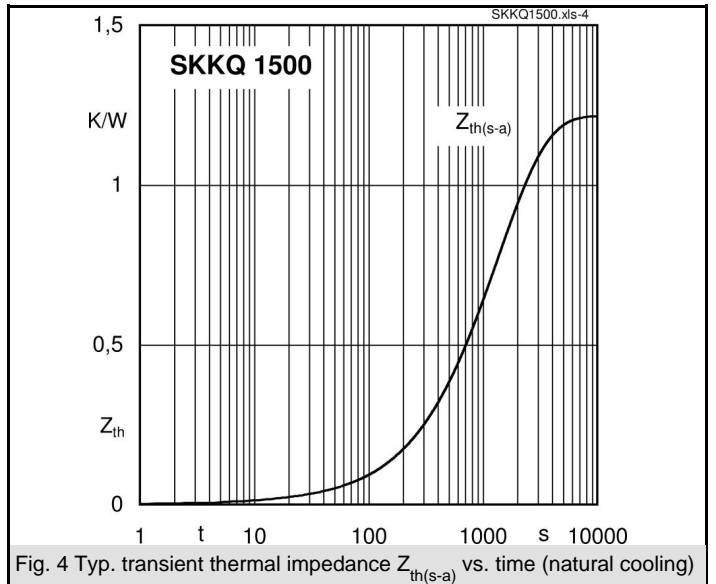
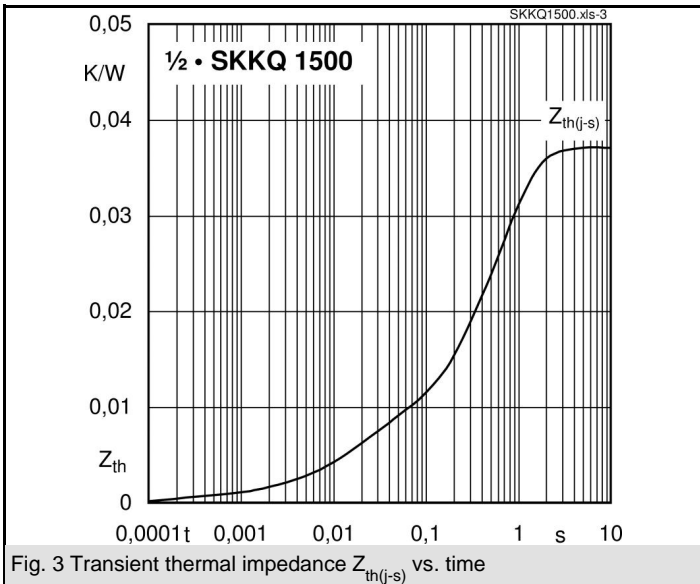
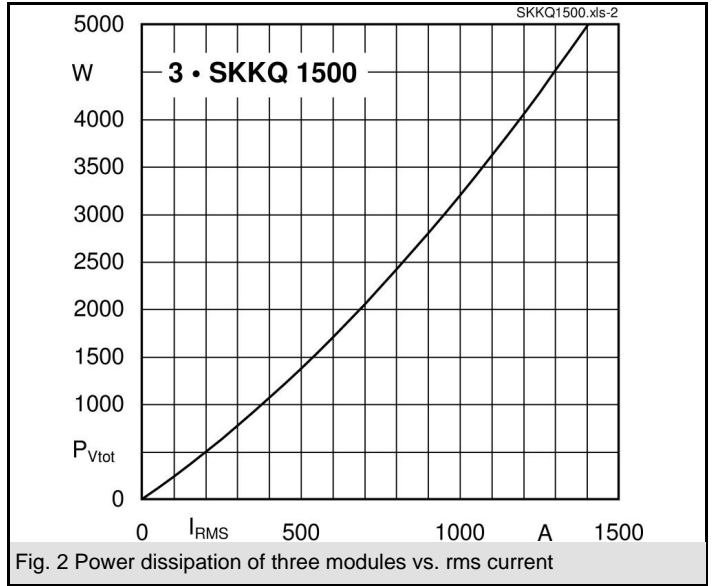
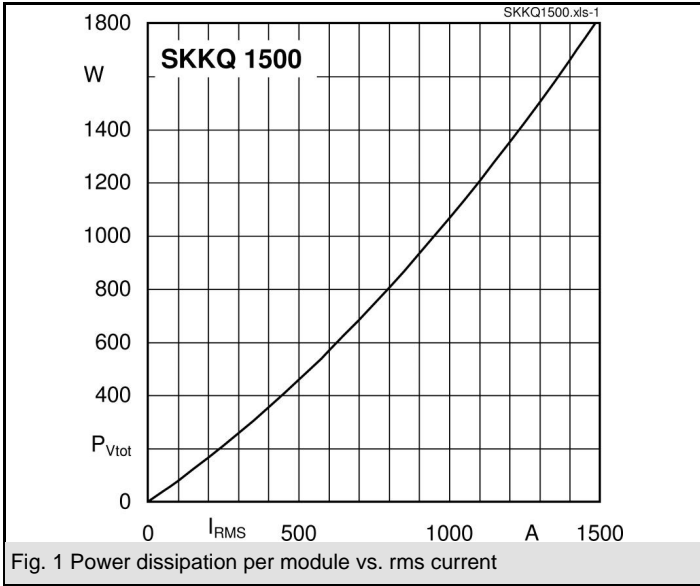
| Symbol | Conditions | Values | Units |
|--------------------|---|----------------------------|------------------|
| $I_{overload}$ | W1C; sin. 180°; 20 sec.; $T_{vjmax} = 150\text{ °C}$; $T_{vjstart} = 40\text{ °C}$ | 1500 | A |
| I_{TSM} | $T_{vj} = 25\text{ °C}$; 10 ms | 17000 | A |
| | $T_{vj} = 125\text{ °C}$; 10 ms | 15000 | A |
| I^2t | $T_{vj} = 25\text{ °C}$; 8,3 ... 10 ms | 1445000 | A ² s |
| | $T_{vj} = 125\text{ °C}$; 8,3 ... 10 ms | 1125000 | A ² s |
| SKKQ 1500/14 | | | |
| V_{RSM} | | 1500 | V |
| $V_{RRM}; V_{DRM}$ | | 1400 | V |
| SKKQ 1500/18 | | | |
| V_{RSM} | | 1900 | V |
| $V_{RRM}; V_{DRM}$ | | 1800 | V |
| T_{vj} | | -40 ... +125 ¹⁾ | °C |
| T_{stg} | | -40 ... +125 | °C |

Characteristics

| Symbol | Conditions | min. | typ. | max. | Units |
|------------------|---|------|---------|-------|-------|
| V_T | $T_{vj} = 25\text{ °C}$; $I_T = 1700\text{ A}$ | | | 1,5 | V |
| $V_{T(TO)}$ | $T_{vj} = 125\text{ °C}$ | | | 0,85 | V |
| r_T | $T_{vj} = 125\text{ °C}$ | | | 0,3 | mΩ |
| $I_{DD}; I_{RD}$ | $T_{vj} = 125\text{ °C}$; $V_{RD} = V_{RRM}$; per module | | | 190 | mA |
| t_{gd} | $T_{vj} = 25\text{ °C}$; $I_G = 1\text{ A}$; $di_G/dt = 1\text{ A}/\mu\text{s}$ | | 1 | | μs |
| t_{gr} | $V_D = 0,67 * V_{DRM}$ | | 2 | | μs |
| $(dv/dt)_{cr}$ | $T_{vj} = 125\text{ °C}$ | | 1000 | | V/μs |
| $(di/dt)_{cr}$ | $T_{vj} = 125\text{ °C}$; $f = 50 \dots 60\text{ Hz}$ | | 200 | | A/μs |
| t_q | $T_{vj} = 125\text{ °C}$ | | 200 | | μs |
| I_H | $T_{vj} = 25\text{ °C}$ | | 150 | 500 | mA |
| I_L | $T_{vj} = 25\text{ °C}$; $R_G = 33\text{ Ω}$ | | 300 | 2000 | mA |
| V_{GT} | $T_{vj} = 25\text{ °C}$; d.c. | 3 | | | V |
| I_{GT} | $T_{vj} = 25\text{ °C}$; d.c. | 200 | | | mA |
| V_{GD} | $T_{vj} = 125\text{ °C}$; d.c. | | | 0,25 | V |
| I_{GD} | $T_{vj} = 125\text{ °C}$; d.c. | | | 10 | mA |
| $R_{th(j-s)}$ | cont.; per thyristor | | | 0,037 | K/W |
| M_t | | | 5 ± 15% | | Nm |
| m | approx. | | 1200 | | g |
| Case | | | C 12 | | |



W1C



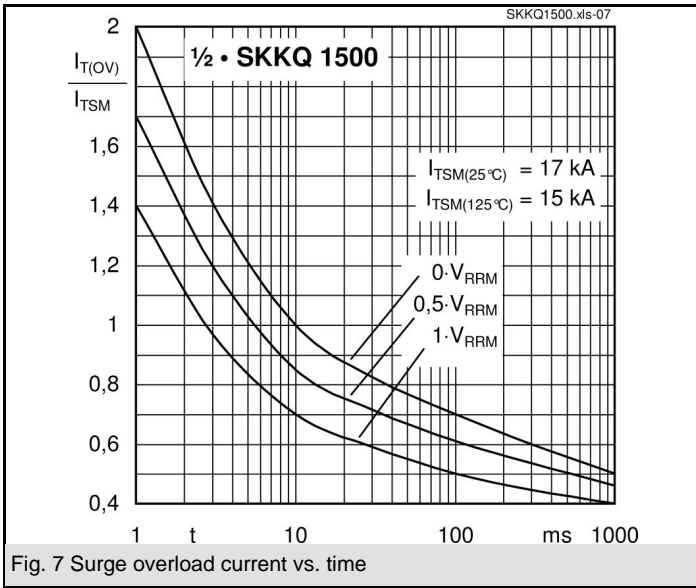


Fig. 7 Surge overload current vs. time

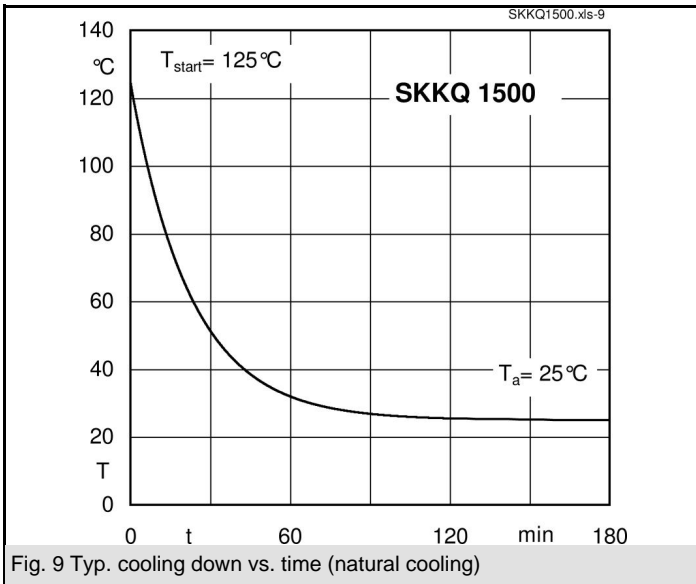
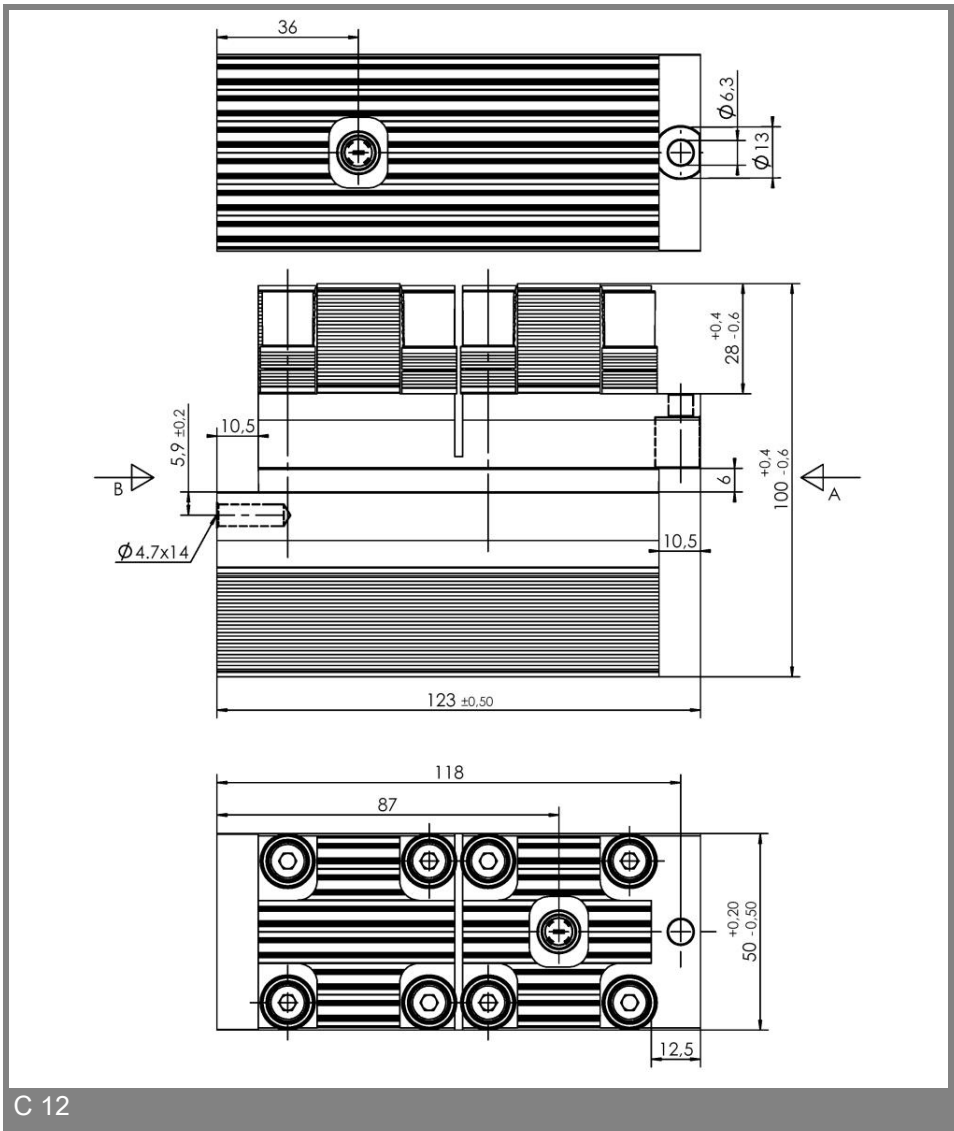
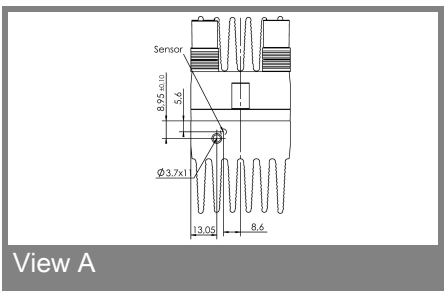


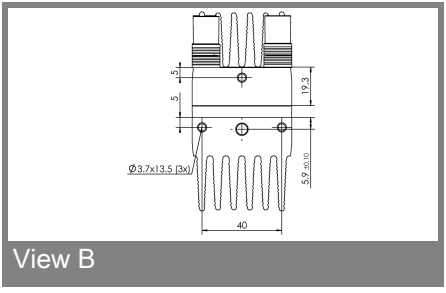
Fig. 9 Typ. cooling down vs. time (natural cooling)



C 12



View A



View B

* 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.