SKKQ 1500/14E

SEMiSTART

Antiparallel thyristors for softstart

SKKQ 1500/14E

Features

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

Typical Applications*

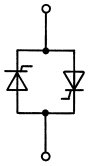
- Soft starters

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.

Footnotes

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



W1C

Absolute Maximum Ratings

Symbol	Conditions		Values	Unit
Module				
$I_{overload}$	W1C, sin. 180°, 20 s, T_{jmax} = 150 °C, T_{jstart} = 40 °C		1500	A
I_{TSM}	10 ms	T_j = 25 °C	17000	A
		T_j = 125 °C	15000	A
i^2t	10 ms	T_j = 25 °C	1445000	A^2s
		T_j = 125 °C	1125000	A^2s
V_{RSM}			1500	V
V_{RRM} V_{DRM}			1400	V
T_j	[1]		-40 ... + 125	°C
T_{stg}			-40 ... + 125	°C

Characteristics

Symbol	Conditions	min.	typ.	max.	Unit
V_T	T_j = 25 °C, I_T = 1700 A			1.5	V
$V_{T(TO)}$	T_j = 125 °C			0.85	V
r_T	T_j = 125 °C			0.3	mΩ
I_{DD};I_{RD}	T_j = 125 °C, V_{RD}=V_{RRM}, per module			190	mA
t_{gd}	T_j = 25 °C, I_G = 1 A, di_G/dt = 1 A/µs		1		µs
t_{gr}	V_D = 0.67 * V_{DRM}		2		µs
$(dv/dt)_{cr}$	T_j = 125 °C		1000		V/µs
$(di/dt)_{cr}$	T_j = 125 °C, f = 50 ... 60 Hz		200		A/µs
t_q	T_j = 125 °C		200		µs
I_H	T_j = 25 °C		150	500	mA
I_L	T_j = 25 °C, R_G = 33 Ω		300	2000	mA
V_{GT}	T_j = 25 °C, d.c.	3			V
I_{GT}	T_j = 25 °C, d.c.	200			mA
V_{GD}	T_j = 125 °C, d.c.			0.25	V
I_{GD}	T_j = 125 °C, d.c.			10	mA
$R_{th(j-r)}$	continuous DC, per thyristor			0.037	K/W
M_t	to terminals	4.25		5.75	Nm
m	approx.		1200		g
Case			2		

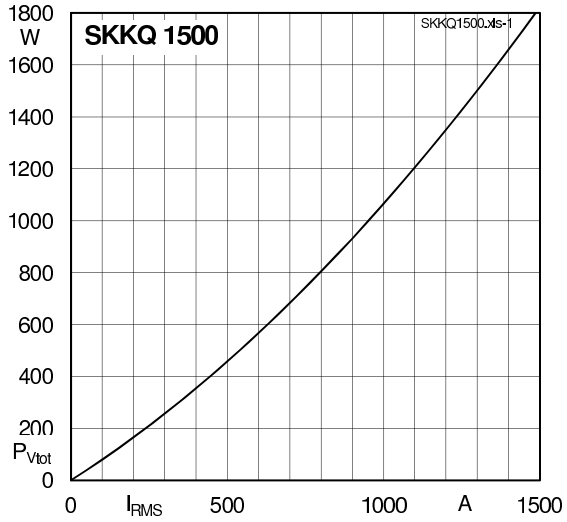


Fig. 1: Power dissipation per module vs. rms current

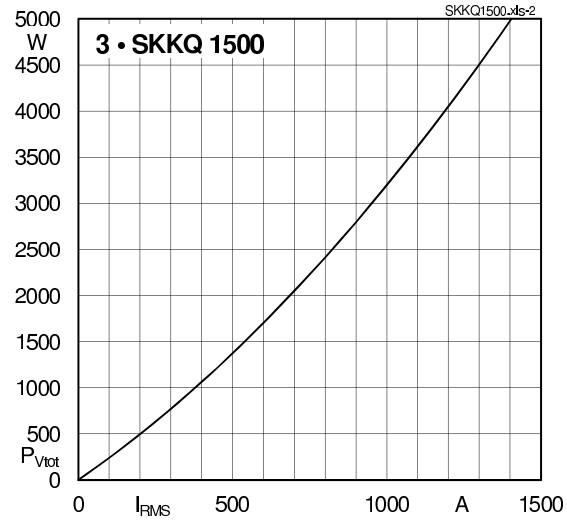


Fig. 2: Power dissipation of three modules vs. rms current

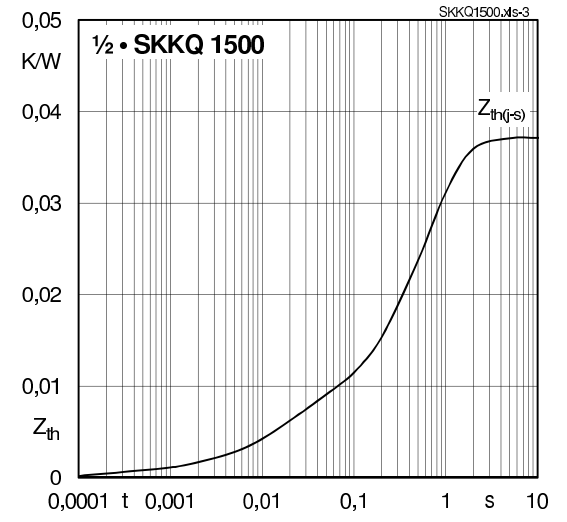


Fig. 3: Transient thermal impedance $Z_{th(j-r)}$ vs. time

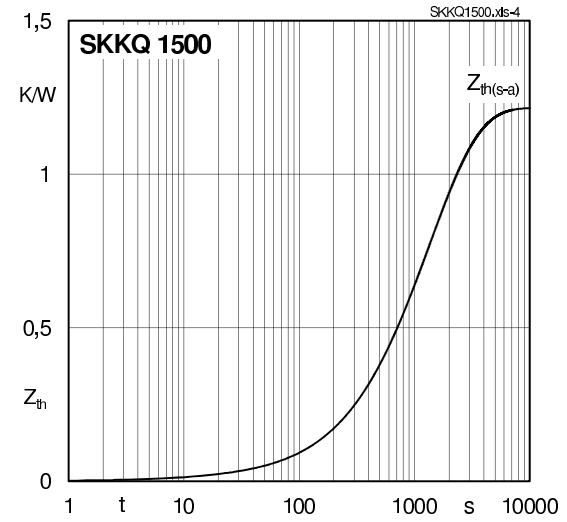


Fig. 4: Typ. transient thermal impedance $Z_{th(s-a)}$ vs. time (natural cooling)

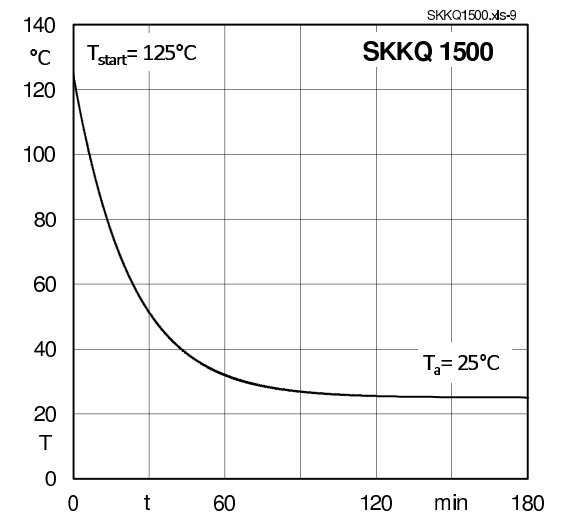


Fig. 5: Typ. cooling down vs. time (natural cooling)

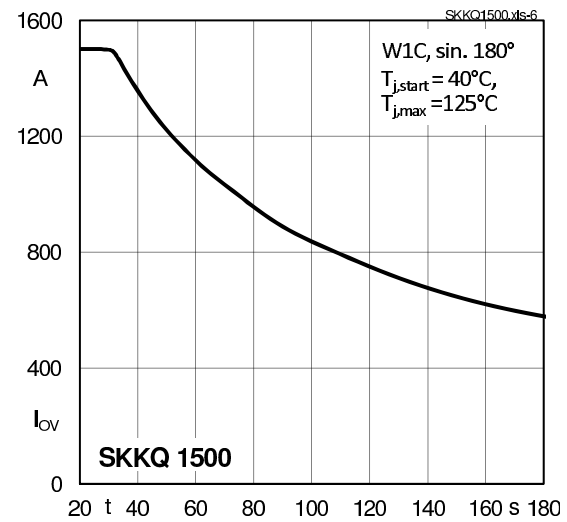


Fig. 6: Typ. overload current vs. time (natural cooling)

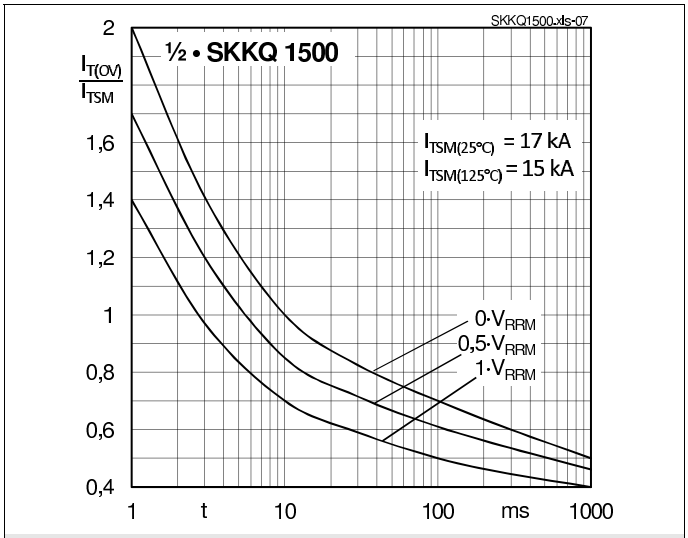


Fig. 7: Surge overload current vs. time

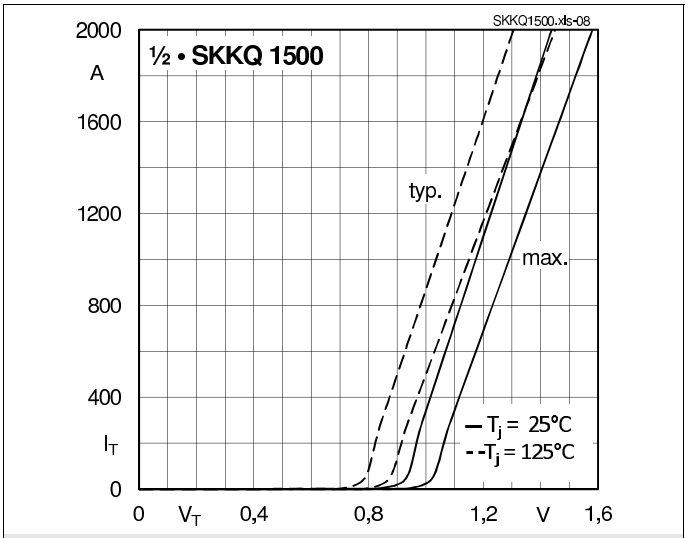


Fig. 8: On state characteristics

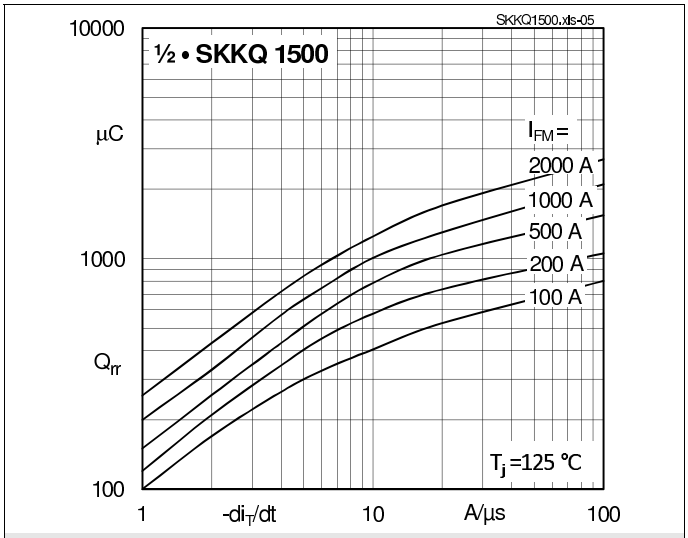


Fig. 9: Recovery charge vs. current decrease

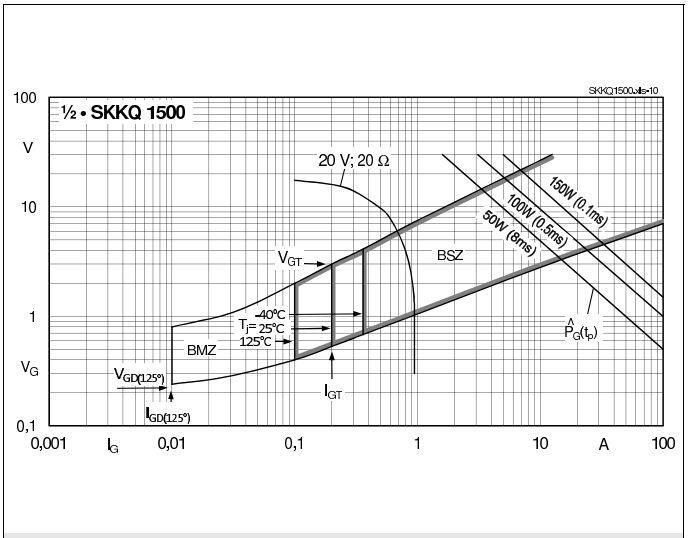


Fig. 10: Gate trigger characteristic

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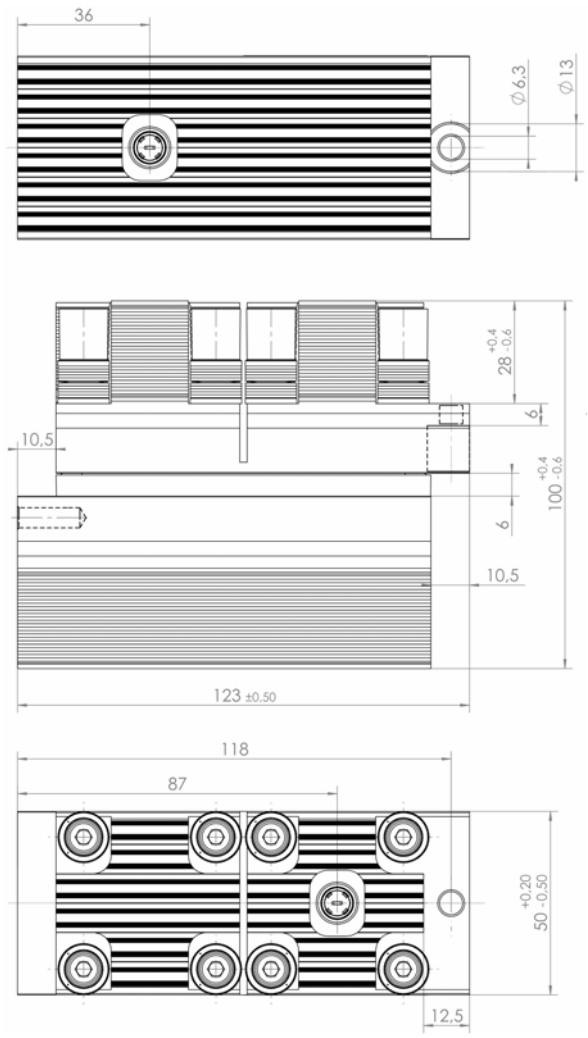
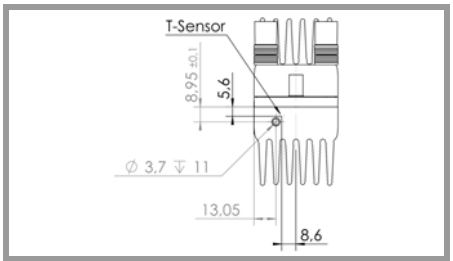
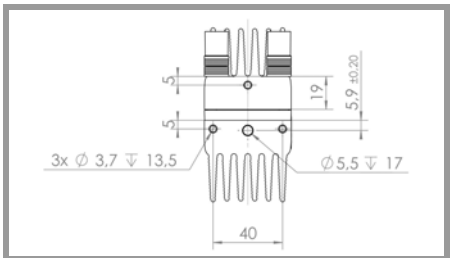


SEMiSTART 2



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 staff.