

SEMiSTART

Antiparallel thyristors for softstart

SKKQ 560

Preliminary Data

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.

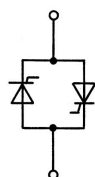
1) T_{vjmax} up to 150°C is allowable for overload conditions, max. time period for the overload condition is 20s.

Absolute Maximum Ratings

Symbol	Conditions	Values	Units
$I_{overload}$	W1C; sin. 180°; 20 sec.; $T_{vjmax} = 150\text{ °C}$; $T_{vjstart} = 40\text{ °C}$	560	A
I_{TSM}	$T_{vj} = 25\text{ °C}$; 10 ms	5700	A
	$T_{vj} = 125\text{ °C}$; 10 ms	5200	A
I^2t	$T_{vj} = 25\text{ °C}$; 8,3 ... 10 ms	162000	A ² s
	$T_{vj} = 125\text{ °C}$; 8,3 ... 10 ms	135000	A ² s
SKKQ 560/14			
V_{RSM}		1500	V
$V_{RRM}; V_{DRM}$		1400	V
SKKQ 560/18			
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	$T_{vj} = 25\text{ °C}$; $I_T = 1000\text{ A}$			1,9	V
$V_{T(TO)}$	$T_{vj} = 125\text{ °C}$			0,9	V
r_T	$T_{vj} = 125\text{ °C}$			0,9	mΩ
$I_{DD}; I_{RD}$	$T_{vj} = 125\text{ °C}$; $V_{RD} = V_{RRM}$; per module			60	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
$(di/dt)_{cr}$	$T_{vj} = 125\text{ °C}$; $f = 50 \dots 60\text{ Hz}$		125		A/μs
t_q	$T_{vj} = 125\text{ °C}$		150		μs
I_H	$T_{vj} = 25\text{ °C}$		150	400	mA
I_L	$T_{vj} = 25\text{ °C}$; $R_G = 33\text{ Ω}$		300	1000	mA
V_{GT}	$T_{vj} = 25\text{ °C}$; d.c.	2			V
I_{GT}	$T_{vj} = 25\text{ °C}$; d.c.	150			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			0,106	K/W
M_t			5 ± 15%		Nm
m			530		g
Case			C 11		



W1C

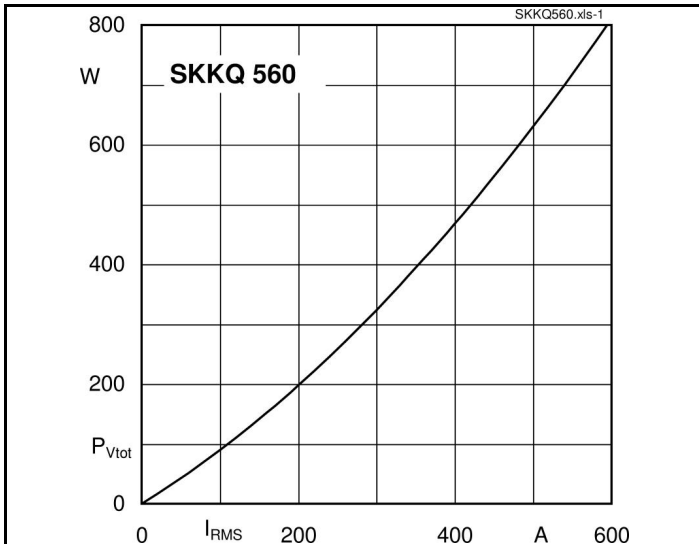


Fig. 1 Power dissipation per module vs. rms current

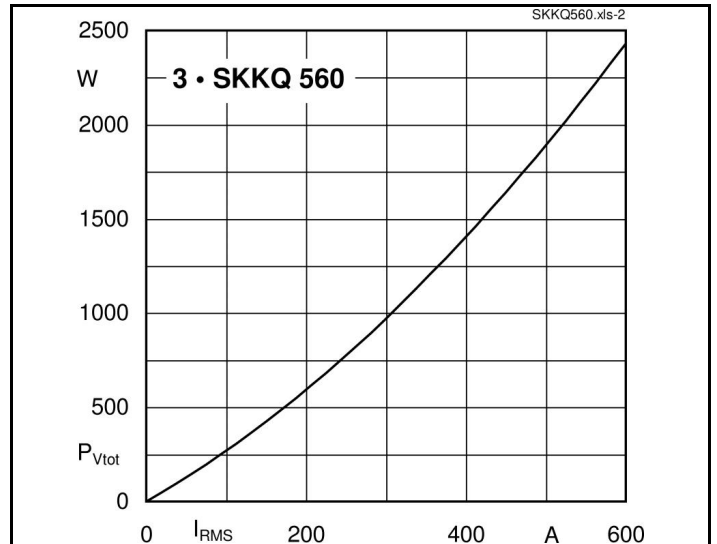


Fig. 2 Power dissipation of three modules vs. rms current

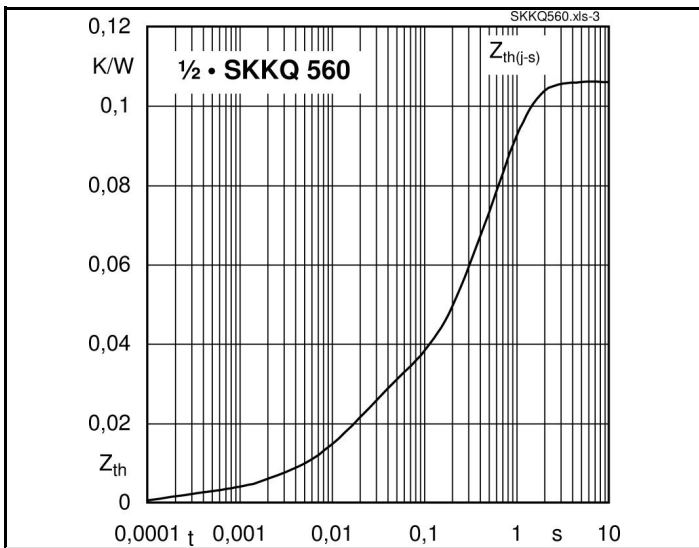


Fig. 3 Transient thermal impedance $Z_{th(j-s)}$ vs. time

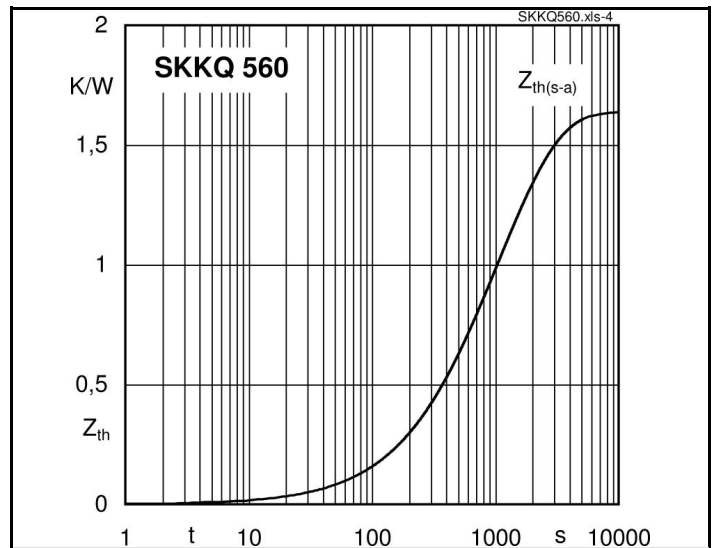


Fig. 4 Typ. transient thermal impedance $Z_{th(s-a)}$ vs. time (natural cooling)

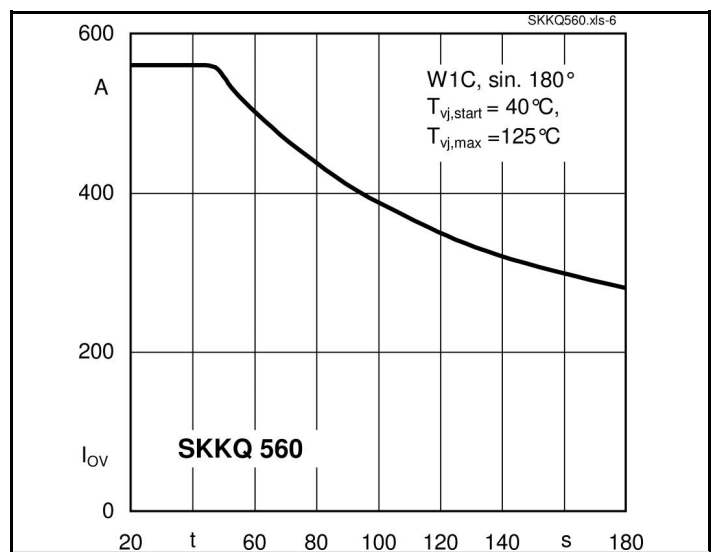
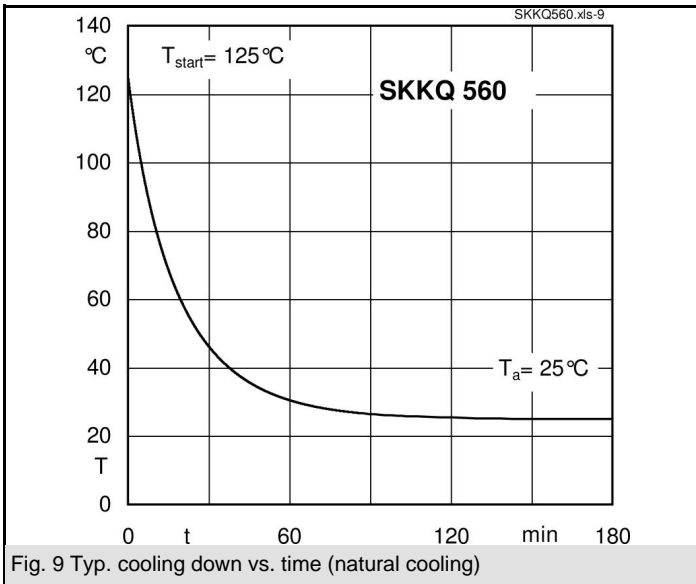
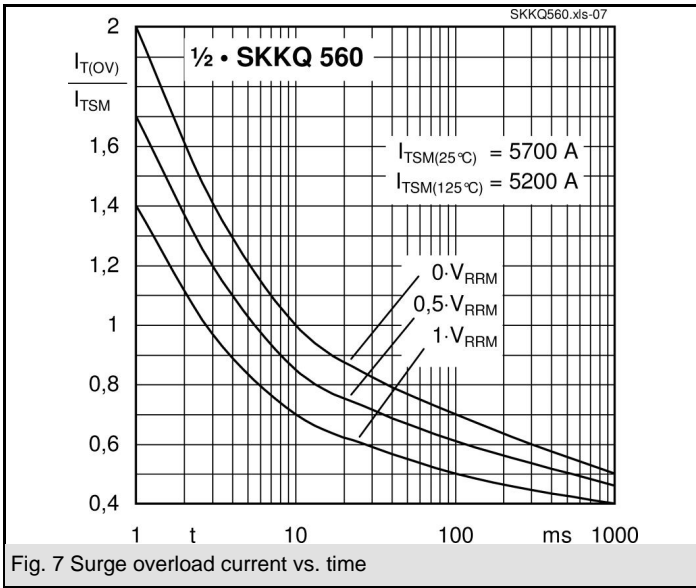
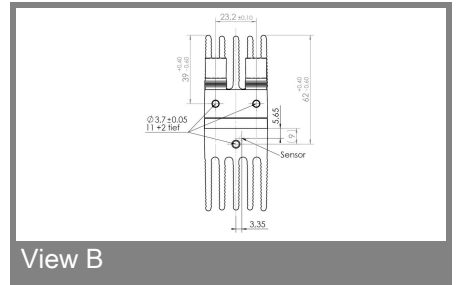
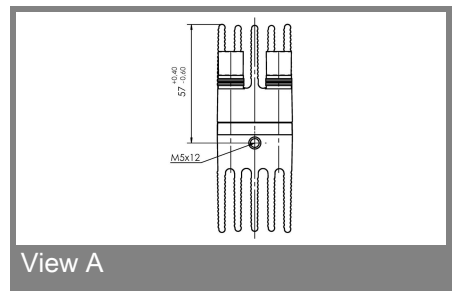
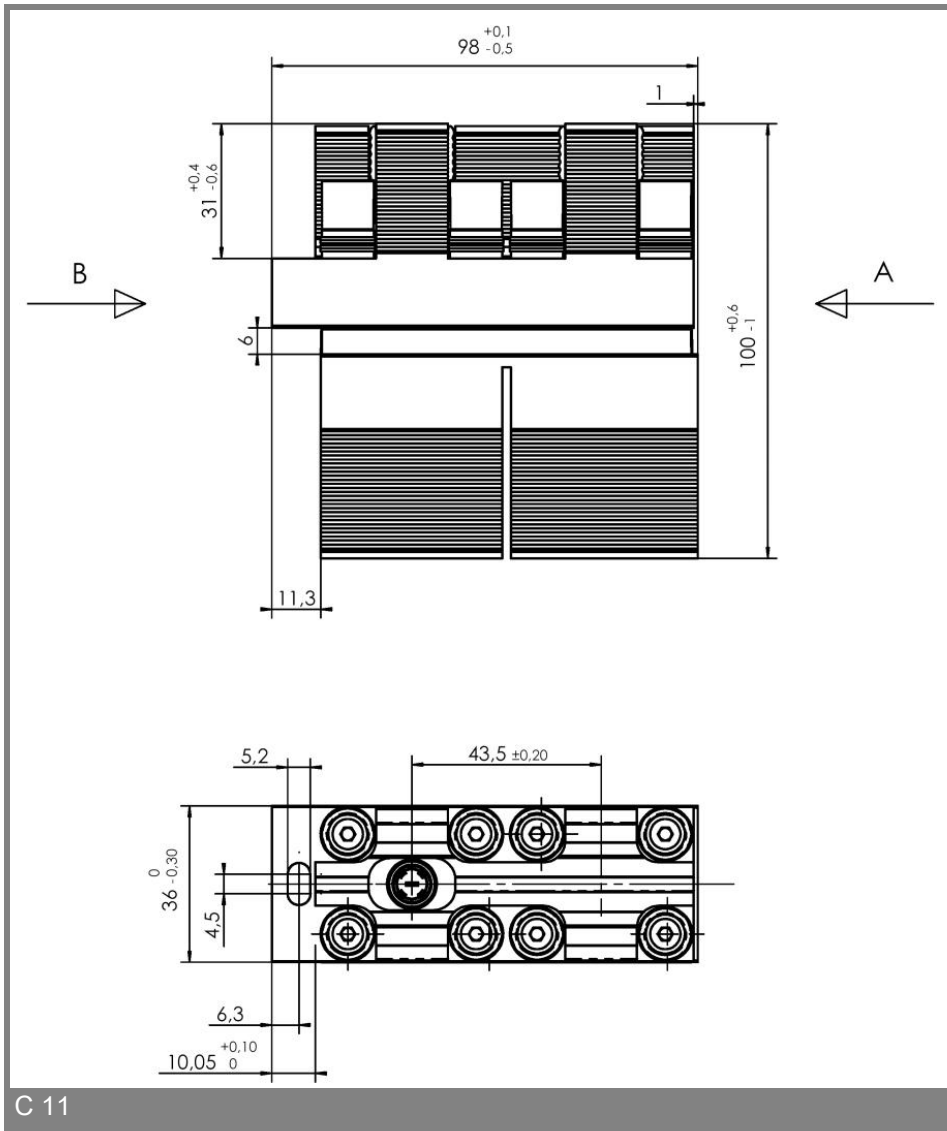


Fig. 6 Typ. overload current vs. time (natural cooling)





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