

SEMITOP® 1

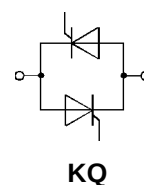
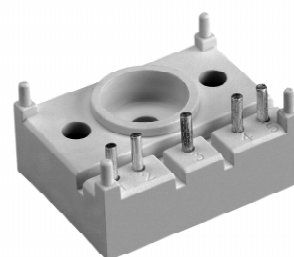
Antiparallel Thyristor Module

for a.c. controllers

SK 45 KQ

SK 70 KQ

Preliminary Data



Features

- Compact design
- One screw mounting
- Heat transfer and isolation through direct copper bonded aluminium oxide ceramic (DCB)
- Glass passivated thyristor chips
- Up to 1600 V reverse voltage

Typical Applications

- Soft starters
- Light control (studios, theaters)
- Temperature control

¹⁾ Thermal resistance junction to heatsink

V_{RSM}	V_{RRM} V_{DRM}	I_{RMS} (maximum values for continuous operation) ($T_h = 85^\circ C$)	
V	V	47 A	72 A
900	800	SK 45 KQ 08	SK 70 KQ 08
1300	1200	SK 45 KQ 12	SK 70 KQ 12
1700	1600	SK 45 KQ 16	SK 70 KQ 16

Symbol	Conditions	SK 45 KQ	SK 70 KQ	Units
I_{RMS}	W1C; $\sin 180^\circ$; $T_h = 100^\circ C$ $T_h = 85^\circ C$	33 47	50 72	A A
I_{TSM}	$T_{vj} = 25^\circ C$; 10 ms $T_{vj} = 125^\circ C$; 10 ms	450 380	1 000 900	A A
i^2t	$T_{vj} = 25^\circ C$; 8,3...10 ms $T_{vj} = 125^\circ C$; 8,3...10 ms	1 000 720	5 000 4 000	A ² s A ² s
t_{gd} t_{gr}	$T_{vj} = 25^\circ C$; $I_G = 1 A$; $di_G/dt = 1 A/\mu s$ $V_D = 0,67 V_{DRM}$	1 2		μs μs
$(dv/dt)_{cr}$ $(di/dt)_{cr}$	$T_{vj} = 125^\circ C$ $T_{vj} = 125^\circ C$; $f = 50...60 Hz$	1 000 50	1 000 50	V/ μs A/ μs
t_q	$T_{vj} = 125^\circ C$; typ.	80	80	μs
I_H	$T_{vj} = 25^\circ C$; typ. / max	80 / 150	100 / 200	mA
I_L	$T_{vj} = 25^\circ C$; $R_G = 33 \Omega$; typ. / max.	150 / 300	200 / 400	mA
V_T	$T_{vj} = 25^\circ C$; ($I_T = \dots$); max.	1,9 (75)	1,8 (120)	V A
$V_{T(TO)}$	$T_{vj} = 125^\circ C$	1	1	V
r_T	$T_{vj} = 125^\circ C$	10	6	m Ω
I_{DD} ; I_{RD}	$T_{vj} = 25^\circ C$ } $V_{DD} = V_{DRM}$ $T_{vj} = 125^\circ C$ } $V_{RD} = V_{RRM}$	0,5 10	0,5 15	mA mA
V_{GT}	$T_{vj} = 25^\circ C$; dc	2	2	V
I_{GT}	$T_{vj} = 25^\circ C$; dc	100	100	mA
V_{GD}	$T_{vj} = 125^\circ C$; dc	0,25	0,25	V
I_{GD}	$T_{vj} = 125^\circ C$; dc	3	5	mA
R_{thjh} ¹⁾	cont. per thyristor / per W1C $\sin 180^\circ$ per thyristor / per W1C	1,2 / 0,6 1,24 / 0,62	0,8 / 0,4 0,84 / 0,42	K/W K/W
T_{vj}		- 40 ... + 125		$^\circ C$
T_{stg}		- 40 ... + 125		$^\circ C$
T_{solder}	terminals, 10 s	260		$^\circ C$
V_{isol}	a.c. 50 Hz; r.m.s. 1 s/1 min	3000 / 2500		V~
M_1	mounting torque	1,5 13		Nm g
Case		T 1		

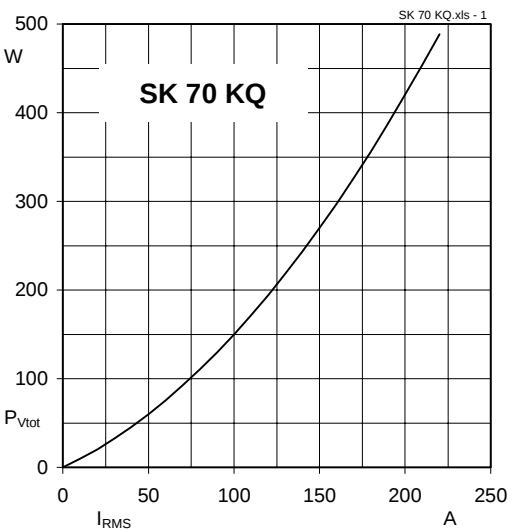
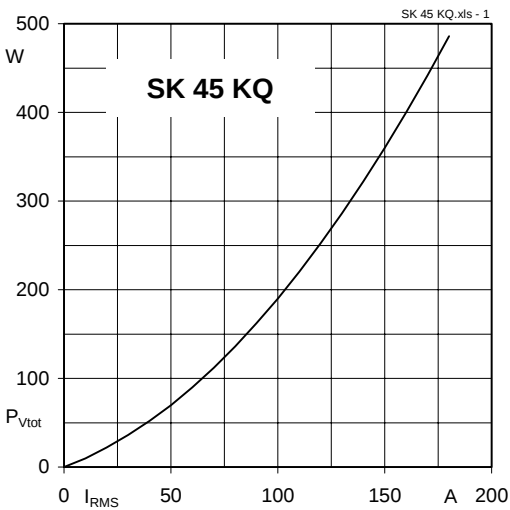


Fig. 1 Power dissipation per module vs. rms current

Fig. 1 Power dissipation per module vs. rms current

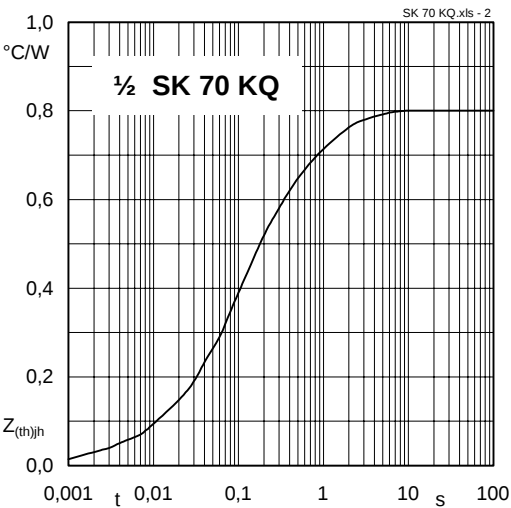
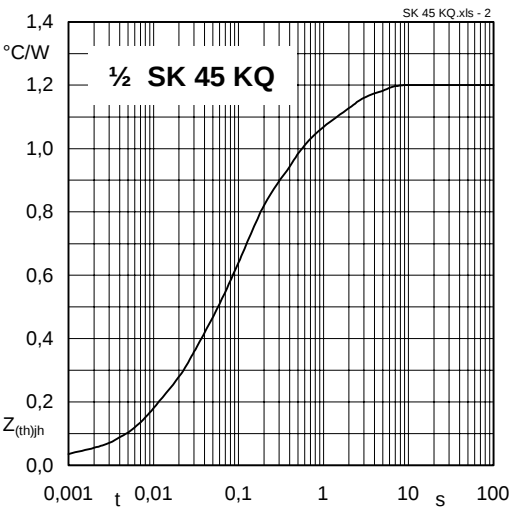


Fig. 2 Transient thermal impedance vs. time

Fig. 2 Transient thermal impedance vs. time

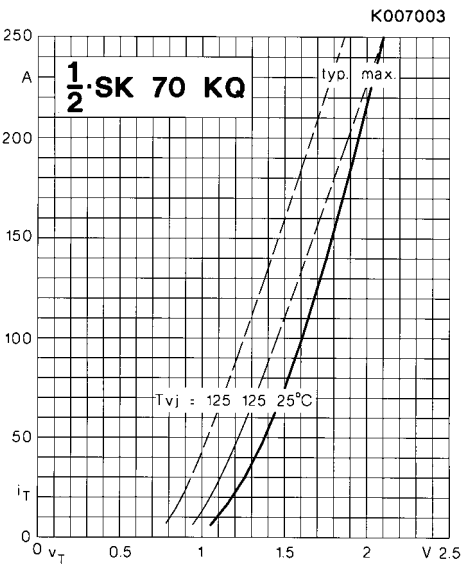
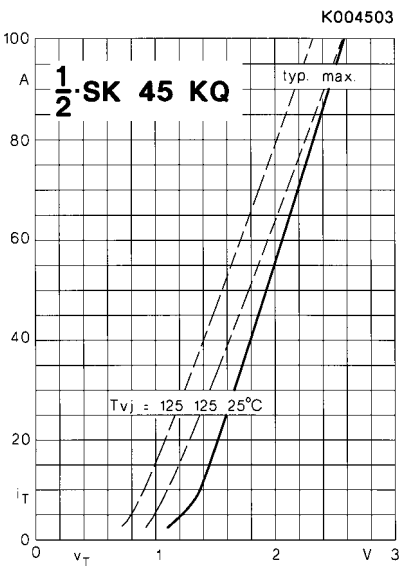


Fig. 3 On-state characteristics

Fig. 3 On-state characteristics

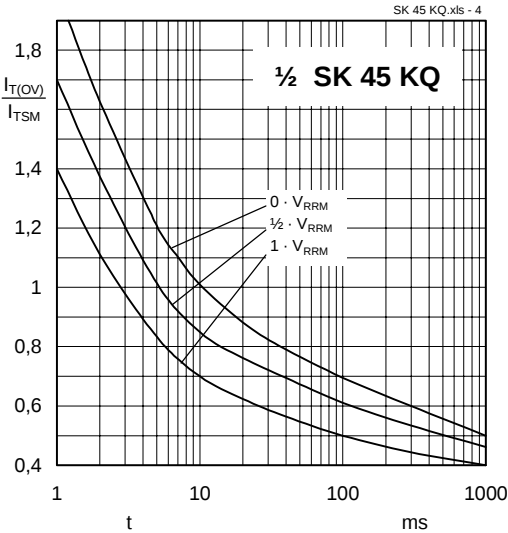


Fig. 4 Surge overload current vs. time

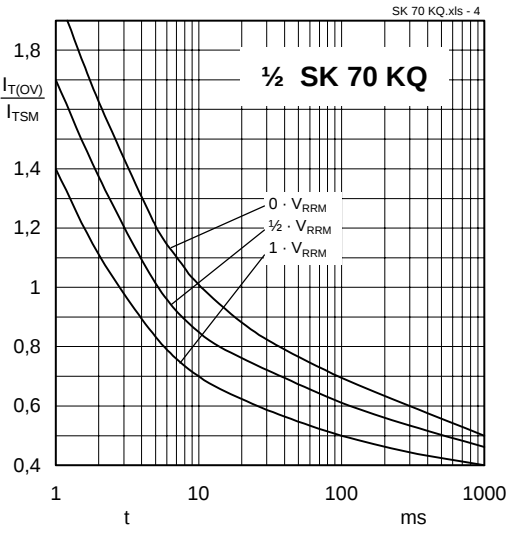


Fig. 4 Surge overload current vs. time

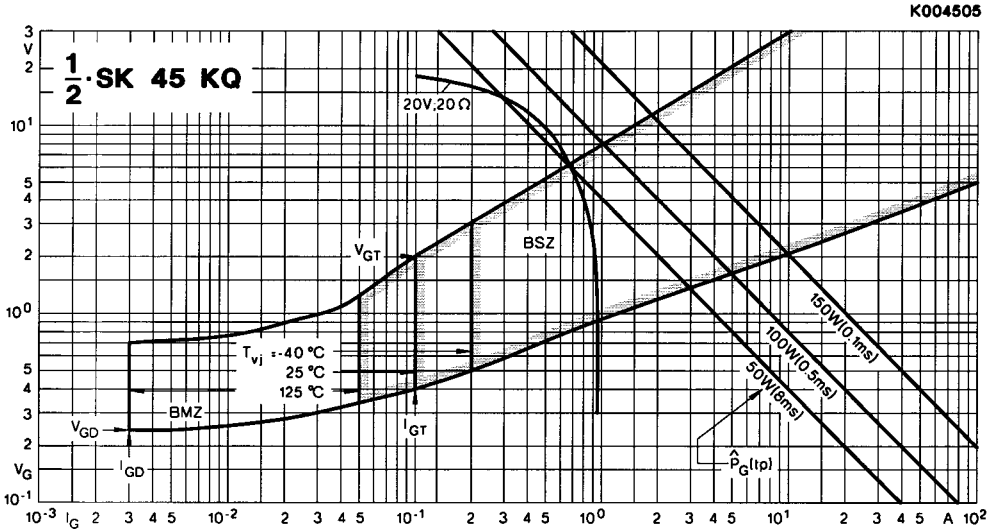


Fig. 5 Gate trigger characteristics

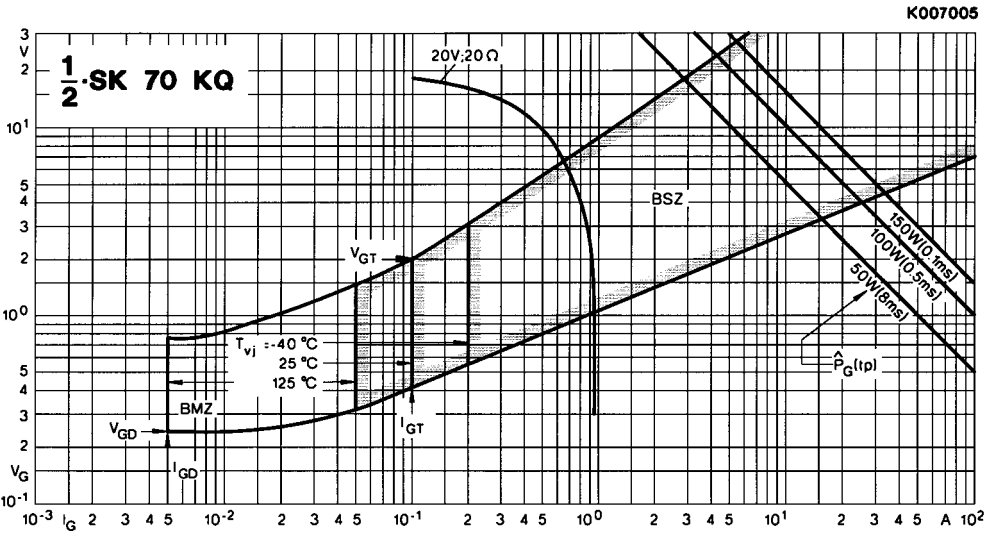
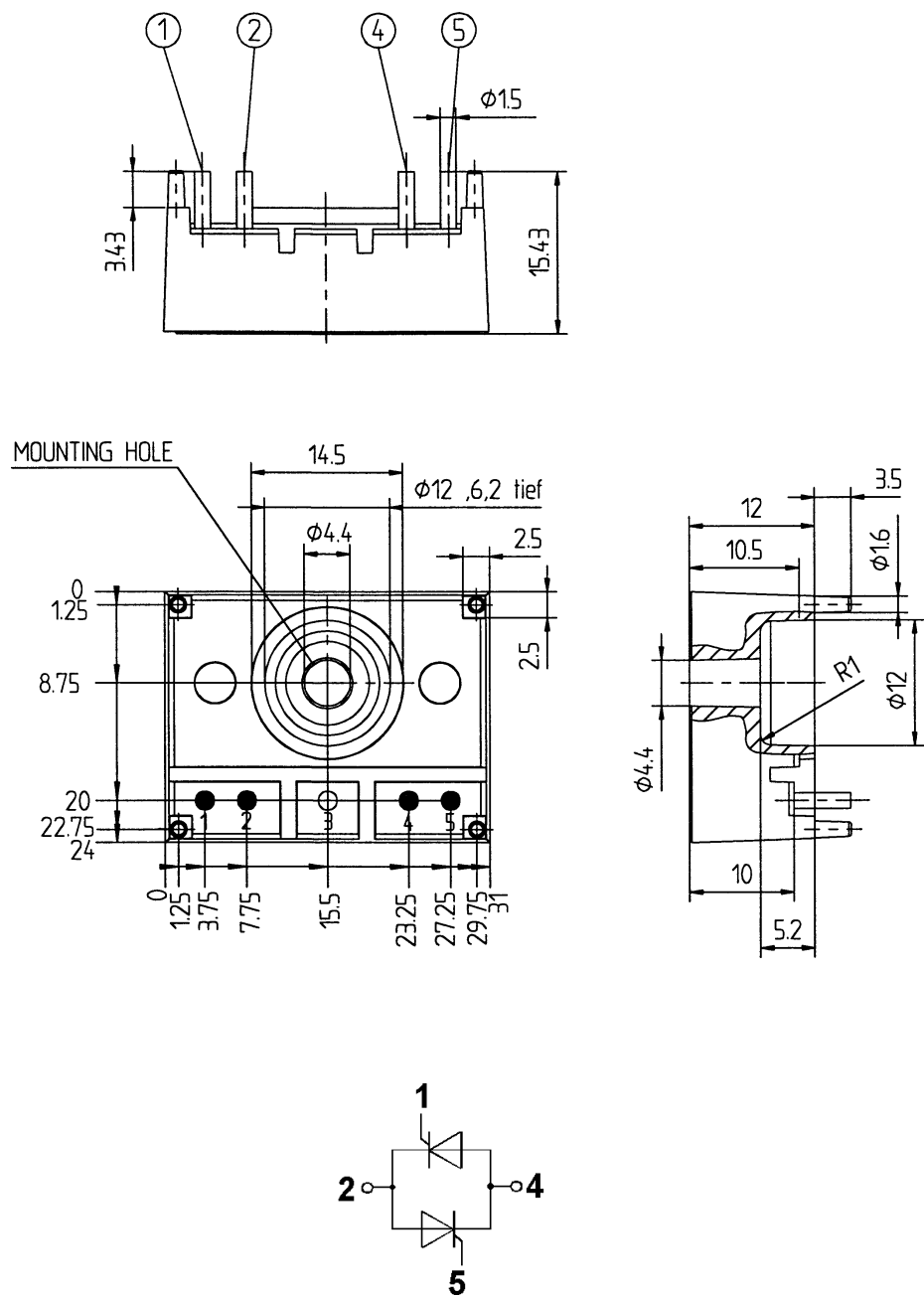


Fig. 5 Gate trigger characteristics

SEMITOP® 1
SK 45 KQ
SK 70 KQ

Case T 1



Dimensions in mm