

SEMITOP® 2

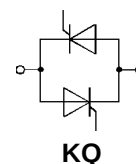
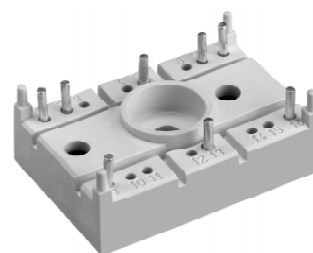
Antiparallel Thyristor Module

for a.c. controllers

SK 100 KQ

SK 120 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	101 A	134 A
900	800	SK 100 KQ 08	SK 120 KQ 08
1300	1200	SK 100 KQ 12	SK 120 KQ 12
1700	1600	SK 100 KQ 16	SK 120 KQ 16

Symbol	Conditions	SK 100 KQ	SK 120 KQ	Units
I_{RMS}	W1C; sin 180°; $T_h = 100^\circ C$	71	94	A
	$T_h = 85^\circ C$	101	134	A
I_{TSM}	$T_{vj} = 25^\circ C$; 10 ms	1 500	2 000	A
	$T_{vj} = 125^\circ C$; 10 ms	1 350	1 800	A
i^2t	$T_{vj} = 25^\circ C$; 8,3...10 ms	11 250	20 000	A ² s
	$T_{vj} = 125^\circ C$; 8,3...10 ms	9 100	16 200	A ² s
t_{gd}	$T_{vj} = 25^\circ C$; $I_G = 1 A$; $di_G/dt = 1 A/\mu s$	1		μs
t_{gr}	$V_D = 0,67 V_{DRM}$	2		μs
$(dv/dt)_{cr}$	$T_{vj} = 125^\circ C$	1 000		V/ μs
$(di/dt)_{cr}$	$T_{vj} = 125^\circ C$; $f = 50...60 Hz$	50		A/ μs
t_q	$T_{vj} = 125^\circ C$; typ.	80		μs
I_H	$T_{vj} = 25^\circ C$; typ. / max	100 / 200		mA
I_L	$T_{vj} = 25^\circ C$; $R_G = 33 \Omega$; typ. / max.	200 / 500		mA
V_T	$T_{vj} = 25^\circ C$; ($I_T = \dots$); max.	1,8 (200)	1,85 (300)	V A
$V_{T(TO)}$	$T_{vj} = 125^\circ C$	0,9	0,9	V
r_T	$T_{vj} = 125^\circ C$	4,5	3,5	m Ω
I_{DD} ; I_{RD}	$T_{vj} = 25^\circ C$ } $V_{DD} = V_{DRM}$	1	1	mA
	$T_{vj} = 125^\circ C$ } $V_{RD} = V_{RRM}$	20	20	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	5	5	mA
$R_{thjh}^{1)}$	cont. per thyristor / per W1C sin 180° per thyristor / per W1C	0,6 / 0,3 0,63 / 0,315	0,45 / 0,225 0,47 / 0,235	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	2,0		Nm
w		19		g
Case		T 2		

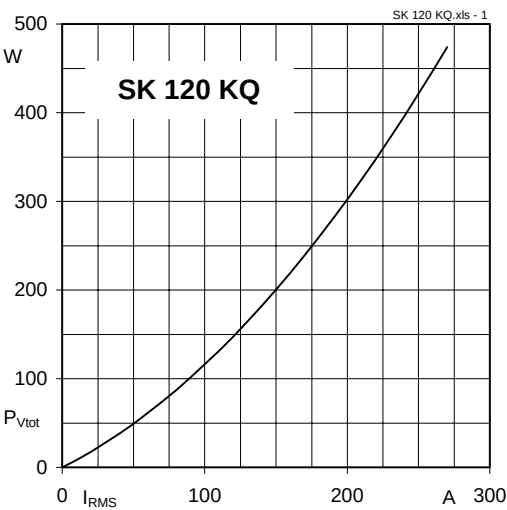
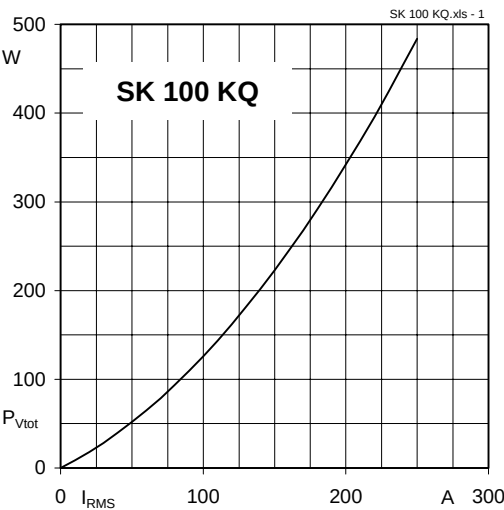


Fig. 1 Power dissipation per module vs. rms current

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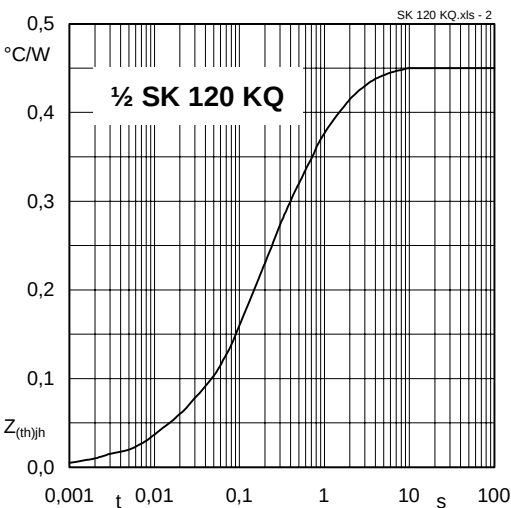
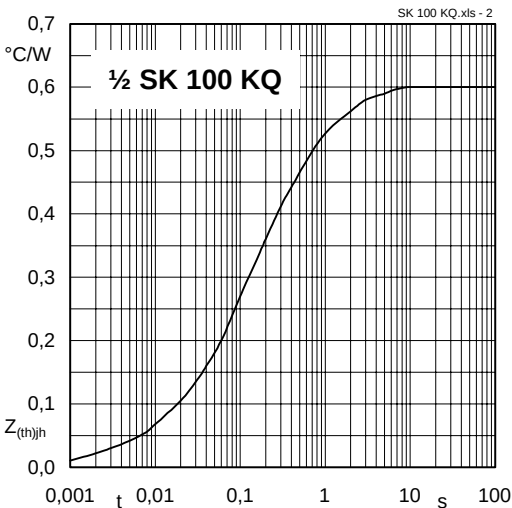


Fig. 2 Transient thermal impedance vs. time

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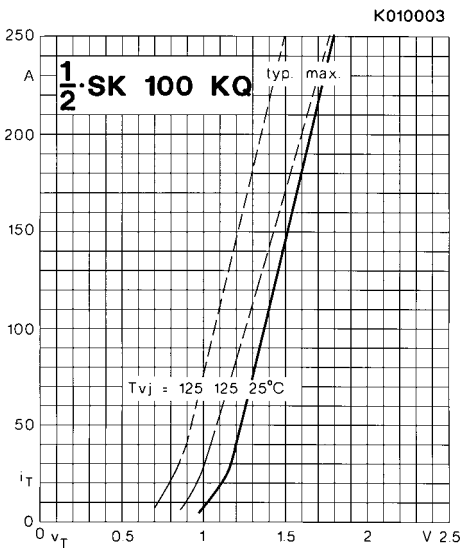


Fig. 3 On-state characteristics

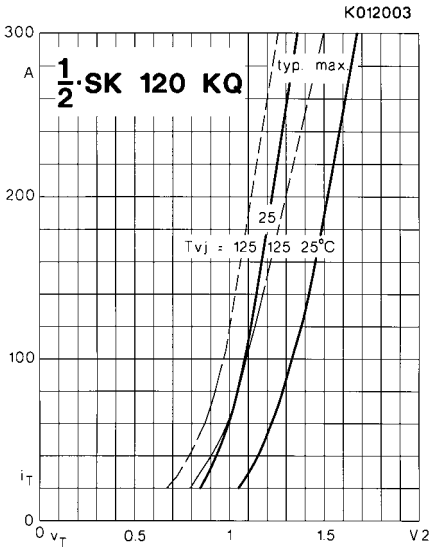


Fig. 3 On-state characteristics

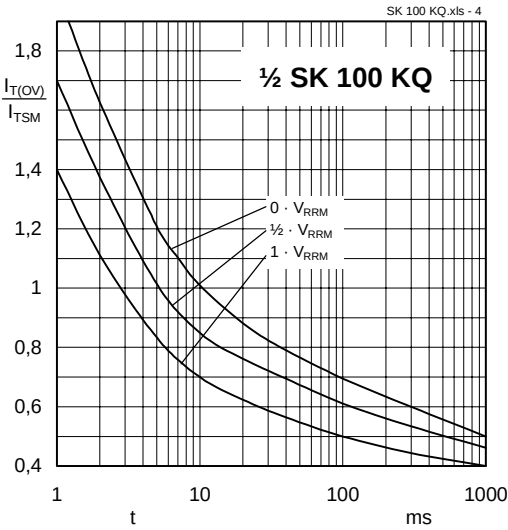


Fig. 4 Surge overload current vs. time

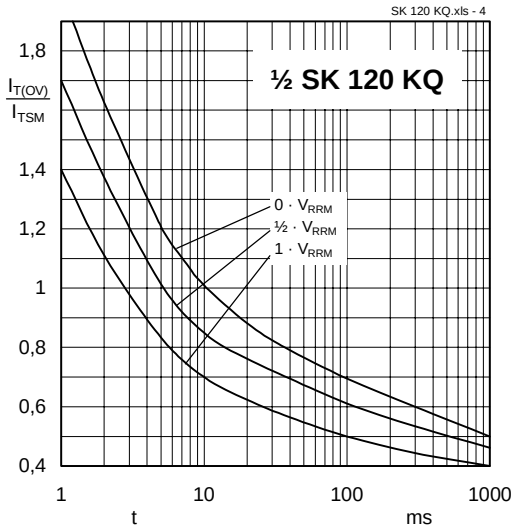


Fig. 4 Surge overload current vs. time

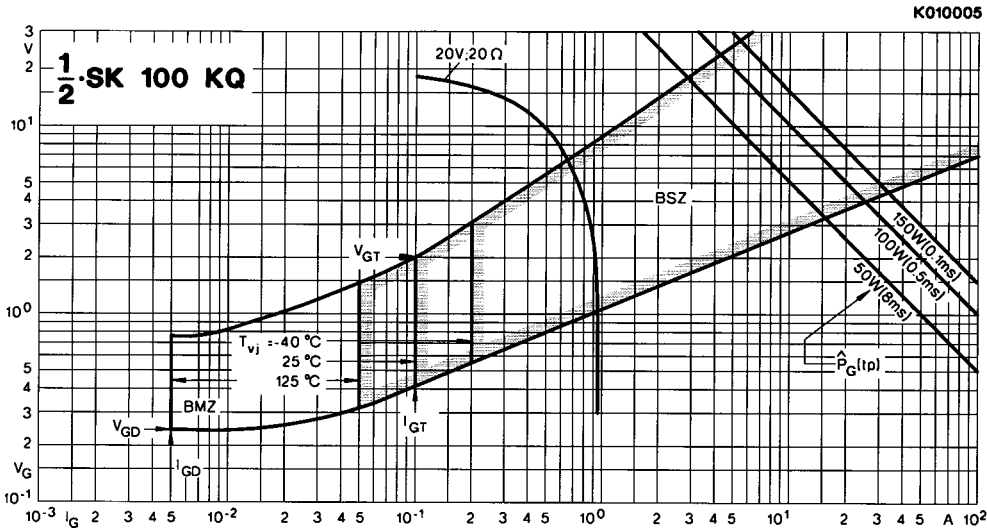


Fig. 5 Gate trigger characteristics

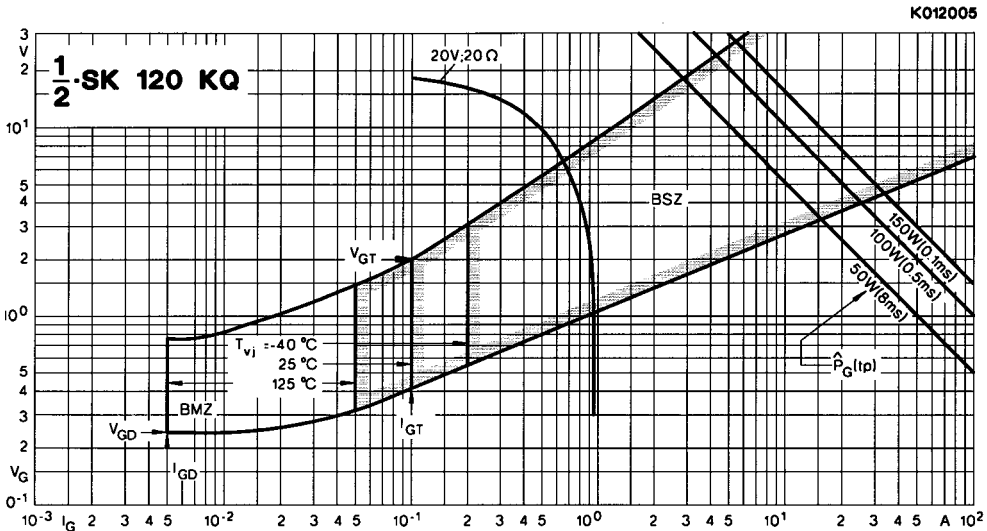
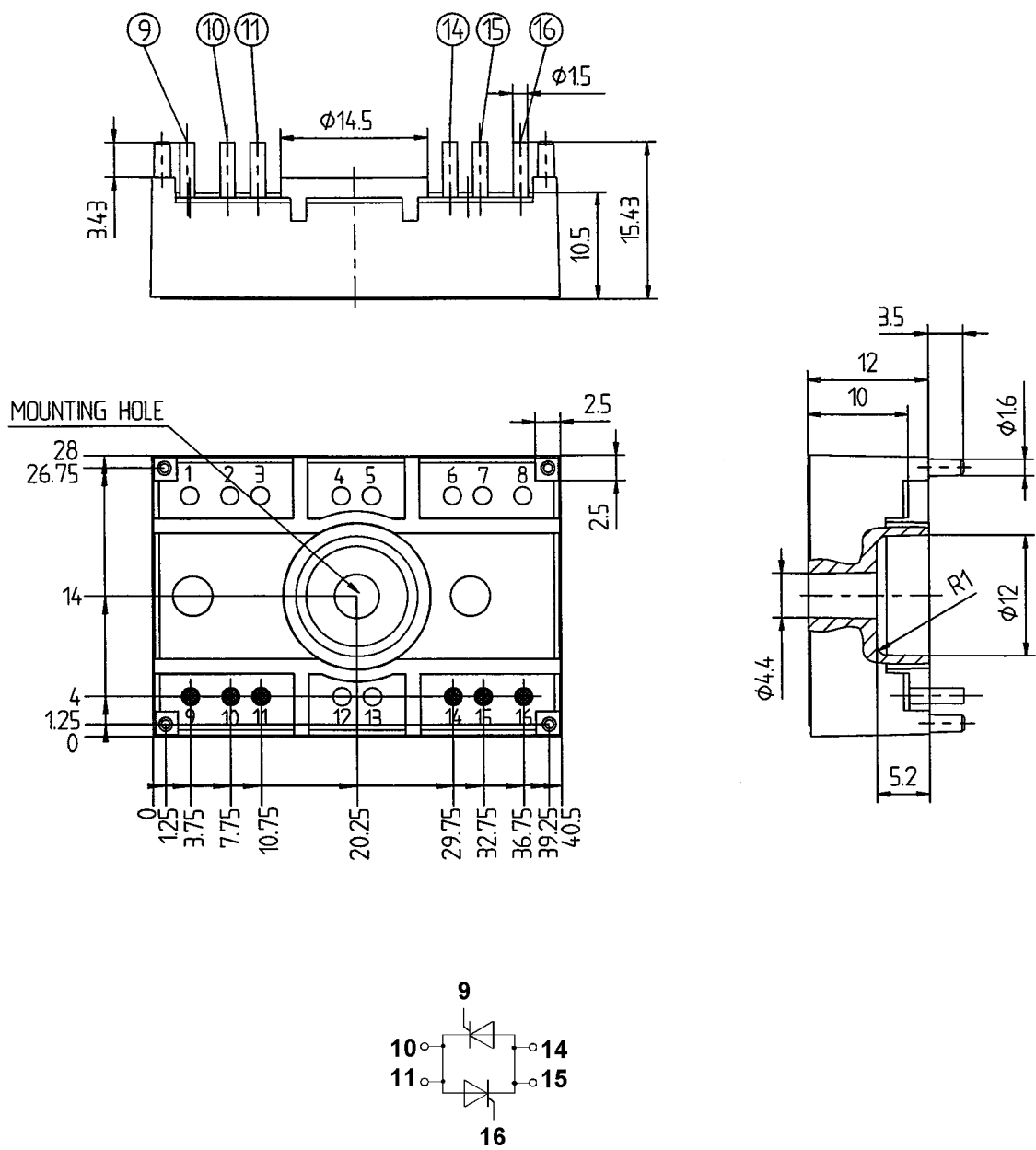


Fig. 5 Gate trigger characteristics

SEMITOP® 2
SK 100 KQ
SK 120 KQ

Case T 2



Dimensions in mm