

SEMPACK® 0 Twin Thyristor Modules for a.c. controllers

SKKQ 31
SKKQ 45

V_{RSM}	V_{RRM}	$(dv/dt)_{cr}$	I_{RMS} (maximum values for continuous operation)	
V	V_{DRM}	V/ μ s	$(T_{case} = 85\text{ }^{\circ}\text{C})$	
			$24\text{ A}^{1)}$; $30\text{ A}^{2)}$	$24\text{ A}^{1)}$; $45\text{ A}^{2)}$
700	600	500	–	SKKQ 45/06
900	800	500	SKKQ 31/08	SKKQ 45/08
1300	1200	500	SKKQ 31/12	SKKQ 45/12
1500	1400	500	SKKQ 31/14	SKKQ 45/14
1700	1600	500	SKKQ 31/16	SKKQ 45/16

Symbol	Conditions	SKKQ 31	SKKQ 45
I_{RMS}	W1C; sin. 180; $T_{case} = 85\text{ }^{\circ}\text{C}$	$30\text{ A}^{2)}$	$45\text{ A}^{2)}$
I_{TRMS}	sin. 180; $T_{case} = 85\text{ }^{\circ}\text{C}$	21 A	32 A
I_{TSM}	$T_{vj} = 25\text{ }^{\circ}\text{C}$; 10 ms	320 A	470 A
i^2t	$T_{vj} = 125\text{ }^{\circ}\text{C}$; 10 ms	280 A	400 A
	$T_{vj} = 25\text{ }^{\circ}\text{C}$; 8,3 ... 10 ms	$510\text{ A}^2\text{s}$	$1100\text{ A}^2\text{s}$
	$T_{vj} = 125\text{ }^{\circ}\text{C}$; 8,3 ... 10 ms	$390\text{ A}^2\text{s}$	$800\text{ A}^2\text{s}$
t_{gd}	$T_{vj} = 25\text{ }^{\circ}\text{C}$; $I_G = 1\text{ A}$; $di_G/dt = 1\text{ A}/\mu\text{s}$	1 μs	
t_{gr}	$V_D = 0,67 \cdot V_{DRM}$	1 μs	
$(di/dt)_{cr}$	$T_{vj} = 125\text{ }^{\circ}\text{C}$	100 A/ μs	
t_q	$T_{vj} = 125\text{ }^{\circ}\text{C}$	typ. 80 μs	
I_H	$T_{vj} = 25\text{ }^{\circ}\text{C}$; typ./max.	100/200 mA	
I_L	$T_{vj} = 25\text{ }^{\circ}\text{C}$; $R_G = 33\ \Omega$; typ./max.	250/400 mA	
V_T	$T_{vj} = 25\text{ }^{\circ}\text{C}$; $I_T = 75\text{ A}$	max. 2,45 V	max. 1,8 V
$V_{T(TO)}$	$T_{vj} = 125\text{ }^{\circ}\text{C}$	1,1 V	0,9 V
r_T	$T_{vj} = 125\text{ }^{\circ}\text{C}$	20 m Ω	12 m Ω
I_{DD} ; I_{RD}	$T_{vj} = 125\text{ }^{\circ}\text{C}$; $V_{DD} = V_{DRM}$; $V_{RD} = V_{RRM}$	max. 10 mA	max. 10 mA
V_{GT}	$T_{vj} = 25\text{ }^{\circ}\text{C}$; d. c.	3 V	
I_{GT}	$T_{vj} = 25\text{ }^{\circ}\text{C}$; d. c.	150 mA	
V_{GD}	$T_{vj} = 125\text{ }^{\circ}\text{C}$; d. c.	0,25 V	
I_{GD}	$T_{vj} = 125\text{ }^{\circ}\text{C}$; d. c.	5 mA	
R_{thjc}	cont.	1,6/0,8 $^{\circ}\text{C}/\text{W}$	1,2/0,6 $^{\circ}\text{C}/\text{W}$
R_{thch}	sin. 180 } per thyristor/per module	1,7/0,9 $^{\circ}\text{C}/\text{W}$	1,3/0,6 $^{\circ}\text{C}/\text{W}$
T_{vj}		0,2/0,1 $^{\circ}\text{C}/\text{W}$	
T_{stg}		– 40 ... +125 $^{\circ}\text{C}$ – 40 ... +125 $^{\circ}\text{C}$	
V_{isol}	a. c. 50 Hz; r.m.s.; 1 s/1 min	3600 V~ /3000 V~	
M_1	Case to heatsink; SI units/US units	1,5 Nm/13 lb. in. $\pm 15\%$ ³⁾	
a	approx.	5 · 9,81 m/s ²	
w		50 g	
Case	→ page B 1 – 34	A 41	



SKKQ

Features

- Heat transfer through aluminium oxide ceramic isolated metal baseplate
- Hard soldered joints for high reliability
- UL recognized, file no E 63 532

Typical Applications

- AC motor starters
- Temperature control (e. g. for ovens, chemical processes)
- Professional light dimming (studios, theaters)

¹⁾ Using tin plated connectors with flexible leads of 6 mm² for the main terminals

²⁾ Flexible leads of 6 mm² soldered to the main terminals

³⁾ See the assembly instructions

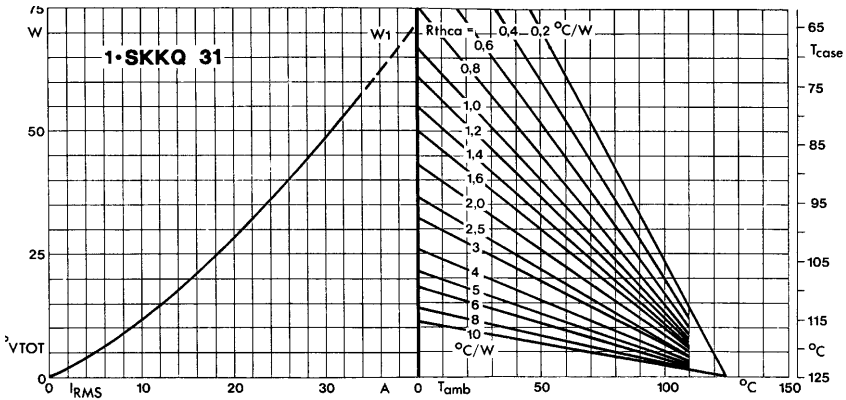


Fig. 2 a Power dissipation per module vs. rms current and case temperature

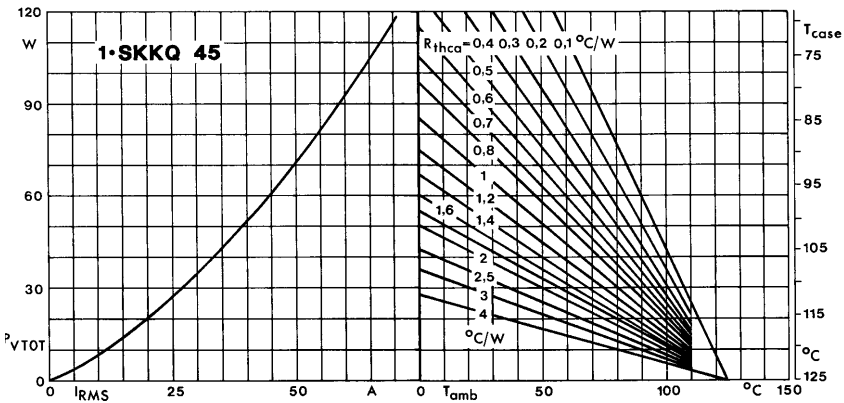


Fig. 2 b Power dissipation per module vs. rms current and case temperature

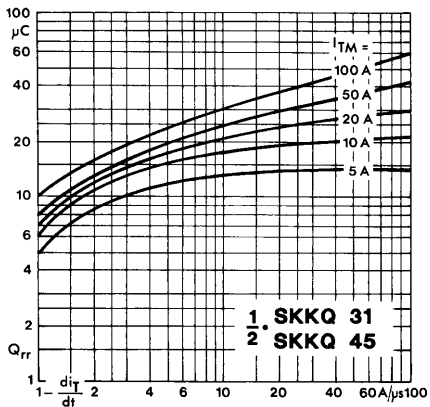


Fig. 5 Recovered charge vs. current decrease

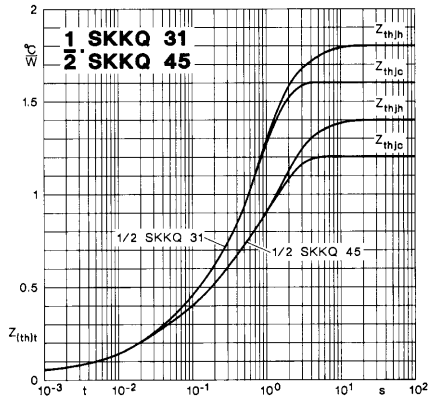


Fig. 6 Transient thermal impedance vs. time

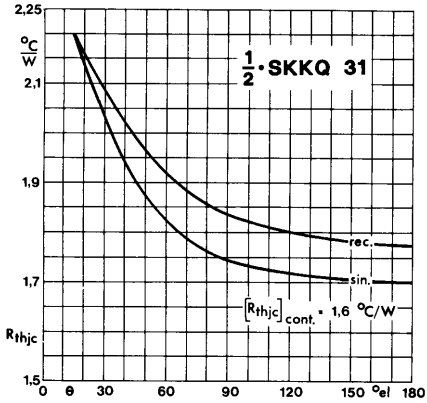


Fig. 7 a Thermal resistance vs. conduction angle

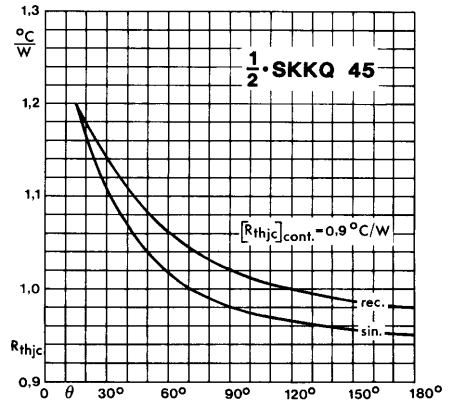


Fig. 7 b Thermal resistance vs. conduction angle

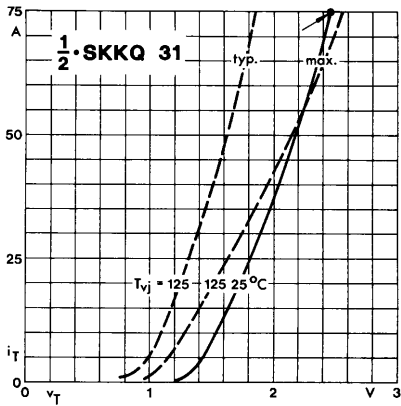


Fig. 8 a On-state characteristics

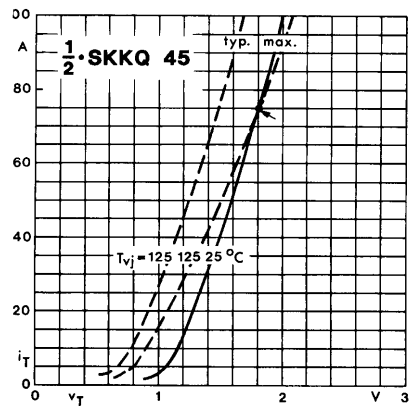


Fig. 8 b On-state characteristics

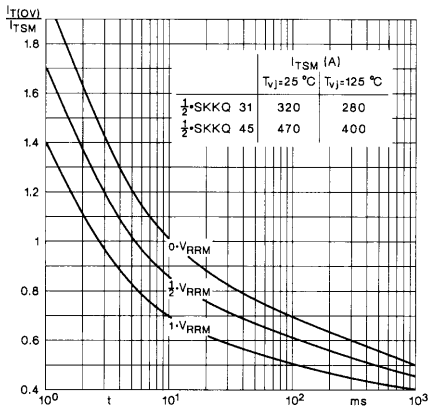


Fig. 9 Surge overload current vs. time

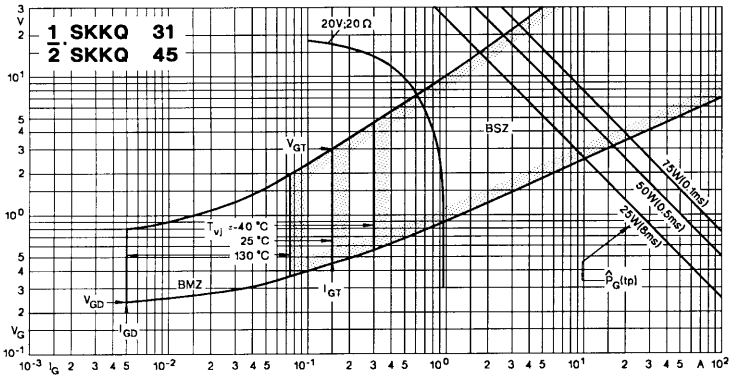


Fig. 10 Gate trigger characteristics

