

## SEMPACK® 1 Thyristor/ Diode Modules

**SKKT 91**      **SKKH 91**  
**SKKT 92**      **SKKH 92**  
**SKKT 92B**      **SKMT 91<sup>2)</sup>**  
**SKKL 92<sup>2)</sup>**



V <sub>VRSM</sub>	V <sub>VRDM</sub>	(dv/dt) <sub>cr</sub>	I <sub>TRMS</sub> (maximum value for continuous operation)			
			150 A			
V	V	V/μs	I <sub>TAV</sub> (sin. 180; T <sub>case</sub> = 85 °C)			
			95 A			
500	400	500	–	–	SKKH 91/04 D	–
700	600	500	SKKT 91/06 D	SKKT 92/06 D	SKKH 91/06 D	SKKH 92/06 D
900	800	500	SKKT 91/08 D	SKKT 92/08 D <sup>1)</sup>	SKKH 91/08 D	SKKH 92/08 D
1300	1200	500	SKKT 91/12 D	–	SKKH 91/12 D	–
1300	1200	1000	SKKT 91/12 E	SKKT 92/12 E <sup>1)</sup>	–	SKKH 92/12 E
1500	1400	1000	SKKT 91/14 E	SKKT 92/14 E <sup>1)</sup>	SKKH 91/14 E	SKKH 92/14 E
1700	1600	1000	SKKT 91/16 E	SKKT 92/16 E <sup>1)</sup>	SKKH 91/16 E	SKKH 92/16 E
1900	1800	1000	SKKT 91/18 E	SKKT 92/18 E <sup>1)</sup>	SKKH 91/18 E	SKKH 92/18 E

Symbol	Conditions	SKKT 91 SKKH 91	SKKT 92 SKKT 92B SKKH 92
I <sub>TAV</sub>	sin. 180; T <sub>case</sub> = 85 °C	95 A	
I <sub>D</sub>	B2/B6	T <sub>amb</sub> = 45 °C; P 3/180	70 A/85 A
		T <sub>amb</sub> = 35 °C; P 3/180 F	140 A/175 A
I <sub>RMS</sub>	W1/W3	T <sub>amb</sub> = 35 °C; P 3/180 F	190 A/3 x 135 A
I <sub>TSM</sub>	T <sub>vj</sub> = 25 °C; 10 ms	2 000 A	
	T <sub>vj</sub> = 125 °C; 10 ms	1 750 A	
i <sup>2</sup> t	T <sub>vj</sub> = 25 °C; 8,3 ... 10 ms	20 000 A <sup>2</sup> s	
	T <sub>vj</sub> = 125 °C; 8,3 ... 10 ms	15 000 A <sup>2</sup> s	
t <sub>gd</sub>	T <sub>vj</sub> = 25 °C; I <sub>G</sub> = 1 A; di <sub>G</sub> /dt = 1 A/μs	1 μs	
t <sub>gr</sub>	V <sub>D</sub> = 0,67 · V <sub>DRM</sub>	2 μs	
(di/dt) <sub>cr</sub>	T <sub>vj</sub> = 125 °C	150 A/μs	
t <sub>q</sub>	T <sub>vj</sub> = 125 °C	typ. 100 μs	
I <sub>H</sub>	T <sub>vj</sub> = 25 °C;	max. 250 mA	
I <sub>L</sub>	T <sub>vj</sub> = 25 °C; R <sub>G</sub> = 33 Ω	max. 600 mA	
V <sub>T</sub>	T <sub>vj</sub> = 25 °C; I <sub>T</sub> = 300 A	max. 1,65 V	
V <sub>T(TO)</sub>	T <sub>vj</sub> = 125 °C	0,9 V	
r <sub>T</sub>	T <sub>vj</sub> = 125 °C	2 mΩ	
I <sub>DD</sub> ; I <sub>RD</sub>	T <sub>vj</sub> = 125 °C; V <sub>DD</sub> = V <sub>DRM</sub> ; V <sub>RD</sub> = V <sub>RRM</sub>	max. 20 mA	
V <sub>GT</sub>	T <sub>vj</sub> = 25 °C; d. c.	3 V	
I <sub>GT</sub>	T <sub>vj</sub> = 25 °C; d. c.	150 mA	
V <sub>GD</sub>	T <sub>vj</sub> = 125 °C; d. c.	0,25 V	
I <sub>GD</sub>	T <sub>vj</sub> = 125 °C; d. c.	6 mA	
R <sub>thjc</sub>	cont. } sin. 180 } rec.120 } per thyristor/per module	0,28 °C/W / 0,14 °C/W 0,30 °C/W / 0,15 °C/W 0,32 °C/W / 0,16 °C/W 0,2 °C/W / 0,1 °C/W	
R <sub>thch</sub>		– 40 ... +125 °C	
T <sub>vj</sub>		– 40 ... +125 °C	
T <sub>stg</sub>			
V <sub>isol</sub>	a. c. 50 Hz; r.m.s.; 1 s/1 min	3600 V~ / 3000 V~	
M <sub>1</sub>	to heatsink	SI units/	5 Nm/44 lb. in. ± 15 % <sup>3)</sup>
M <sub>2</sub>	to terminals	US units	3 Nm/26 lb.in. ± 15 %
a			5 · 9,81 m/s <sup>2</sup>
w	approx.		120 g
Case	→ page B 1 – 93	SKKT 91: A 5 SKKH 91: A 6 SKMT 91: A 65	SKKL 92: A 59 SKKT 92: A 46 SKKT 92B: A 48



**SKKT 91**

**SKKH 91**



**SKKT 92**

**SKKH 92**



**SKMT 91**

**SKKL 92**

### 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

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

- 1) Also available in SKKT 92 B configuration (case A 48)
- 2) SKKL 92, SKMT 91 available on request
- 3) See the assembly instructions

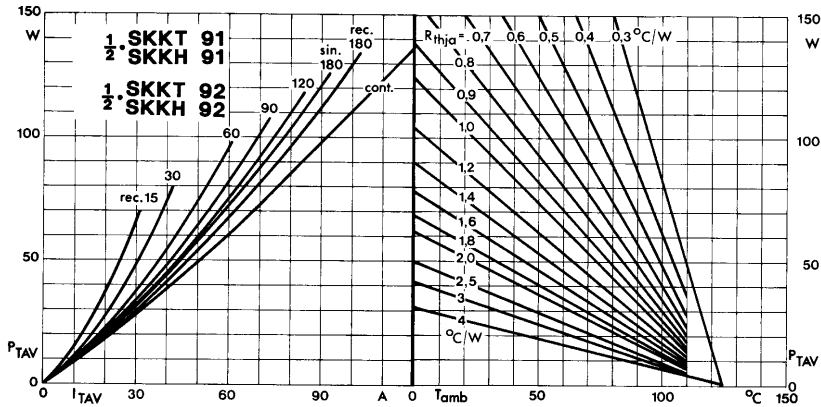


Fig. 1 Power dissipation per thyristor vs. on-state current and ambient temperature

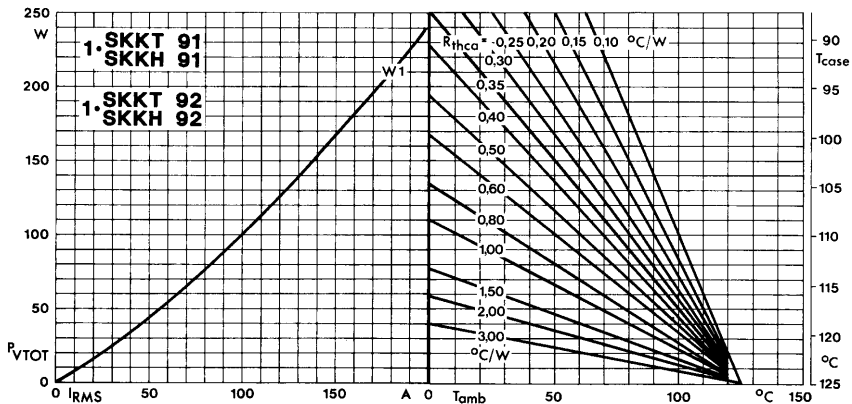


Fig. 2 Power dissipation per module vs. rms current and case temperature

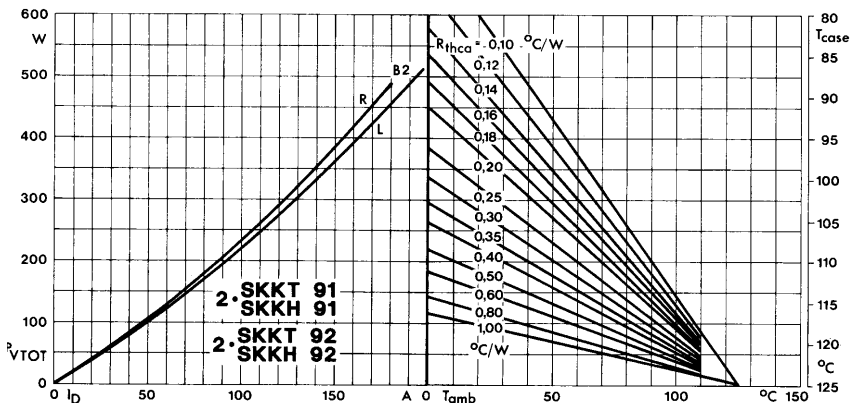


Fig. 3 Power dissipation of two modules vs. direct current and case temperature

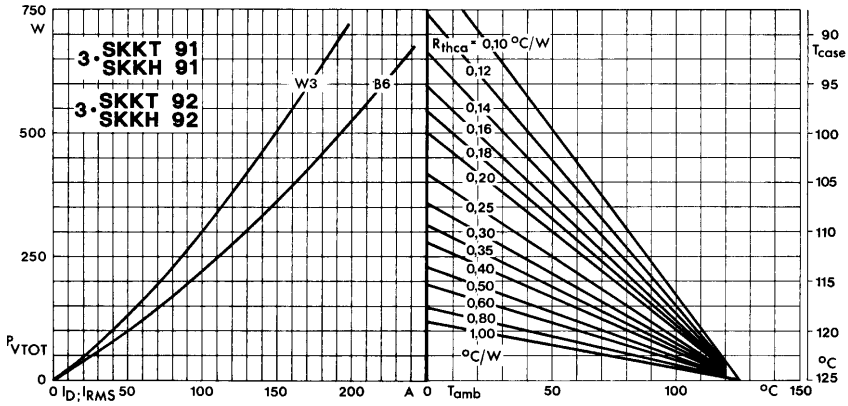


Fig. 4 Power dissipation of three modules vs. direct and rms current and case temperature

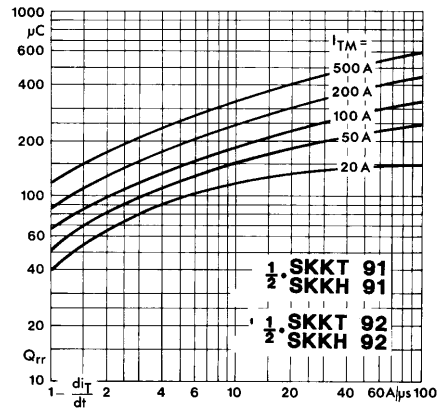


Fig. 5 Recovered charge vs. current decrease

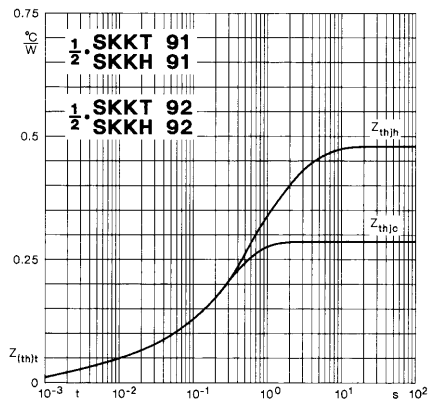


Fig. 6 Transient thermal impedance vs. time

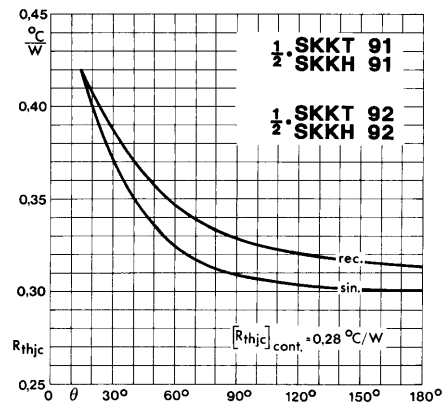


Fig. 7 Thermal resistance vs. conduction angle

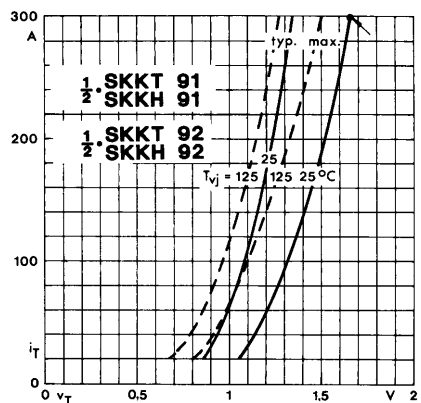


Fig. 8 On-state characteristics

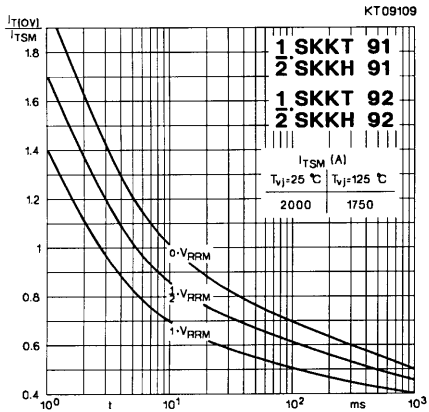


Fig. 9 Surge overload current vs. time

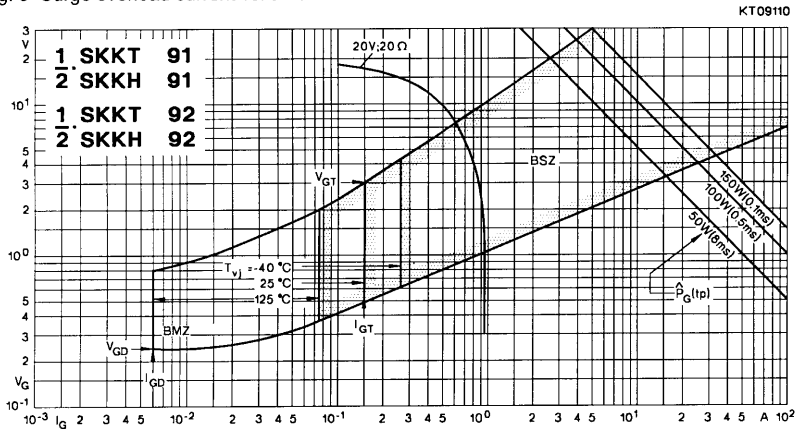


Fig. 10 Gate trigger characteristics