

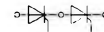
## SEMPACK® 1 Thyristor/ Diode Modules

**SKKT 41**      **SKKH 41**  
**SKKT 42**      **SKKH 42**  
**SKKT 42B**      **SKKL 42<sup>2)</sup>**



V <sub>RRM</sub>	V <sub>DRM</sub>	(dv/dt) <sub>cr</sub>	I <sub>T(RMS)</sub> (maximum value for continuous operation)			
			75 A			
V	V	V/ $\mu$ s	I <sub>T(AV)</sub> (sin. 180, T <sub>case</sub> = 68 °C)			
			48 A			
500	400	500	-	-	SKKH 41/04 D	-
700	600	500	SKKT 41/06 D	SKKT 42/06 D	SKKH 41/06 D	SKKH 42/06 D
900	800	500	SKKT 41/08 D	SKKT 42/08 D <sup>1)</sup>	SKKH 41/08 D	SKKH 42/08 D
1300	1200	500	SKKT 41/12 D	-	SKKH 41/12 D	-
1300	1200	1000	SKKT 41/12 E	SKKT 42/12 E <sup>1)</sup>	SKKH 41/12 E	SKKH 42/12 E
1500	1400	1000	SKKT 41/14 E	SKKT 42/14 E <sup>1)</sup>	SKKH 41/14 E	SKKH 42/14 E
1700	1600	1000	SKKT 41/16 E	SKKT 42/16 E <sup>1)</sup>	SKKH 41/16 E	SKKH 42/16 E
1900	1800	1000	SKKT 41/18 E	SKKT 42/18 E <sup>1)</sup>	SKKH 41/18 E	SKKH 42/18 E
2100	2000	1000	SKKT 41/20 E	SKKT 42/20 E <sup>1)</sup>	-	-
2300	2200	1000	SKKT 41/22 E	SKKT 42/22 E <sup>1)</sup>	-	-

Symbol	Conditions	SKKT 41 SKKH 41	SKKT 42 SKKT 42B SKKH 42
I <sub>T(AV)</sub>	sin. 180; T <sub>case</sub> = 74 °C T <sub>case</sub> = 85 °C	48 A 40 A	
I <sub>D</sub>	B2/B6 T <sub>amb</sub> = 45 °C; P 3/180 T <sub>amb</sub> = 35 °C; P 3/180 F	50 A/60 A 85 A/110 A	
I <sub>RMS</sub>	W1/W3 T <sub>amb</sub> = 35 °C; P 3/180 F	110 A/3 x 85 A	
I <sub>TSM</sub>	T <sub>vj</sub> = 25 °C; 10 ms T <sub>vj</sub> = 125 °C; 10 ms	1 000 A 850 A	
i <sup>2</sup> t	T <sub>vj</sub> = 25 °C; 8,3 ... 10 ms T <sub>vj</sub> = 125 °C; 8,3 ... 10 ms	5 000 A <sup>2</sup> s 3 600 A <sup>2</sup> s	
t <sub>gd</sub> t <sub>gr</sub>	T <sub>vj</sub> = 25 °C; I <sub>G</sub> = 1 A; di <sub>G</sub> /dt = 1 A/ $\mu$ s V <sub>D</sub> = 0,67 · V <sub>DRM</sub>	1 $\mu$ s 2 $\mu$ s	
(di/dt) <sub>cr</sub>	T <sub>vj</sub> = 125 °C	150 A/ $\mu$ s	
t <sub>q</sub>	T <sub>vj</sub> = 125 °C	typ. 80 $\mu$ s	
I <sub>H</sub>	T <sub>vj</sub> = 25 °C;	typ. 150 mA; max. 250 mA	
I <sub>L</sub>	T <sub>vj</sub> = 25 °C; R <sub>G</sub> = 33 $\Omega$	typ. 300 mA; max. 600 mA	
V <sub>T</sub>	T <sub>vj</sub> = 25 °C; I <sub>T</sub> = 200 A	max. 1,95 V	
V <sub>T(TO)</sub>	T <sub>vj</sub> = 125 °C	1 V	
r <sub>T</sub>	T <sub>vj</sub> = 125 °C	4,5 m $\Omega$	
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. 15 mA <sup>3)</sup>	
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> R <sub>thch</sub> T <sub>vi</sub> , T <sub>stc</sub>	cont. } sin. 180 } rec. 120 } per thyristor/per module	0,65 °C/W / 0,33 °C/W 0,69 °C/W / 0,35 °C/W 0,73 °C/W / 0,37 °C/W 0,2 °C/W / 0,1 °C/W - 40 ... +125 °C	
V <sub>sol</sub> M <sub>1</sub> M <sub>2</sub> a w	a. c. 50 Hz; r. m. s.; 1 s/1 min to heatsink } to terminals } SI units / US units approx.	3600 V~ / 3000 V~ 5 Nm/44 lb. in. $\pm$ 15% <sup>4)</sup> 3 Nm/26 lb. in. $\pm$ 15% 5 · 9,81 m/s <sup>2</sup> 120 g	
Case	→ page B 1 – 93	SKKT 41: A 5 SKKH 41: A 6 SKKH 42: A 47	SKKL 42: A 59 SKKT 42: A 46 SKKT 42B: A 48



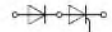
SKKT 41



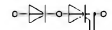
SKKT 42



SKKL 42



SKKH 41



SKKH 42

### 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 42 B configuration (case A 48).

2) SKKL 42 available on request

3) /20 E, /22 E max. 30 mA

4) See the assembly instructions

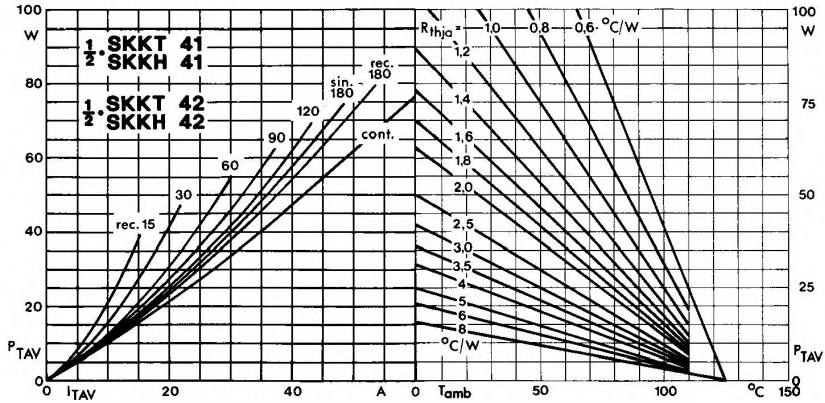


Fig. 1 Power dissipation per thyristor vs. on-state current and ambient temperature

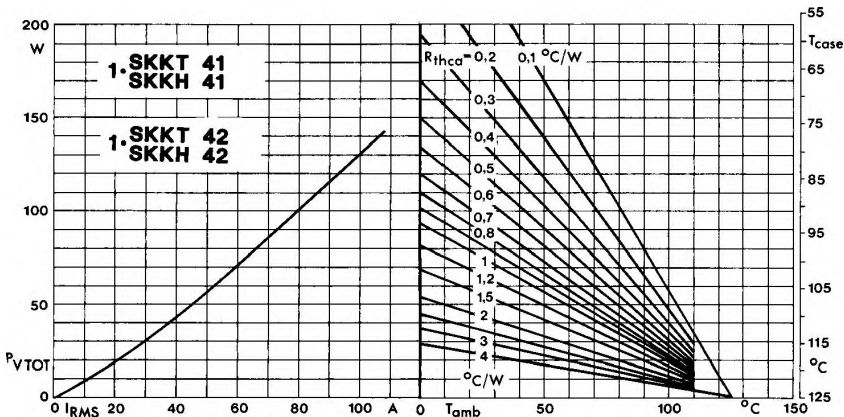


Fig. 2 Power dissipation per module vs. rms current and case temperature

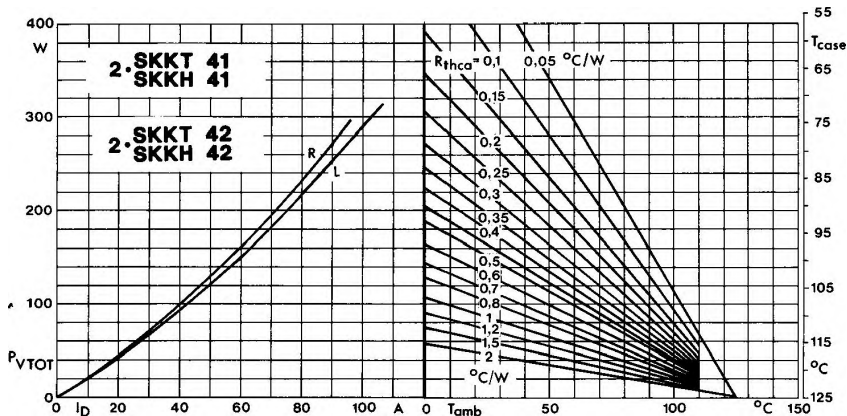


Fig. 3 Power dissipation of two modules vs. direct current and case temperature

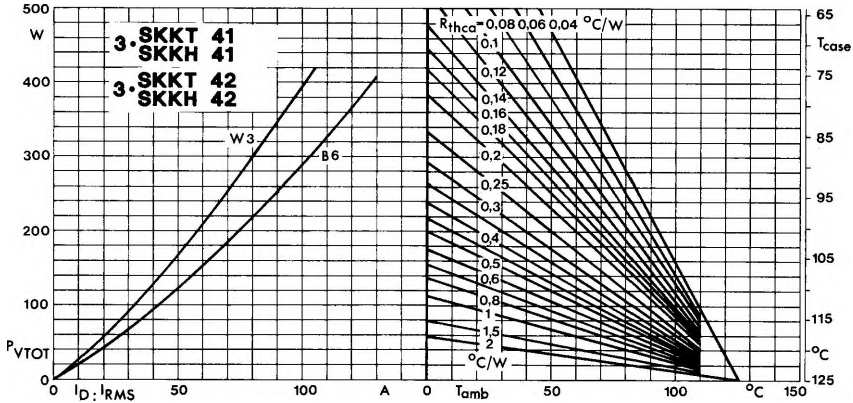


Fig. 4 Power dissipation of three modules vs. direct and rms current and case temperature

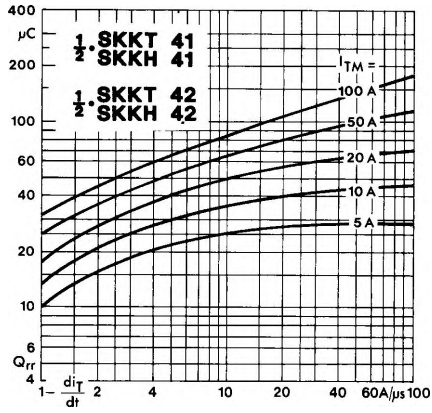


Fig. 5 Recovered charge vs. current decrease

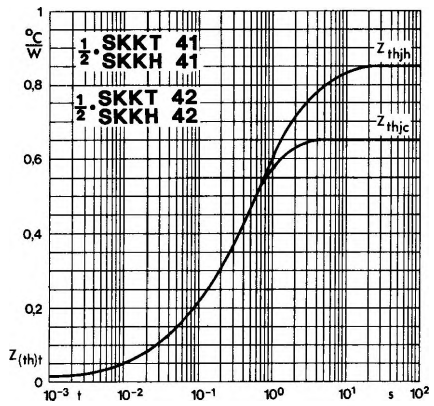


Fig. 6 Transient thermal impedance vs. time

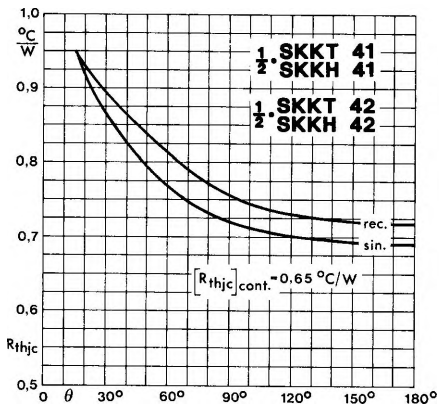


Fig. 7 Thermal resistance vs. conduction angle

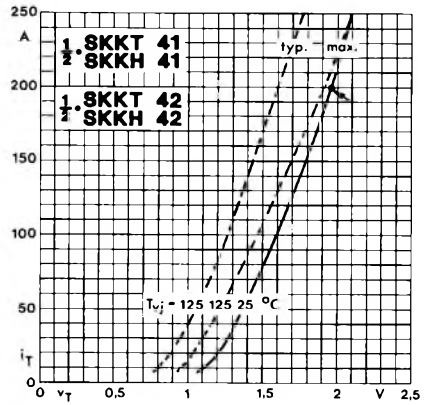


Fig. 8 On-state characteristics

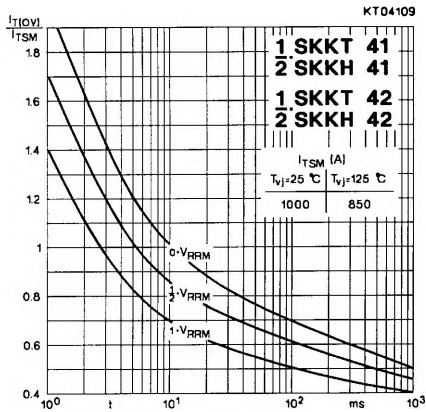


Fig. 9 Surge overload current vs. time

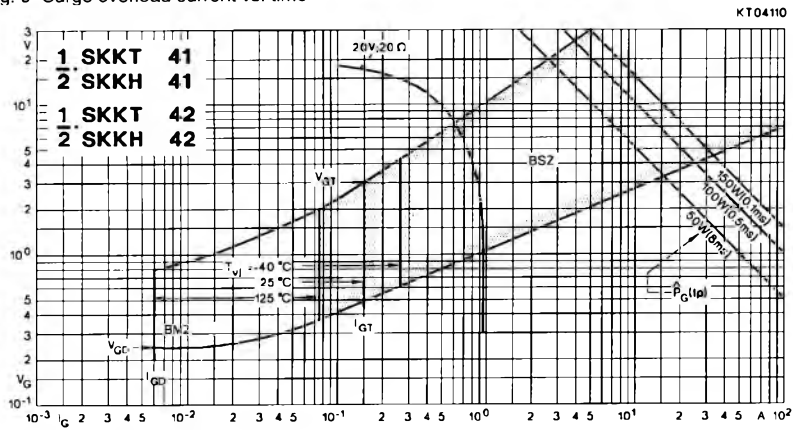


Fig. 10 Gate trigger characteristics