

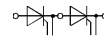
## SEMPACK® 3 Thyristor/ Diode Modules

**SKKT 131      SKKH 131**  
**SKKT 161      SKKH 161**

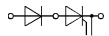


V <sub>RSM</sub>	V <sub>RRM</sub>	(dv/dt) <sub>cr</sub>	I <sub>T(RMS)</sub> (maximum values for continuous operation)			
			240 A	270 A	240 A	270 A
V	V	V/μs	I <sub>TAV</sub> (sin. 180; T <sub>case</sub> = . . .)			
			150 A (85 °C)	172 A (81 °C)	150 A (85 °C)	172 A (81 °C)
900	800	500	<b>SKKT</b>	<b>SKKT</b>	<b>SKKH</b>	<b>SKKH</b>
1300	1200	500	<b>131/08 D</b>	<b>161/08 D</b>	<b>131/08 D</b>	<b>161/08 D</b>
1300	1200	1000	<b>131/12 D</b>	<b>161/12 D</b>	–	<b>161/12 D</b>
1300	1200	1000	<b>131/12 E</b>	<b>161/12 E</b>	<b>131/12 E</b>	<b>161/12 E</b>
1500	1400	1000	<b>131/14 E</b>	<b>161/14 E</b>	<b>131/14 E</b>	<b>161/14 E</b>
1700	1600	1000	<b>131/16 E</b>	<b>161/16 E</b>	<b>131/16 E</b>	<b>161/16 E</b>
1900	1800	1000	<b>131/18 E</b>	<b>161/18 E</b>	<b>131/18 E</b>	<b>161/18 E</b>
2100	2000	1000	<b>131/20 E</b>	–	<b>131/20 E</b>	–
2300	2200	1000	<b>131/22 E</b>	–	<b>131/22 E</b>	–

Symbol	Conditions	SKKT 131 SKKH 131	SKKT 161 SKKH 161	Units	
I <sub>TAV</sub>	sin. 180; T <sub>case</sub> = 81 °C 85 °C 92 °C	– 150 130	172 160 –	A A A	
I <sub>D</sub>	B2/B6   T <sub>amb</sub> =	P 16/170 F P 16/200 F P 16/300 F	295/375 300/380 – /390	325/410 330/415 – /425	A A A A A A
I <sub>RMS</sub>	W1/W3   35 °C; P 16/170 F P 16/200 F P 16/300 F	340/3x290 385/3x312 – /3x318	380/3x310 385/3x337 – /3x344	A A A A	
I <sub>TSM</sub>	T <sub>vj</sub> = 25 °C; 10 ms T <sub>vj</sub> = 130 °C; 10 ms	4 700 4 000	5 400 5 000	A A	
i <sup>2</sup> t	T <sub>vj</sub> = 25 °C; 8,3 ... 10 ms T <sub>vj</sub> = 130 °C; 8,3 ... 10 ms	110 000 80 000	145 000 125 000	A <sup>2</sup> s 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> = 130 °C		200	A/μs	
t <sub>q</sub>	T <sub>vj</sub> = 130 °C		typ. 50 ... 150	μs	
I <sub>H</sub>	T <sub>vj</sub> = 25 °C		typ. 150; max. 400	mA	
I <sub>L</sub>	T <sub>vj</sub> = 25 °C; R <sub>G</sub> = 33 Ω		typ. 0,3; max. 1	A	
V <sub>T</sub>	T <sub>vj</sub> = 25 °C; I <sub>T</sub> = 500 A	max. 1,7	max. 1,55	V	
V <sub>(TO)</sub>	T <sub>vj</sub> = 130 °C	1	1	V	
r <sub>T</sub>	T <sub>vj</sub> = 130 °C	1,4	1,0	mΩ	
I <sub>DD</sub> ; I <sub>RD</sub>	T <sub>vj</sub> = 130 °C; V <sub>DD</sub> = V <sub>DRM</sub> V <sub>RD</sub> = V <sub>RRM</sub>	max. 50	max. 50	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> = 130 °C; d. c.		0,25	V	
I <sub>GD</sub>	T <sub>vj</sub> = 130 °C; d. c.		10	mA	
R <sub>thjc</sub>	cont. } sin. 180 } rec. 120 } per thyristor/ per module		0,19/0,09 0,20/0,10 0,22/0,11 0,06/0,03 – 40 ... +130	°C/W °C/W °C/W °C/W °C	
R <sub>thch</sub> T <sub>vj</sub> ; T <sub>stg</sub>					
V <sub>isol</sub>	a. c. 50 Hz; r.m.s.; 1 s/1 min		3600/3000	V~	
M <sub>1</sub>	to heatsink	SI (US) units	5 (44 lb. in.) ± 15 % <sup>1)</sup>	Nm	
M <sub>2</sub>	to terminals	SI (US) units	9 (80 lb. in.) ± 15 % <sup>2)</sup>	Nm	
a			5 · 9,81	m/s <sup>2</sup>	
w	approx.		820	g	
Case	→ page B 1 – 76	SKKT: A 13	SKKH: A 14		



**SKKT**



**SKKH**

### Features

- Heat transfer through aluminium nitride ceramic isolated metal baseplate
- Precious metal pressure contacts for high reliability
- UL recognized, file no. 63 532

### Typical Applications

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

1) See the assembly instructions  
2) The screws must be lubricated

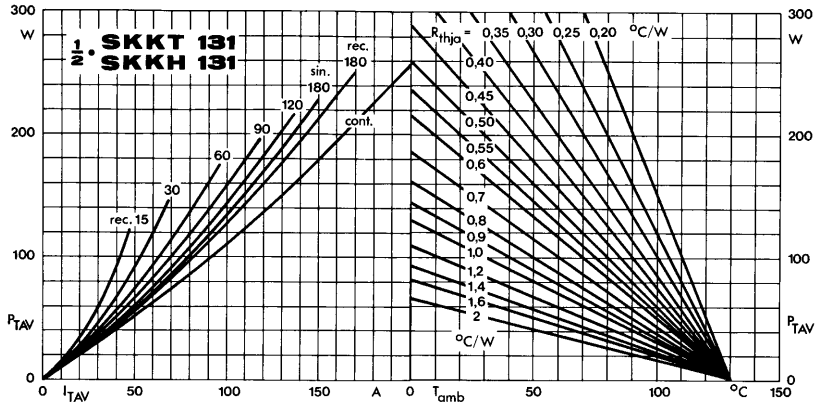


Fig. 1 a Power dissipation per thyristor vs. on-state current and ambient temperature

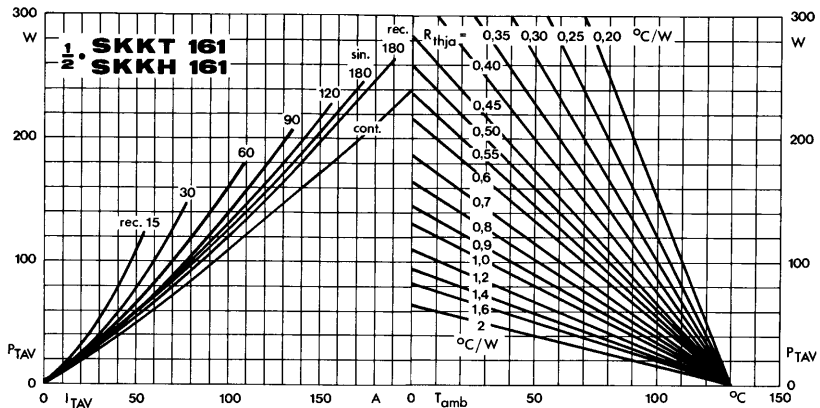


Fig. 1 b Power dissipation per thyristor vs. on-state current and ambient temperature

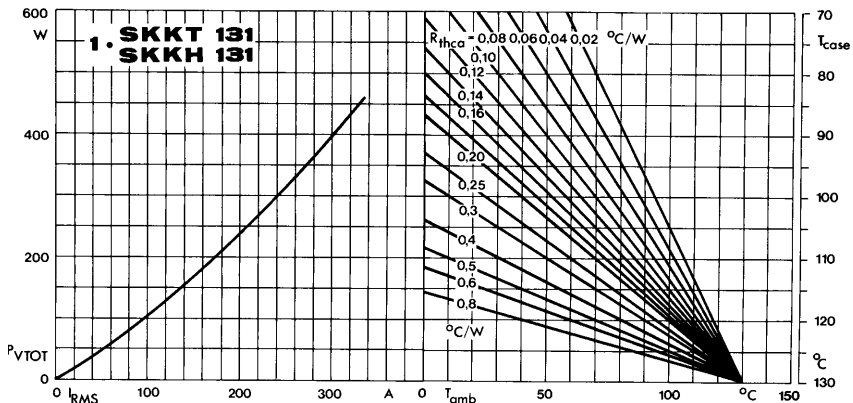


Fig. 2 a Power dissipation per module vs. rms current and case temperature

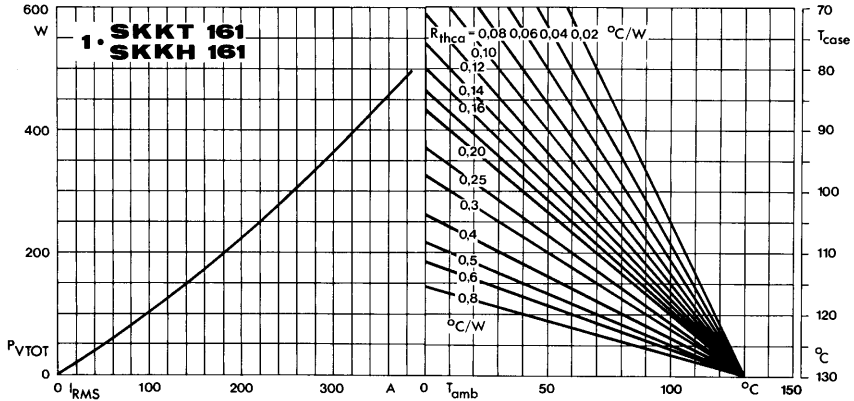


Fig. 2 b Power dissipation per module vs. rms current and case temperature

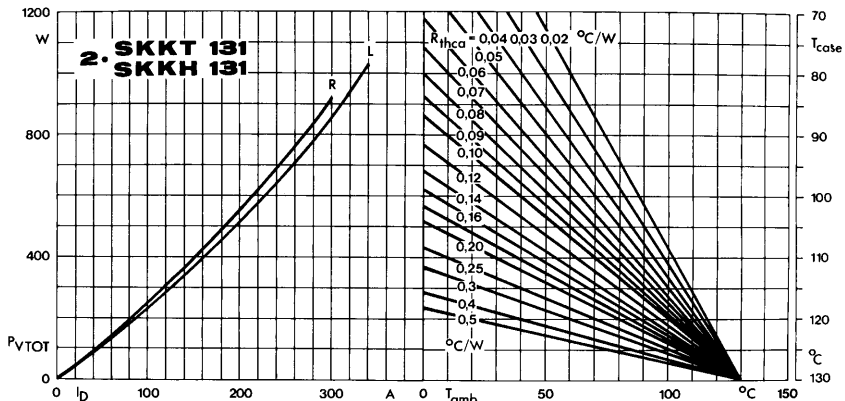


Fig. 3 a Power dissipation of two modules vs. direct current and case temperature

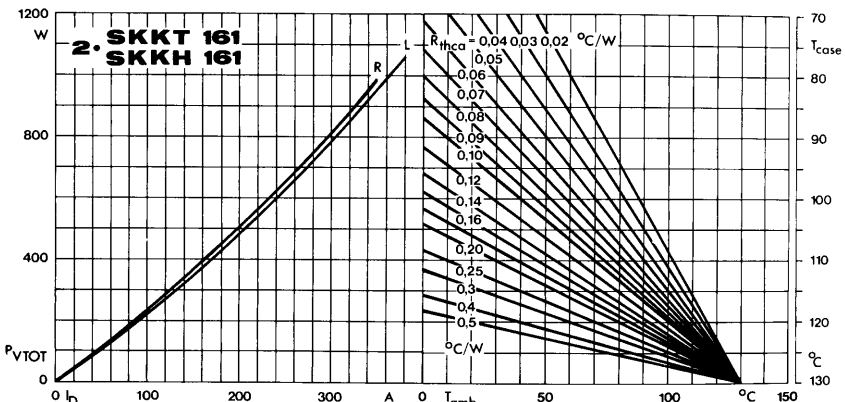


Fig. 3 b Power dissipation of two modules vs. direct current and case temperature

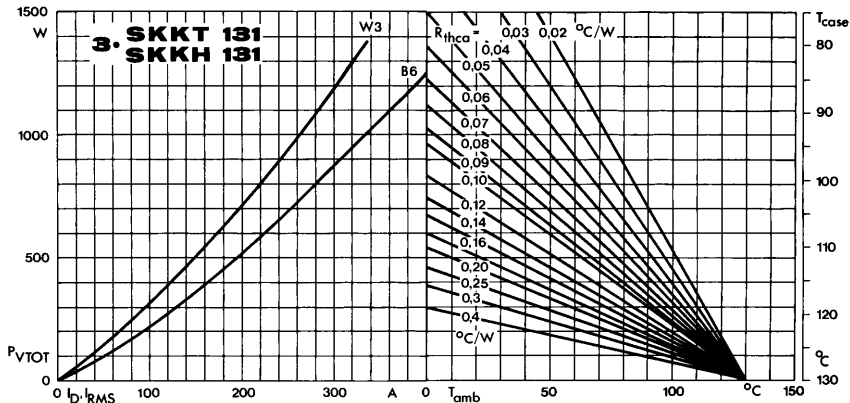


Fig. 4 a Power dissipation of three modules vs. direct and rms current and case temperature

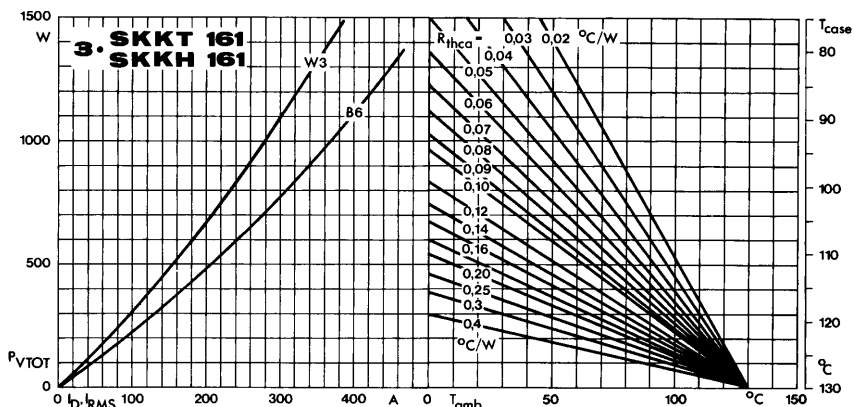


Fig. 4 b Power dissipation of three modules vs. direct and rms current and case temperature

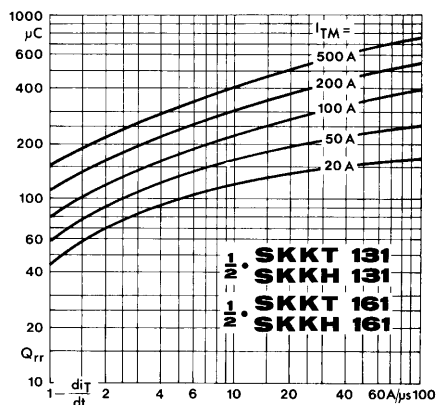


Fig. 5 Recovered charge vs. current decrease

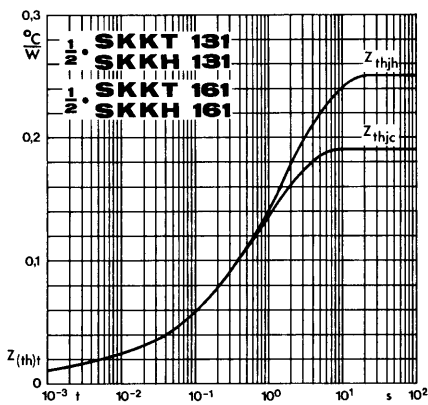


Fig. 6 Transient thermal impedance vs. time

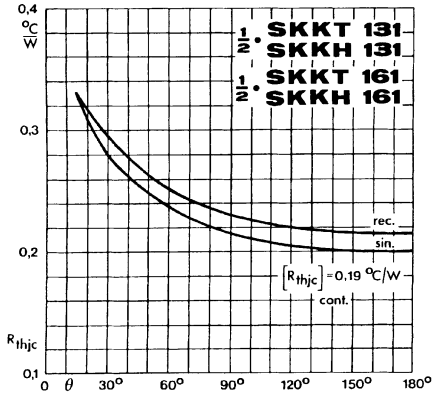


Fig. 7 Thermal resistance vs. conduction angle

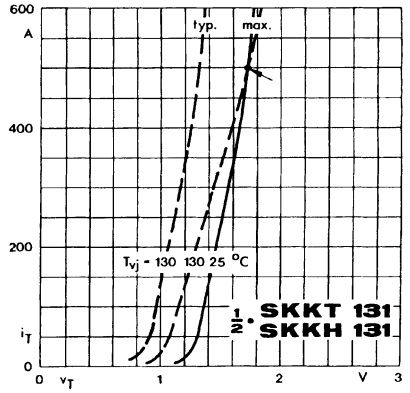


Fig. 8 a On-state characteristic

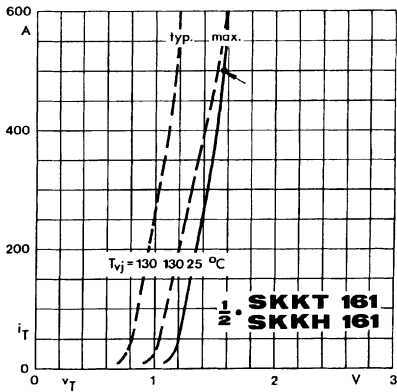


Fig. 8 b On-state characteristics

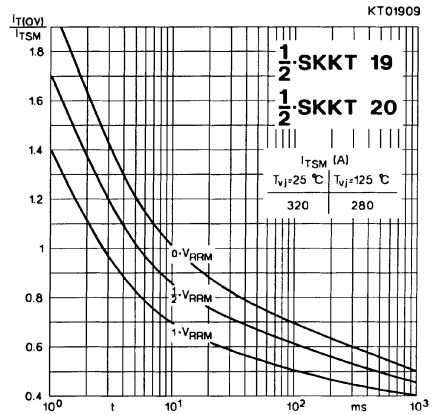


Fig. 9 Surge overload current vs. time

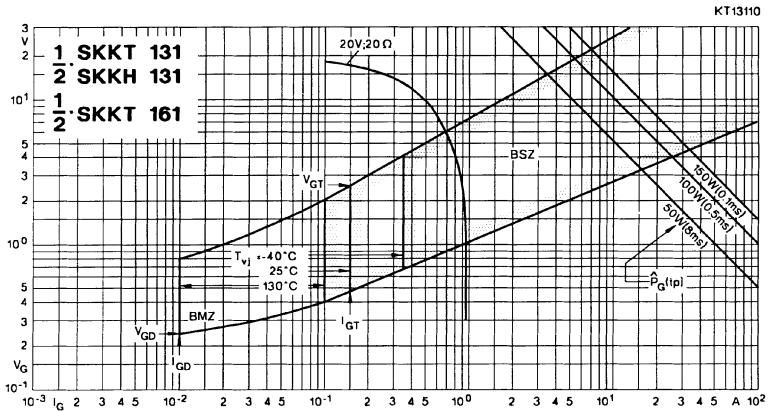
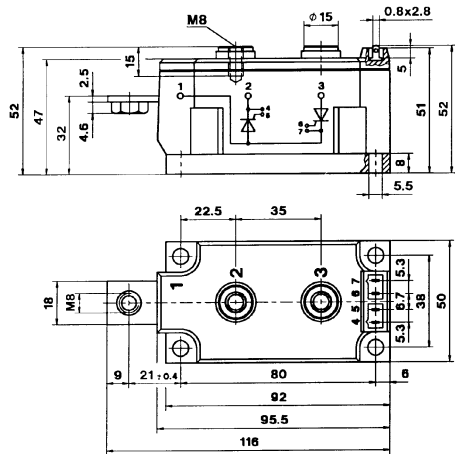


Fig. 10 Gate trigger characteristics

### SKKT 131, SKKT 161

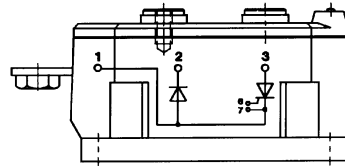
Case A 13

SEMPACK 3 UL recognized, file no. E 63 532



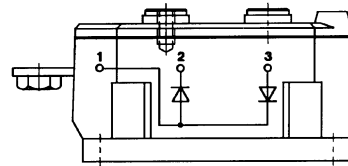
### SKKL 131, SKKL 161

Case A 15



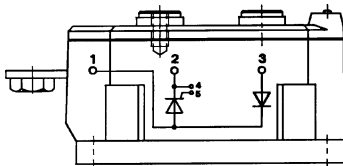
### SKKD 201

Case A 16



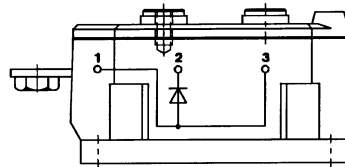
### SKKH 131, SKKH 161

Case A 14



### SKKE 201

Case A 17



Dimensions in mm