

# DATASHEET

**SEMIKRON**  
SKKT161/12D

**OTHER SYMBOLS:**

**RGB ELEKTRONIKA AGACIAK CIACIEK**  
**SPÓŁKA JAWNA**

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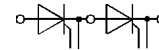
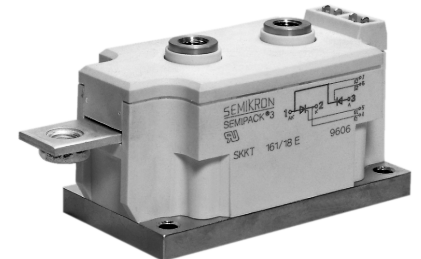
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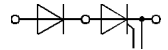
V <sub>RSM</sub>	V <sub>RRM</sub>	(dv/dt) <sub>cr</sub>	I <sub>T(RMS)</sub> (maximum values for continuous operation)			
			240 A	270 A	240 A	270 A
V	V	V/μs	I <sub>TAV</sub> (sin. 180; T <sub>case</sub> = . . .)			
			150 A (85 °C)	172 A (81 °C)	150 A (85 °C)	172 A (81 °C)
			<b>SKKT</b>	<b>SKKT</b>	<b>SKKH</b>	<b>SKKH</b>
900	800	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 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>	–

## SEMIPACK® 3 Thyristor / Diode Modules

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



**SKKT**



**SKKH**

Symbol	Conditions	SKKT 131 SKKH 131	SKKT 161 SKKH 161	Units
I <sub>TAV</sub>	sin. 180; T <sub>case</sub> = 81 °C	–	172	A
	85 °C	150	160	A
	92 °C	130	–	A
I <sub>D</sub>	B2/B6   T <sub>amb</sub> P 16/170 F	295/375	325/410	A
	= P 16/200 F	300/380	330/415	A
	= P 16/300 F	–/390	–/425	A
I <sub>RMS</sub>	W1/W3   35 °C; P 16/170 F	340/3x290	380/3x310	A
	P 16/200 F	385/3x312	385/3x337	A
	P 16/300 F	–/3x318	–/3x344	A
I <sub>TSM</sub>	T <sub>vj</sub> = 25 °C; 10 ms	4 700	5 400	A
	T <sub>vj</sub> = 130 °C; 10 ms	4 000	5 000	A
i <sup>2</sup> t	T <sub>vj</sub> = 25 °C; 8,3 ... 10 ms	110 000	145 000	A <sup>2</sup> s
	T <sub>vj</sub> = 130 °C; 8,3 ... 10 ms	80 000	125 000	A <sup>2</sup> s
t <sub>gd</sub>	T <sub>vj</sub> = 25 °C; I <sub>G</sub> = 1 A		1	μs
	di <sub>G</sub> /dt = 1 A/μs		2	μs
t <sub>gr</sub>	V <sub>D</sub> = 0,67 · V <sub>DRM</sub>			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./max.		150 / 400	mA
I <sub>L</sub>	T <sub>vj</sub> = 25 °C; R <sub>G</sub> = 33 Ω; typ./max.		0,3 / 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>T(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>RD</sub> = V <sub>RRM</sub> V <sub>DD</sub> = V <sub>DRM</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. } per thyristor /	0,19 / 0,09		°C/W
	sin. 180 } per module	0,20 / 0,10		°C/W
	rec. 120 }	0,22 / 0,11		°C/W
R <sub>thch</sub>		0,06 / 0,03		°C/W
T <sub>vj</sub> , T <sub>stg</sub>		– 40 ... + 130		°C
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 }	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 – 74	SKKT: A 13	SKKH: A 14	

### Features

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

<sup>1)</sup> See the assembly instructions

<sup>2)</sup> The screws must be lubricated

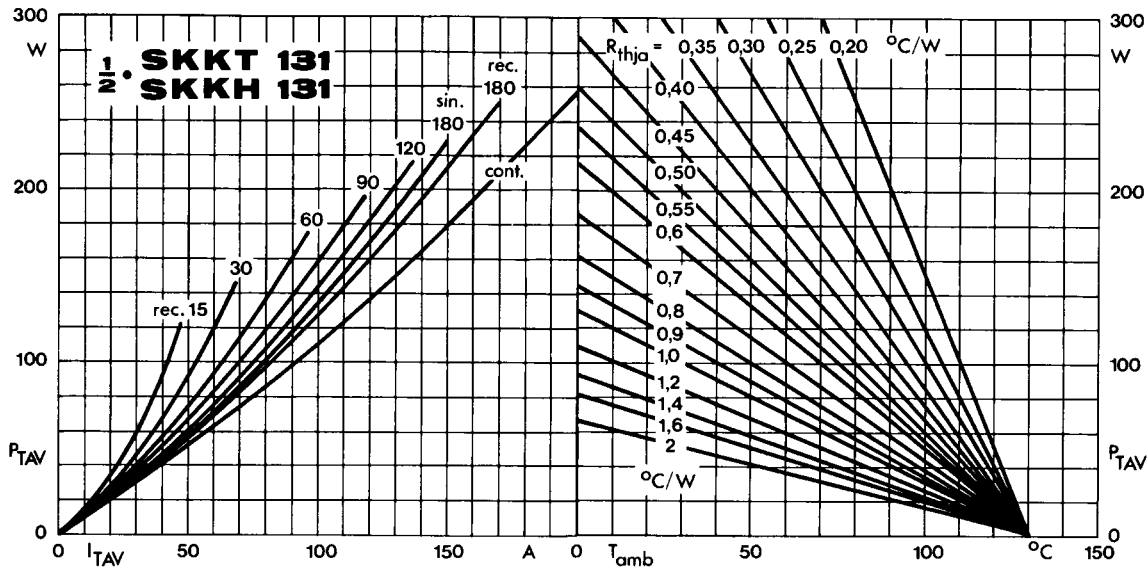


Fig. 1 a Power dissipation per thyristor vs. on-state current and ambient temperature

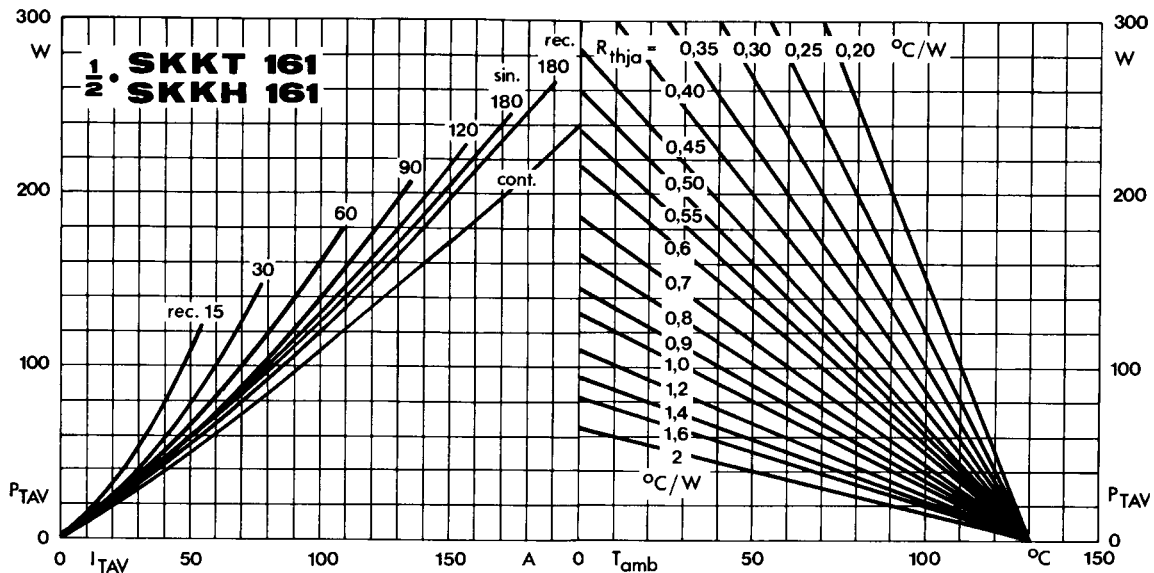


Fig. 1 b Power dissipation per thyristor vs. on-state current and ambient temperature

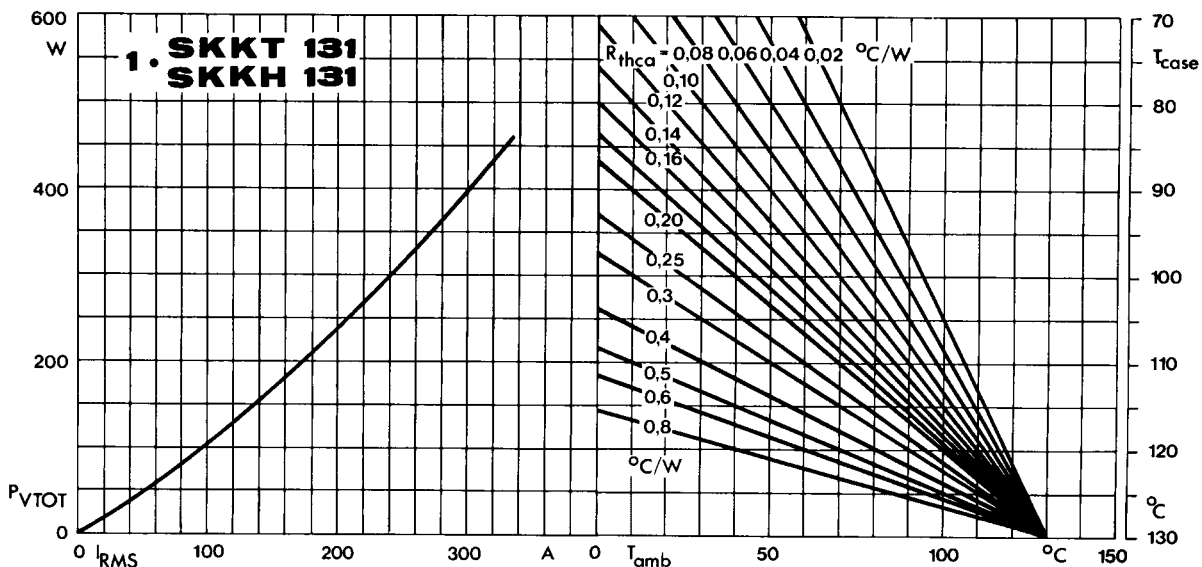


Fig. 2 a Power dissipation per module vs. rms current and case temperature

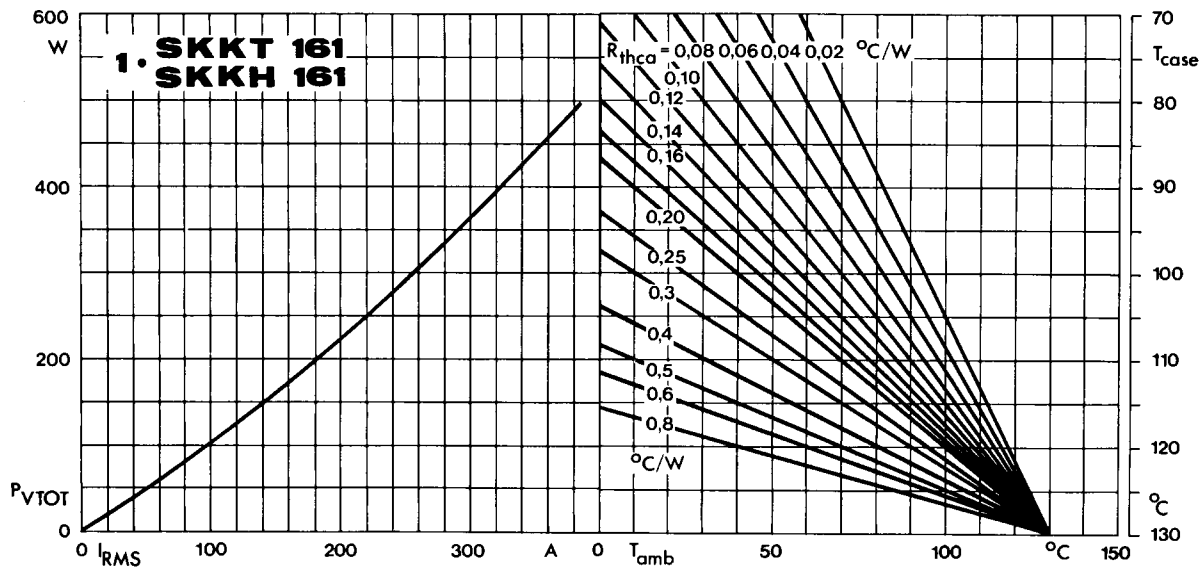


Fig. 2 b Power dissipation per module vs. rms current and case temperature

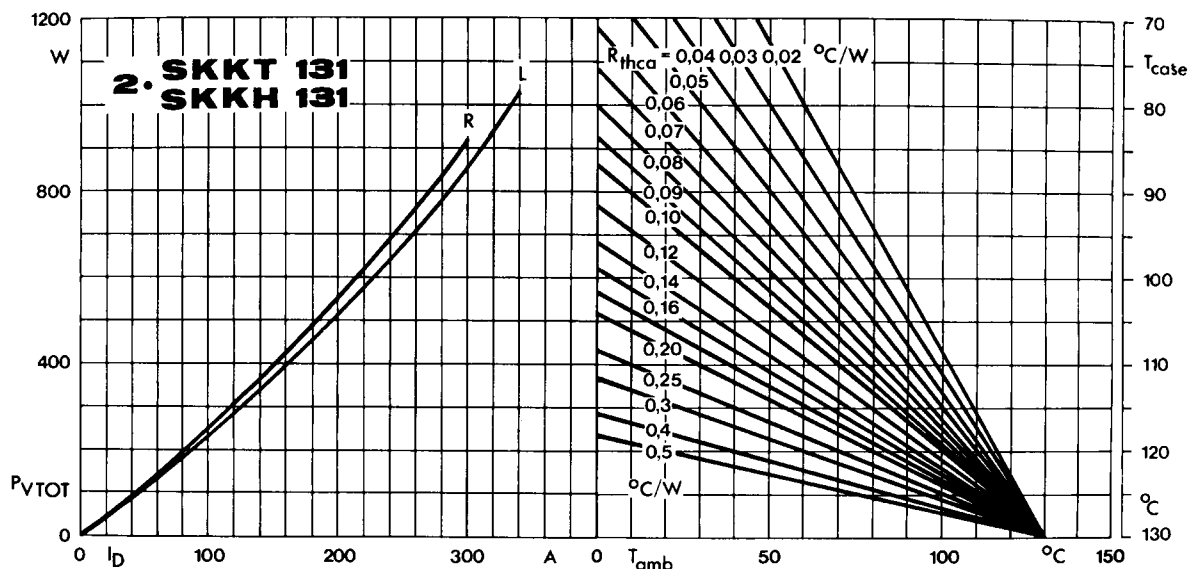


Fig. 3 a Power dissipation of two modules vs. direct current and case temperature

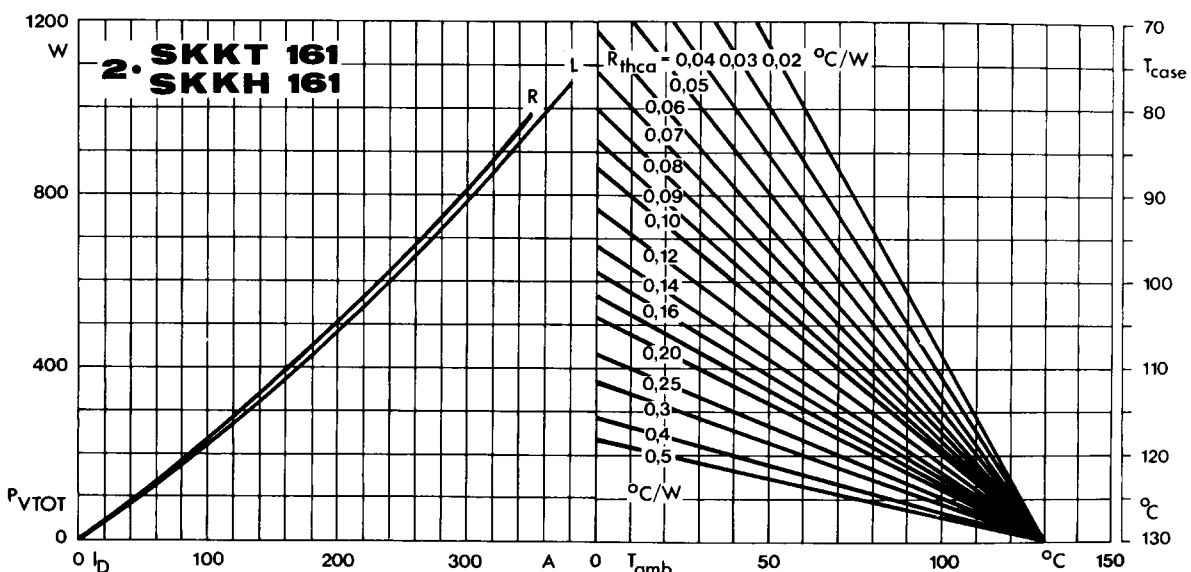


Fig. 3 b Power dissipation of two modules vs. direct current and case temperature

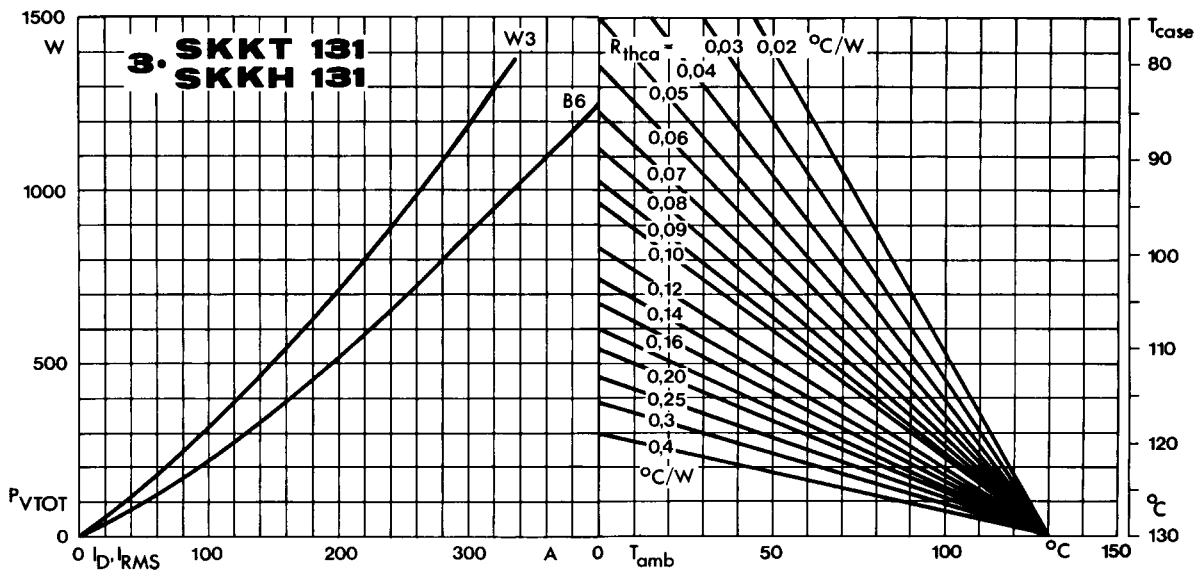


Fig. 4 a Power dissipation of three modules vs. direct and rms current and case temperature

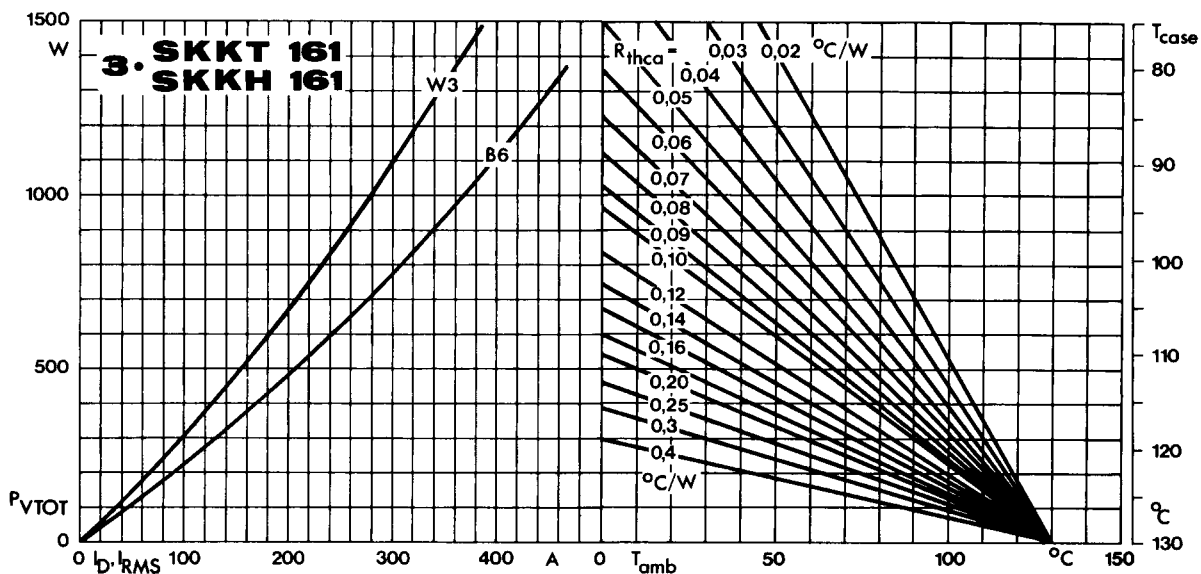


Fig. 4 b Power dissipation of three modules vs. direct and rms current and case temperature

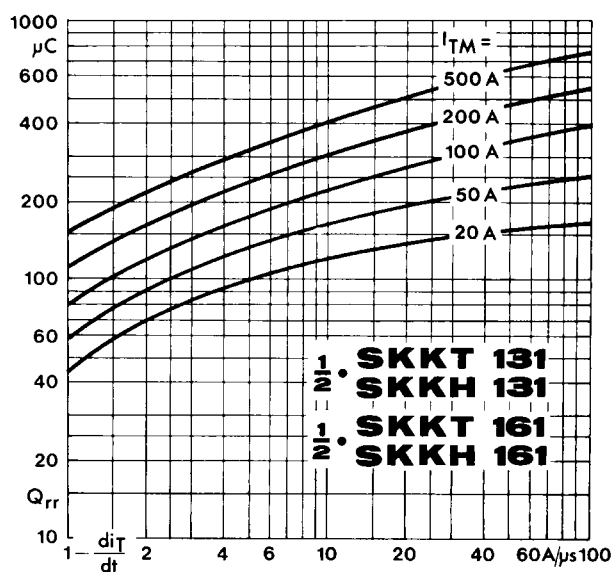


Fig. 5 Recovered charge vs. current decrease

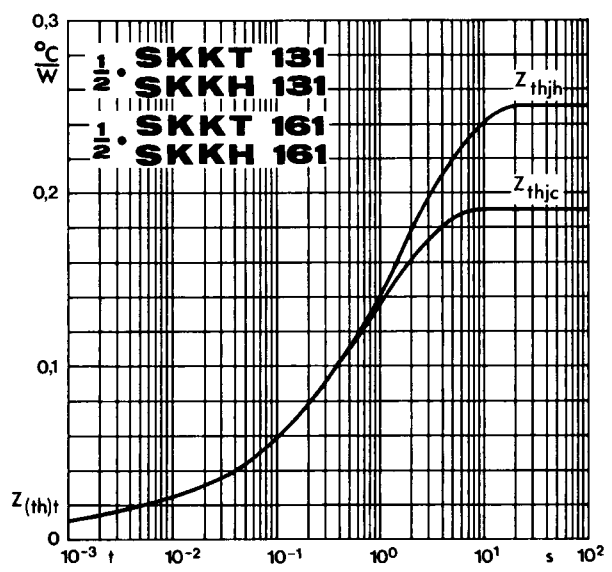


Fig. 6 Transient thermal impedance vs. time

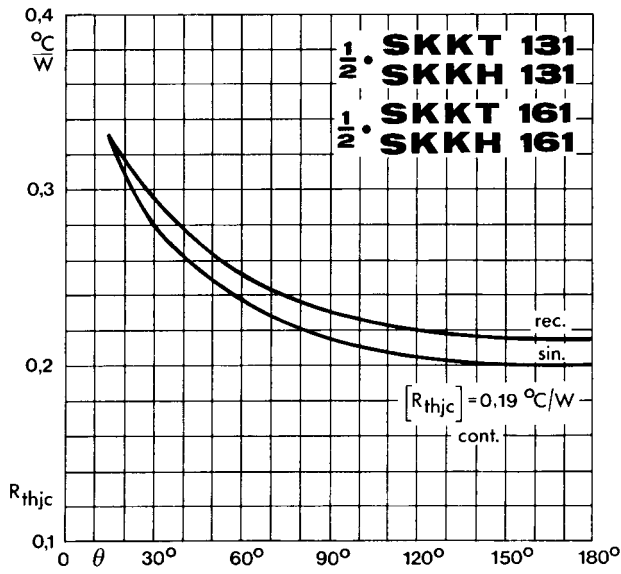


Fig. 7 Thermal resistance vs. conduction angle

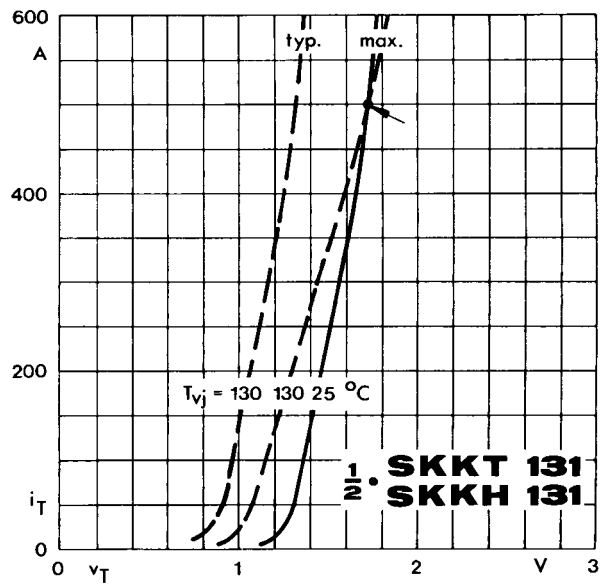


Fig. 8 a On-state characteristic

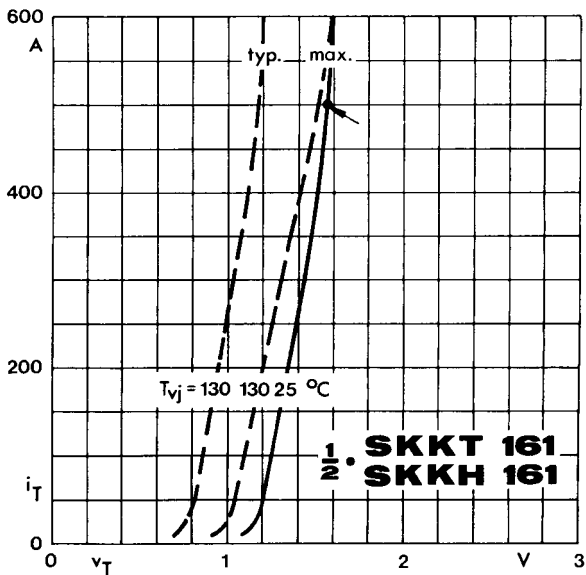


Fig. 8 b On-state characteristics

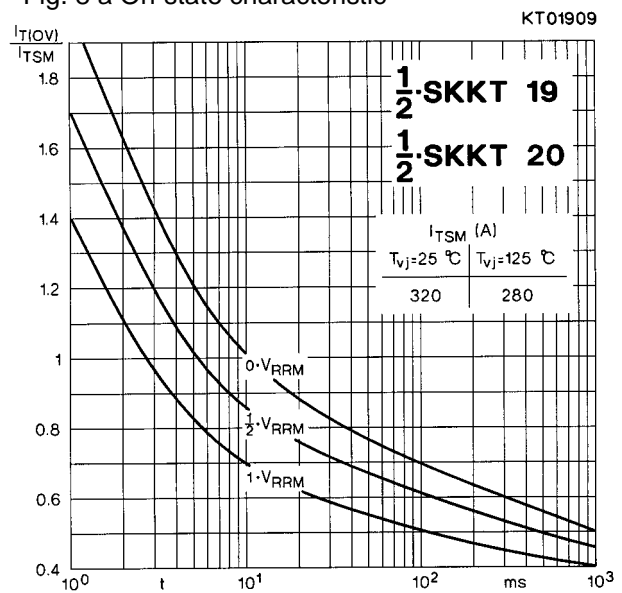


Fig. 9 Surge overload current vs. time

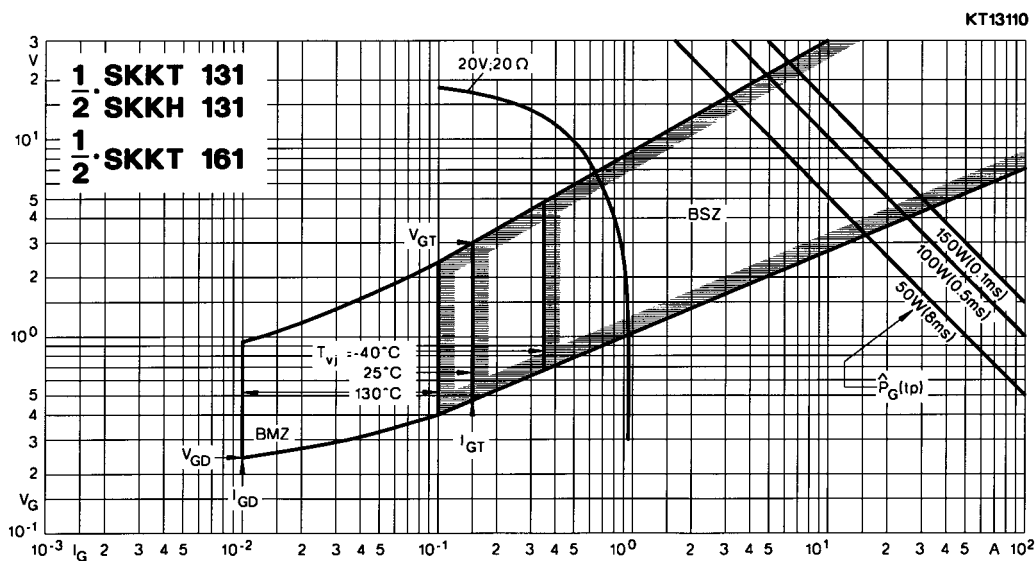
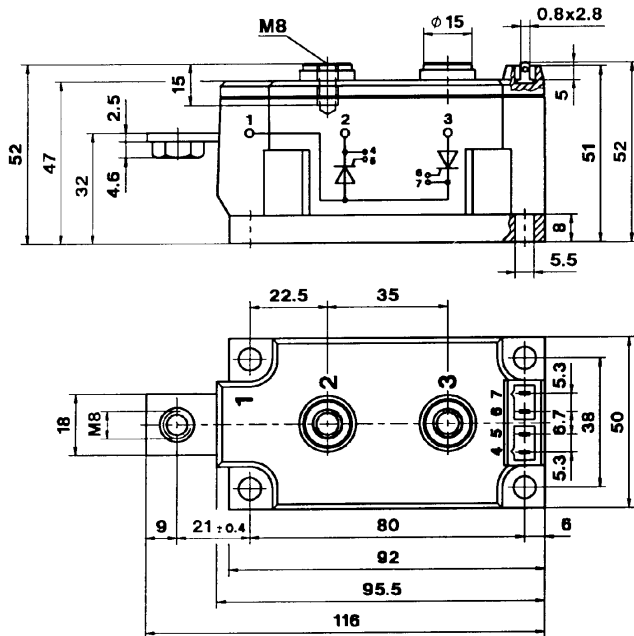


Fig. 10 Gate trigger characteristics

### SKKT 131, SKKT 161

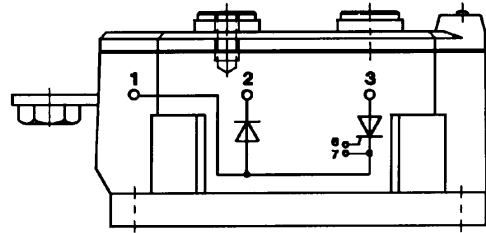
Case A 13

SEMIPACK 3 UL recognized, file no. E 63 532



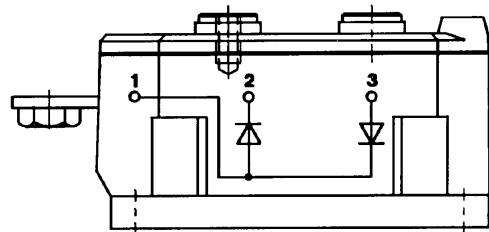
### SKKL 131, SKKL 161

Case A 15



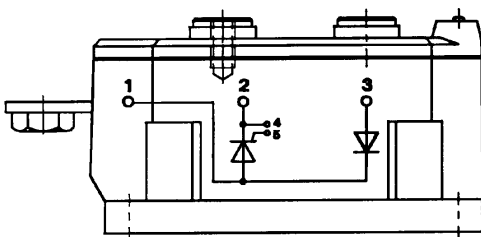
### SKKD 201

Case A 16



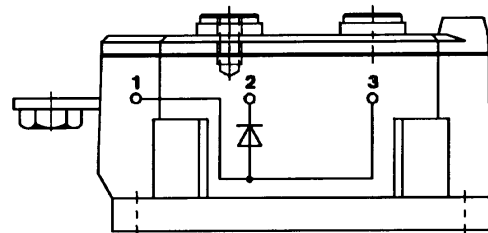
### SKKH 131, SKKH 161

Case A 14



### SKKE 201

Case A 17



Dimensions in mm